Samsung Electronics Environmental Report

Contents

Green Management Framework

Green Management Strategies

Development of Strategies

In its pursuit of sustainability through green management, Samsung Electronics has identified some major issues through internal and external environmental analysis. Furthermore, through studies on diverse risk factors, it has enhanced its internal competence and developed its green management strategies into the following process:

Strategy Development Process

- Identification of major environmental issues in the areas of economy, society and technology
- Gathering of stakeholders' issues

- Physical risks
- Regulatory risks
- Indirect risks
- Social/cultural risks

- Analysis of internal competence levels
- Identification of excellent external cases along with gap analysis

- Evaluation of stakeholders' degree of interest
- Evaluation of internal significance

- Development of (short-term / mid-long term) strategies
- Task derivation and KPI establishment

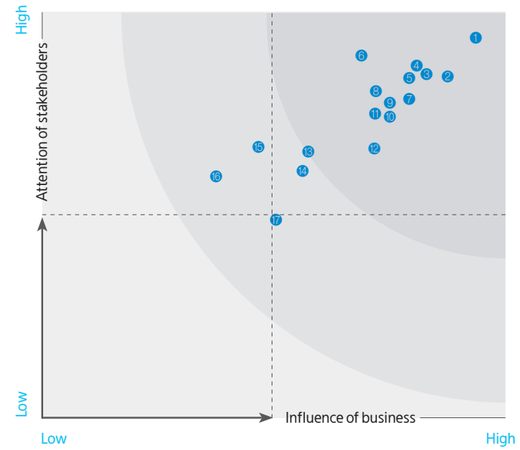
Key Risks and Management Activities

Type	Key Issues	Management Activities
Physical risks	Rise in price of raw materials and oil	• Installation of high energy efficiency facilities
		• Development of energy use reduction policies
	Intensified water shortage	• Implementation of water resource management strategies and water-related risk management structure
Regulatory risks	Implementation of nationa energy and greenhouse gas reduction policies	• GHG reduction activities at operation sites
		• Energy efficient product development and sales
	Strengthening of product-related regulations	• Regular monitoring of activities related to, and compliance with, regulations on energy, hazardous materials, and recycling
Indirect risks	Changes in market and industry	• Development of Eco-Products and strengthening of green marketing
	Increased competition for eco-technologies	• Development and utilization of eco-friendly materials
		• Release of innovative Eco-friendly products
Social/cultural risks	Changes in consumer preferences	• Expansion of consumer green marketing
		• Environmental communication with local community residents
	Increased stakeholder demands	• Increased stakeholder communication and response to demands
		• Responsive information disclosure

Materiality Test

Samsung Electronics has implemented materiality tests for the purpose of systematically managing major issues that affect its management activities. Critical issues identified while evaluating critical issues and its impact on business management in conjunction to the stakeholders' interest include environmental safety risk management, GHG emissions management, pollutant and hazardous substance management, and improvements in product energy efficiency. Communication with stakeholders and the management of product chemicals were also pinpointed as crucial areas. Samsung Electronics will reflect all of these findings in its establishment of long-term goals and the identification of improvement tasks across all aspects of the environment.

Green Management Materiality Matrix



Key Issues

1. Environmental safety risk management
2. GHG emissions management
3. Pollutant & hazardous substance management
4. Product energy efficiency improvement
5. Product chemicals management
6. Communication with stakeholders
7. Water resource management
8. Green management system
9. Electronic goods recycling
10. Voluntary compliance with international environmental standards
11. Eco-friendly product development system
12. Waste disposal management
13. Application of eco-friendly products and packaging materials
14. Green purchases
15. Product life cycle extension
16. Biodiversity protection
17. Green management policies

Green Management Vision and Mid-term Goals

Vision and Slogan

Our green management strategy enables us to grow sustainably and invest in the future of both humanity and nature. Samsung Electronics established its green management vision based on our underlying philosophy that we have a duty to help build a prosperous society and preserve the environment through business activities that respect people and nature. Our green management activities are reinforced under our slogan of 'PlanetFirst.'

Basic Philosophy, Vision, and Slogan of Green Management

Basic Philosophy	Contribute to building a prosperous society and preserving the environment through business activities that respect people and nature
Vision	Creating New Value through Eco-innovation
Slogan	'PlanetFirst' represents Samsung Electronics' commitment to sustainable development and social responsibility through eco-driven business and management activities.

Green Management Policies

Samsung Electronics is committed to leading the realization of a sustainable society. Through our green management activities, we are contributing to the prosperity of humanity and the conservation of the natural environment.

1. **Global Green Management System**
   We have established a top-class global green management system, ensure full compliance with all environment safety and health regulations at all our operation sites, and enforce strict internal standards.
2. **Life Cycle Responsibility for Products and Services**
   We take full responsibility for ensuring minimal environmental impact and maximum safety at all stages of the product life cycle including the purchase of parts and raw materials, development, manufacturing, transfer, product use and end-of-life cycle.
3. **Green Manufacturing Process**
   We have established manufacturing processes that minimize the release of greenhouse gas emissions and pollutants by employing the best available clean manufacturing technologies that enable efficient resource and energy management.
4. **Zero-Accident Green Operation Sites**
   We create recycling-centric production facilities and safe workplaces where waste materials are recycled and accident prevention measures are implemented to ensure the health and safety of all our employees
5. **Preservation of the Global Environment**
   We take action against climate change to preserve the environment and protect local communities. We disclose our green management policies and achievements to both our internal and external stakeholders.

Mid-term Plan (Eco-Management 2013)

In 2009, Samsung Electronics announced EM 2013 (Eco–Management 2013), its mid-term green management plan, at its green management declaration ceremony. The plan calls for the fulfillment of two key objectives: a 50% reduction in GHG emissions in terms of KRW-based sales, and a 100% launch of eco-friendly products that are eligible for global eco marks. Samsung Electronics is pushing hard for the success of nineteen detailed tasks in three major areas: Green products (Products), Green operation (Operation Sites), and Green communication (Communication).

EM2013 Core KPIs and Achievements

Area	Indicator	2012		2013 Goal
		Goal	Performance	
GHG reduction (Korea)	GHG emissions relative to sales (tons CO_2/KRW 100 million)	2.87*	2.54*	2.38*
Eco-Product development rate	Proportion of Good Eco-Products (%)	97	99	100
	Proportion of Good Eco-Devices (%)	87	88	100

* This is an adjusted figure resulting from the corporate reorganization (which involved the separation of the LCD division from the company and the integration of the LED business into the company) undertaken in April 2012.

Investment in Green Management

In order to consider economic profitability and environmental sustainability through green management, Samsung Electronics continuously monitors its green management investment costs. The company uses the information when planning to reduce environmental impact of its business activities and improve environmental achievements. Samsung Electronics is making investments in green management as follows:

Investment in Green Management

unit: KRW 100 million

Category	Investment Contents	2010	2011	2012
Investment in green facilities	Investments in facilities to prevent air and water pollution and reduce waste (i.e. the installation of underground wastewater treatment facilities at the Suwon operation site, and the replacement of transformers and LED lights at the Gumi operation site)	1,744	3,607	2,309
Site operation expenses	Expenses paid to operate pollution prevention and treatment facilities (power consumption, chemical, labor, accreditation, etc.)	3,626	3,423	2,606
Total		5,370	7,030	4,915

* The 2010 and 2011 figures include those for the LCD division while those for 2012 do not as the division was separated from Samsung Electronics to become Samsung Display Co., Ltd. in 2012

External Recognition

Samsung Electronics' continuous launch of eco-products and its efforts to reduce GHG emissions are very highly recognized in the international arena.

In 2009, Samsung Electronics was incorporated into the DJSI (Dow Jones Sustainability Index). In 2012, among the 3,000 largest global companies, it was rated as the top environmental performer in the semiconductor division. In recognition of the transparency of its GHG management statistics, it was incorporated into the CDLI (Carbon Disclosure Leadership Index) for the fourth year in a row in 2012, a first for a Korean company.

Samsung Electronics was honored with twenty-nine awards from around the world for its eco-friendly products and accomplishments in green management in 2012.

2012 Recognition of Excellence in Environmental Management

Name	Month	Contents
Kyunghyang Shinmun Sustainability Index	May	Ranked 3rd in environmental protection among Korea's 100 biggest companies
Best Global Green Brands ranking (Interbrand)	July	Ranked as the 25th eco-friendly brand among the world's 50 best eco-friendly brands
ESG Evaluation by the KCGS (Korea Corporate Governance Service)	Aug	Awarded 'class A' among Korea's listed companies in the area of environmental protection
Dow Jones Sustainability Index (DJSI)	Sep	Ranked No. 1 among 3,000 Dow Jones companies in the semiconductor sector against for environmental preservation
CDP (Carbon Disclosure Project)	Sep	Incorporated into the CDLI for four years in a row, a first for a Korean company
Newsweek Green Ranking	Oct	Ranked 7th in the technology sector among the world's 500 largest companies
The JoongAng Ilbo Green Ranking	Oct	Ranked No. 1 in the IT industry among Korea's 100 biggest companies for two consecutive years

2012 Environmental Awards

Region	Name	Host	Month	Contents
Global	SEAD Global Energy Efficiency Award	Clean Energy Ministerial	Oct.	The most efficient TVs in America, Europe, Australia and India (UE26EH4000, UE40EH5000)
Korea	Excellent Eco-label Company	Korea Environmental Industry & Technology Institute	Apr.	The Minister of Environment's award for excellent eco-label companies
	Korea STAR Award	Ministry of Knowledge Economy	May	Reusable refrigerator packaging material
	Green Star Certification Award	Korea Management Association	June	Washing machine, Refrigerator, Kimchi Refrigerator, Air conditioner
	Energy Winner Award	Consumers Korea	June	Totally 10 energy efficient products (TV, Monitor, Notebook, Refrigerator, etc)
	Korea Consumer Well-being Index Certification Award	Korean Standards Association	Aug.	Galaxy brand ranked 1st in the mobile phone sector
	Green Product of the Year	Green Purchasing Network	Oct.	Recognition for three consecutive years
	National Green Tech Award	Ministry of Knowledge Economy	Dec.	Prime Minister Award (20nm NAND flash memory technology)
U.S.A.	CES Eco-design Award	Consumer Electronics Association	Jan.	Notebook, Printer, Memory, LED lamp
	BLI Outstanding Achievement Award	Buyers Laboratory Inc	Jan.	Monochrome Printer Line of the Year
	Energy Star Award	Environmental Protection Agency	Mar.	Partner of the Year for two consecutive years
	TreeHugger's Best of Green Awards	TreeHugger	Apr.	Evergreen(SGH-A667) mobile phone
	Industry Pioneer Award	IERCE	May	Recognition for notable achievement for responsible recycling
	Environmental Leadership Award	City of Fresno	May	Recognition for excellence in promoting responsible recycling
	BGCA Partnership Award	Boys and Girls Club of America	Oct.	Recognition for supporting BGCA as energy efficiency education
	State Electronics Challenge Award	Northeast Recycling Council	Oct.	Recognition for promotion of responsible recycling for large institutions
U.K.	Which Energy Saver Award	Which Magazine	Sep.	Selected as the most energy efficient TV(55ES8000)
	Green Apple Award	Green Organization	Nov.	Solar powered notebook
Germany	iF Material Award	International Forum Design Hannover	Feb.	Eco-friendly material used in outer case of mobile phone
Italy	Friends of the Earth Award	Friends of the Earth	May	Energy efficient technology like the LED TV, LED ramp
	Lumen Award	Assodel	Oct.	Awarded in the energy efficiency category(55ES8000)
France	The Communication of Fair Biz Award	Ministry of Environment	Apr.	Recognition for recycling scheme of toner cartridge
China	Top Green Company Award	Daonong Center for Enterprise	Apr.	Recognition for green management in China
	Energy Conservation Award	Energy Conservation Association	May	Awarded for three consecutive years
	Energy Efficiency Star Award	Ministry of Industry and Information Technology	Sep.	Selected as high efficiency products (UA55ES6100, PS60E530A6R)
	Sustainable Development Award	The Economic Observer	Oct.	Recognition for the excellent eco-friendly products
	Green Medal Award	Business News	Nov.	Recognition for using the advanced technology in green products' research
Aisa	Asia Packaging STAR Award	Asian Packaging Federation	Oct.	Reusable refrigerator packaging material

CES Eco-Design Innovations Awards

In January 2013, four Samsung Electronics' products (notebook PC, printer, memory, and LED lamp) were awarded Eco-Design Innovation Awards at the CES 2013, the largest consumer electronics show in North America.

Product	Model	Eco-friendly characteristics
	Notebook (Series 9)	• Eco-Mode feature • Power-saving parts and high-capacity battery
	Printer (CLP-365W)	• Application of low-temperature printing toner • Support of eco-button printing mode
	Memory (DDR3 64GB LRDIMM)	• Memory module for low- power server • Reduced energy consumption compared to 50nm DDR3 RDIMM
	LED Lamp	• Remote-controllable power-saving LED lighting fixture • 75% energy reduction compared to an 60W incandescent lamp

Energy Star's 'Sustained Excellence' Award

For the first time in its history as a consumer electronics company, Samsung Electronics was awarded 'ENERGY STAR of the Year -Sustained Excellence', the highest honor, at the 2013 Energy Star Awards ceremony co-hosted by the EPA (Environmental Protection Agency) and the DOE (Department of Energy) of the United States. The awardees are chosen from among companies that have received 'ENERGY STAR Partner of the Year' on more than two occasions. Samsung is said to have been selected for its outstanding contributions to reducing GHG emissions through its launch of high-efficiency products and continuous efforts to reduce energy consumption in its manufacturing processes.

Green Management Implementation Structure

Consultation Organizations

Samsung Electronics has set up several green management consultation organizations and clarified their roles, responsibilities, and authority. The CS & Environment Center, under the direct control of the CEO, sets up green management strategies and monitors the progress of the company's key tasks; helps each operation site to establish policies to cope with climate change and to control GHG emissions from all of their work processes; and supports suppliers' efforts to implement green management. The center also controls all the company's green management activities including Eco-design, hazardous substance management, compliance with energy regulations, and E-Waste recycling. Meanwhile, the Environment & Safety Center takes a leading role in the implementation of green operations at the company's business sites across the world in close collaboration with the environmental safety departments of the operation sites. It also analyzes environmental safety risks at all its global operation sites and carefully follows changes in the global environmental regulations as well as different countries' national policies regarding environmental protection. To that end, it designates two employees (one leader and one assistant) at each operation site to take full charge of environmental issues including compliance with regulations and the promotion of eco-friendly activities.

Corporate Green Management Consultation Group

Name	Tasks	Head	Frequency
Environmental Safety Council	Discussions and decision making with regard to environmental safety policies	CFO	Biannual
Eco-Product Council	Establishment of plans and strategies for the development of high-efficiency eco-products	CS & Environment Center	Biannual
Environmental Safety Strategy Council	Strategic discussions about the entire company's environmental safety and healthcare issues	HR Head	Quarterly
Climate Change Working Group	Decisions on practical tasks for coping with climate change, and monitoring of their progress	Head of Environmental Strategies	Five times a year

Employee Training

In order to raise the employees' awareness of the importance of environmental management, Samsung is running a total of 32 green management courses in four major areas, i.e. basics, regulations, duties, and overseas.

On the understanding that green management can succeed only with the active participation of all its employees, Samsung Electronics educates its employees on a continuous basis for the purpose of ensuring that they fully understand the characteristics of the industry in which the company is involved and the significance of green management.

The basic course, which must be attended by all its employees, deals with the company's philosophy and policies. The regulations course covers legally required preventive measures against accidents and safety hazards. It is also intended for all employees as well as the personnel in charge of environmental safety at every operation site.

The duties course ensures that the employees charged with product environment and environmental safety at operation sites are equipped with expert knowledge about their duties. Finally, the overseas course is designed to educate the personnel at overseas product, sales subsidiaries, including local recruits, about all the environmental safety requirements and regulations with which they must comply.

Basics Course

Regulations Course

Duties Course

Environmental Achievement Management

Achievement Management and Employee Compensation

G-EHS System

Samsung Electronics operates the G-EHS (Global Environment Health Safety System) to systematically manage environmental safety information including the company's goals and achievements concerning the reduction of GHG emissions, compliance with product environment regulations, and environmental safety accident prevention. As a way of enhancing its competence, Samsung Electronics ensures that all the information on the company's green management efforts is shared among all the relevant departments, and that all the company's performances and accomplishments are monitored through the G-EHS.

Meanwhile, Samsung Electronics invigorates its green management by providing diverse compensation packages to organizations and individuals in recognition of their outstanding contributions to green management.

Each year, Samsung Electronics presents 'SAMSUNG GROUP Green Management Awards' to those of its operation sites and suppliers that have made outstanding achievements in the area of green management. Also, through the 'Samsung Electronics Annual Awards,' the company recognizes the contributions made by the company's organizations and individuals in the area of green management with prizes and additional points on their performance appraisals.

Environmental Cost Management

Samsung Electronics calculates its environmental effects and accomplishments in monetary terms, and discloses the results to all its stakeholders.

The information includes the analysis of cost effectiveness of green management in terms of economy and environmental protection; this is instrumental to the company's decision-making process.

The environment department at each operation site manages the funds required for environmental facilities and their operation. The environment strategy team at the CS & Environment Center tallies the costs and expenses of each operation site annually and presents the calculation of the entire company's total yearly costs and expenses.

The environmental costs of each operation site are tallied according to the guidelines of the Ministry of Environment. The information is revealed to stakeholders upon request. The environmental budget of every operation site is calculated and implemented in accordance with the rules associated with the entire company's management planning process.

Environmental Audit

Samsung Electronics carries out internal and external environmental audits in order to determine the current status of its green management and fix any potential problems.

The company examines the status of hazardous substance and energy management at each operation site annually. Through the eco-partner certification system, it regularly assesses its supply chain's environmental management status and makes any necessary improvements

When building or expanding its overseas production facilities, the company thoroughly reviews their impact on environmental safety. Each year it gets independent agencies to examine the entire facility infrastructure to ensure that the facilities qualify for the extension of their ISO 14001 and OHAS 18001 certificates.

Information Disclosure

Samsung Electronics' Official Website
http://www.samsung.com/us/aboutsamsung/sustainability/environment/environment.html

Through the publication of its annual sustainability report, Samsung Electronics discloses its green management strategies, goals and accomplishments in such areas as GHG emissions, eco-products, eco-friendly operation sites and communication with its stakeholders.
It makes all the above information available on its website so that stakeholders can consult it easily.
Samsung Electronics participates in the CDP (Carbon Disclose Project). It reveals all of its activities related to climate change response to its stakeholders. The fact that Samsung Electronics participates in the CDP means that it proactively discloses all the measures it takes to cope with climate change.
Set up in 2000 as a non-profit organization, the CDP assesses and analyzes the climate change response activities carried out by companies incorporated into the FTSE 100 Index and the progress they make. It has revealed the results to institutional investors around the world since 2003.
In 2012, through the CDP, a total of 655 global institutional investors, which together are estimated to be managing US$78 trillion in investment funds, were supplied with information on major global companies' actions on climate change and the progress they have made to date.

Support of Suppliers' Green Management

Support of the EMS (Environmental Management System)

Founded in 1981, the Samsung Supplier Council meets quarterly to deal with green management at its directors' meetings and subcommittee meetings. Through the e-CIMS (environment-Chemicals Integrated Management System), Samsung Electronics checks whether a supplier in question is EMS-certified and uses hazardous substances in its production process or not. The company eventually ensures that the supplier's products never contain any hazardous substances through its systematic approach to the issue.
Out of approximately 3,500 suppliers, 587 suppliers have obtained ISO 140001 certificates and are implementing systematic environmental management as of April 2013.

Partner Companies' Acquisition of the EMS (ISO 14001) Certification

Region	Korea	China	Asia	Others	Total
No. of Certified Companies	207	174	141	65	587

Green Purchases

Recognizing the importance of green production and consumption, Samsung Electronics established guidelines for the preferential purchase of eco-products and internal regulations for green purchase in 2007.
With the addition of the principle of preferential purchase to the company's existing product purchase regulations, Samsung Electronics urges its operation sites to purchase eco-friendly office supplies while recommending its employees to buy eco-products for their personal use. For the full details of green purchase, please refer to 'Green Purchase' on page ENV26, ENV27.

Management of hazardous Substances (Eco-Partner Certification)

Samsung Electronics implements an internal eco-partner certification system to minimize negative impacts in its suppliers' parts and materials. It helps them to continue to qualify as its eco-partners through diagnosis programs and education. Samsung Electronics tests all the raw materials of its more than 800 suppliers.
For details of Samsung Electronics' eco-partners, please see 'Management of Supply Chain Product Chemicals' on page ENV29.

Support for Reductions in GHG Emissions

Samsung Electronics supports its suppliers' efforts to reduce their GHG emissions in a variety of ways.
In 2012, it participated in the Energy Saving Collaboration Project between Large company and SMEs of their suppliers supported by the MOTIE. Samsung Electronics carried out energy diagnoses of five of its suppliers and presented them with more than 30 energy consumption reduction tasks.
The company will continue to support its suppliers' efforts to reduce their energy consumption.
For further details of the company's efforts to reduce its suppliers' GHG emissions, please refer to 'Suppliers' Emissions' on page ENV20.

Ban on the Use of Conflict Minerals

As a member company of the EICC, Samsung Electronics participates in the ban on the use of conflict minerals.
The company takes part in the EICC's major programs including the development of methods of investigating the use of conflict materials and the certification program for smelting factories. It urges its suppliers and other companies in Korea which are using the four major conflict materials to stop using them.
For details of the ban on the suppliers' use of conflict materials, please follow the links;
http://www.samsung.com/us/aboutsamsung/sustainability/suppliers/conflictminerals/

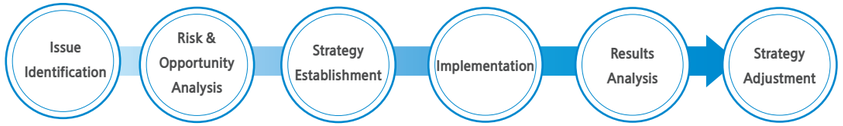
Climate Change Mitigation

Climate Change Strategies

Risks and Opportunities

Response Processes

With respect to the risks and opportunities involved with climate change, Samsung Electronics has set up a six-stage response process ranging from the identification of major issues to the adjustment of its strategies.



Analysis of Risks and Opportunities

Samsung Electronics conducts multi-faceted evaluations of the risks and opportunities involved in climate change. It determines the significance of the pertinent issues and rates their priorities under the following five criteria:

Criteria of Risk and Opportunity Analysis

Criteria	Details
Significance to stakeholders	Concerns of stakeholders such as customers, evaluators and NGOs.
Industry (competitor) benchmarking	Peers and competitors' reaction to the issue
Degree of impact on the company	Impacts on companywide policy, strategy, goal, and others, as well as direct financial impacts (i.e. short/medium/long-term financial impacts)
Company's internal competence	Having reasonable control over the issue, and degree of readiness in capital (HR & asset) to deal with related issues
Risk probability	Probability of events and amount of time left before potential enforcement of a regulation

Risk Management

Through its risk analysis process, the following climate change risks have been identified and the company has taken the appropriate countermeasures as follows:

Risk Management Activities

Category	Types of Risk	Risk Management Activities
Regulatory risks	• Management of emission goals and compliance with disclosure obligation • GHG emissions trading scheme • Regulations on product energy efficiency and labeling requirements • Uncertainty about new regulations	• Operation of GHG emissions reduction management system and third-party verification • Operation of GHG emissions trading scheme and establishment of the related system • Enhanced research on energy efficiency and increased energy mark acquisition • Strengthened monitoring system of worldwide environmental regulations
Physical risks	• Typhoons and yellow dust • Flooding and drought	• Risk identification and manual updates through regular, special and external investigations of operation site facilities
Other risks	• Reputational risks • Changes in consumer behavior	• Strategic response to the Eco-Product Exhibition and evaluations • Development of products by drawing on insights from consumer research

Capitalizing on Opportunities

Samsung Electronics has identified the following opportunities associated with climate change through its opportunity analysis process, and carried out the following opportunity creation activities:

Opportunity Creation Activities

Category	Opportunities	Opportunity Creation Activities
Regulatory Opportunities	• GHG Emissions trading scheme Product efficiency regulations and standards	• Promotion of CDM for operation sites and products and acquisition of GHG emissions rights • Launch of high-efficiency products enhanced
Physical Opportunities	• Rising demand for air conditioners due to surging average temperatures • Rising demand for improvements in water and indoor air quality	• Reinforcement of system A/C business • Aggressive launch of air purifiers and development of water treatment technologies
Other Opportunities	• Boosted brand values of low-carbon companies and their products • Increased necessity to reduce energy costs	• Expanded acquisition of low-carbon certification and labeling • Expanded application of BEMS (Building Energy Management System)

Management System

Samsung Electronics has organized its climate change response system as follows:

Climate Change Response System

Organization	Tasks	Head	Meeting Frequency
Environmental Safety Council	Establishment of strategies to tackle climate change and making of decisions concerned	CFO	Biannual
Eco-Product Council	Establishment of development targets and implementation strategies for new highly efficient low-power products	Head of the CS & Environmental Center	Biannual
Environmental Safety Strategy Council	Addressing major issues and strategies involved in climate change responses	Head of the HR Team	Quarterly
GHG/Energy Committee	Determination of specific implementation tasks for climate change response and management of the progress thereof	Head of the Environmental Strategy Team	Five times a year

Goals and Strategies

Climate Change Response Strategies

Samsung Electronics has set the GHG emissions reduction targets for its operation sites relative to KRW-based sales and those for the product use phase as its key goals. It pursues the goals in accordance with its implementation strategies. Samsung Electronics also manages the GHG inventory of its indirect sector (Scope 3) including employees' business trips, logistics, and suppliers' business activities. It fully supports suppliers' efforts to reduce their energy consumption.

Climate Change Response Strategies

Category	Strategies
GHG reduction at operation sites	• Installation of F-gas treatment facilities at semiconductor production lines
Energy management at operation sites	• Application of energy certification for new semiconductor facilities (since 2011) • Introduction of the Energy Management System (ISO 50001) to all global operation sites in 2013 • A 13% reduction in the energy cost ratio in 2013 compared to 2008 (1.01% → 0.88%)
GHG reduction at the product usage phase	• A 40% reduction in average product power consumption in 2013 compared to 2008 • Meeting the goal of less than 0.5W in standby power for all its products by 2013
Management of the GHG Scope 3 inventory	• Management of the GHG inventory from logistics, employees' business trips, and suppliers' business activities (since 2009)
Support for suppliers	• Energy diagnosis and consultation on suppliers' energy reduction efforts (since 2012)

GHG Reduction KPIs

Samsung Electronics is inevitably faced with certain restrictions on its efforts to reduce the absolute quantity of its GHG emissions because its turnover has been increasing by more than 10% each year in recent years. Thus, as its first GHG reduction KPI, it has selected the reduction of GHG emissions per unit sales. Although the absolute quantity has increased somewhat, Samsung Electronics is contributing to lessening increases in global GHG emissions by reducing its GHG emissions to generate the same value added by more than 50% in 2013 compared to 2008.

GHG Reduction Accomplishments

In 2012, Samsung Electronics' GHG emissions relative to KRW-based sales were 2.54 tons of CO_2 per KRW 100 million, or 15% less than the yearly target of 2.87 tons of CO_2. Until 2012, accumulated reductions in GHG emissions at the phase of product use were 58.34 million tons or 14% more than the targeted quantity of 51.08 million tons. The target for 2013 (EM2013), originally set in 2009, was almost accomplished in 2012.

GHG KPIs and Accomplishments

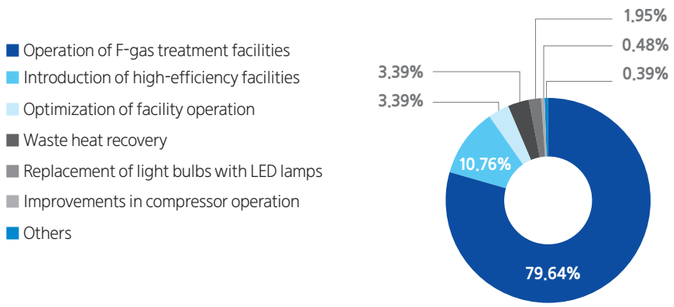
KPI	Description	2010	2011	2012**	2013**
Korea GHG emissions reductions relative to sales* (ton CO_2/KRW 1 million)	Goal	5.65	4.62	2.87	2.38
	Performance	5.11	4.46	2.54	-
	Reduction (%, compared to 2008)	31	40	47	50
Global accumulated reductions at the product use phase (unit: 10,000 tons)	Goal	1,169	2,695	5,108	8,468
	Performance	1,529	3,292	5,834	-

* Korea KRW-based emissions formula: Total CO_2 emissions(1) ÷ (HQ-based sales / price index(2))
(1) Total GHG emissions (converted into CO_2) from Korean manufacturing sites
(2) Producer price indices (PPI) released by the BOK for the years (basis value: 1 in 2005)
** The figures reflect the structural reorganization, including separation of the LCD business division and incorporation of the LED division undertaken in April 2012.
※ 2008 KRW-based base value: 7.44 tons of CO_2/KRW 100 million prior to reorganization and 4.75 tons of CO_2/KRW 100 million after reorganization.

2013 GHG Reduction Plans

In order to meet its GHG reduction goals for 2013, Samsung Electronics is implementing a variety of GHG reduction measures including the operation of F-gas treatment facilities, the introduction of high-efficiency facilities, and the replacement of lighting fixtures with LED lamps.

2013 GHG Reduction Plan



Breakdown of Corporate GHG Emissions

2012 GHG Emissions Breakdown

unit: 1,000 tons of CO_2

Scope 1& 2 Management

Scope 1 &2 Management Processes

Emissions Management System

Samsung Electronics has selected the global operation sites and buildings for which operational control management is practically possible as the objects of its GHG management. The selected sites and buildings include six manufacturing sites and 54 R&D facilities and buildings in Korea, and 28 production facilities and 76 non-manufacturing facilities for sales, logistics, or R&D overseas. The GHG emissions of all of these sites are tallied by the G-EHS, the company's environmental management system. The HQ department in charge keeps track of the performance of each operation site and, in the event that the reduction goal is not met, works on countermeasures together with the site in question. The GHG reduction goals and performances are updated on a monthly basis and shared through the G-EHS by all those concerned including the personnel at the operation sites, HQ staff and the company's top management executives.

Emissions Calculation Standards

GHG emissions in different countries are calculated according to the provisions of the GHG management guidelines of each country. Matters which are not covered by the national guidelines are determined by international standards such as the IPCC Guidelines and ISO 14604.

Scope 1 & 2 Emissions

In 2012, Samsung Electronics' absolute GHG emissions were reduced largely as a result of the restructuring undertaken in April 2012, i.e. separation of the LCD business division and integration of the LED division.
GHG emissions in 2011 amounted to 3.13 tons of CO_2 per KRW 100 million in sales, while the figure for 2012 was 2.54 tons of CO_2, showing a 19% decrease over 2011 with the structural reorganization reflected therein.
Each operation site is taking a variety of reduction measures such as introduction of process gas reduction facilities, enhancement of the energy efficiency of production facilities, and introduction of highly efficient facilities in order to meet their emissions reduction targets.

GHG Emissions Intensity

Unit: ton of CO_2 KRW 100 million

Location	Description	2010	2011	2012***
Korea*	Goal	5.65	4.62	2.87
	Performance	5.11	4.46 (3.13***)	2.54
Global**	Performance	4.15	3.70	2.34

* Korea KRW-based emissions calculation formula: Total CO_2 emissions(1) ÷ (HQ-based sales / price index(2))
(1) Total GHG (converted into CO_2) emissions from manufacturing sites in Korea
(2) The Bank Of Korea's PPI for the years (with the 2005 PPI being 1)

** Global KRW-based emissions formula: Total global CO_2 emissions ÷ (annual global sales / price index(2))

*** The figures reflect the structural reorganization, consisting of separation of the LCD business division and incorporation of the LED division, undertaken by the company in April 2012.

GHG Emissions(Scope 1,2)

Unit: 1,000 tons of CO_2

Area	Scope	2010	2011	2012**
Korea	Scope 1	4,057	3,924	1,943
	Scope 2	5,552	6,031	4,061
	Total	9,609	9,955	6,004
Global	Scope 1	4,155	4,045	2,098
	Scope 2	6,500	7,259	5,388
	Total	10,655	11,304	7,486

* The GHG emissions for 2009 onward were altered in June 2011 as required by the national guidelines on the GHG reduction goal management system. The changes were verified by a third party. The recent figures differ from the numbers given in earlier sustainability reaports accordingly.

** The figures for 2012 reflect the structural reorganization, consisting of separation of the LCD business division and incorporation of the LED division, undertaken by the company in April 2012.

Six Major GHG Emissions (Global)

Unit: 1,000 tons of CO_2

	2010	2011	2012
CO_2	7,012	8,378	5,943
CH_4	2	2	2
N_2O	212	220	278
HFCs	117	108	134
PFCs	915	859	1,015
SF_6	2,397	1,738	115
Total	10,655	11,304	7,486

Third Party Verification of GHG Data

The third party verification agency for Samsung Electronics is the Korean Foundation for Quality (KFQ). The objects of verification includeKorea and global GHG emissions. The period is from 2007 to 2012. .

The Third Party Verification Certificate for 2012 GHG Emissions


「삼성전자(주) 2012년 온실가스 배출량 보고서 대한 제3자 검증 의견서


Third Party's Verification Statement

GHG Reduction Activities

To meet both its own internal goals and those assigned by the Korean government, Samsung Electronics undertook almost 700 projects to conserve energy and reduce process GHG emissions worldwide in 2012. It reduced its GHG emissions by a total of 980,000 tons compared to BAU (Business as Usual).

Eighty-seven percent of the reductions came from semiconductor process gas treatment facilities. Thirteen percent came from the reduced consumption of electricity and LNG due to the introduction of highly efficient facilities, the reuse and recycling of waste heat and the improvement of operation methods.

GHG Reductions through Improved Efficiency of Air Dryer Facilities

Typically, 4% of compressed air is lost in the production of compressed air required for facility operation. To solve the problem, Samsung Electronics improved its pneumatic system with the introduction of a non-purge type of dryer among other elements, thereby saving a total of 6,132MWh of electricity and reducing GHG emissions by 2,859 tons.

GHG Reductions through the Introduction of F-Gas Treatment Facilities

In order to treat F-Gas, one of the six major greenhouse gases, used in semiconductor etching and vacuum evaporation processes, Samsung Electronics has installed F-Gas treatment facilities at each of its production lines since 2007. Recently, the company installed an integrated type of facility for new or expanded production lines. As a result, the company reduced GHG emissions by 850,000 tons in 2012.

GHG Reductions through Replacement with LED Lamps

In 2012, Samsung Electronics replaced the lighting fixtures at its operation sites and major office buildings in Korea with high-efficiency LED lamps. The replacement initiative also covered lamps outside facilities and buildings. Overall it saved about 5,160MWh of electricity and reduced GHG emissions by about 2,406 tons in 2012.

Scope 3 Management

Scope 3 Management Processes

Emissions Management System

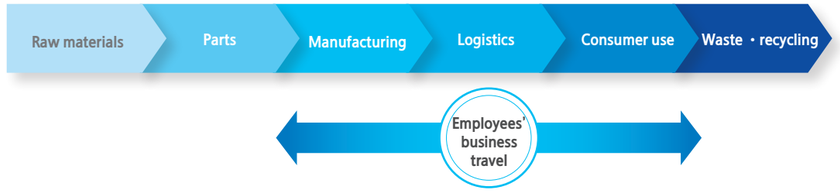
Samsung Electronics aims to identify the potential impact of climate change on its supply value chain and manage the associated risks, while taking advantage of potential business opportunities from such circumstances.

For its Scope 3 management range, the company has selected the emissions generated by its global suppliers' operation sites, product use, product and part logistics, and employees' business travel in Korea and overseas. It is currently planning to expand the range of Scope 3.

Suppliers' GHG emissions are measured through the activity data which they supply to the company. Emissions generated by logistics and business trips are supplied by internal systems for automatic calculation by the G-EHS.

GHG emissions during product use are calculated with the information on product energy consumption on the one hand and the product usage scenario on the other. The company adjusts its GHG reduction goals according to the improvements made in energy efficiency every year.

Scope 3 Management Range



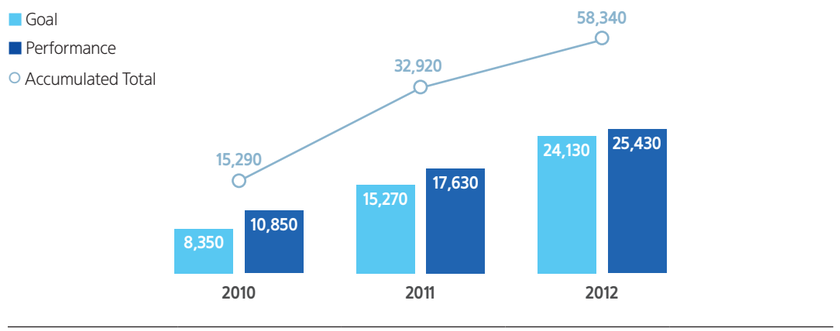
GHG Emissions from Product Use

Samsung Electronics defines the indirect GHG emissions from electricity consumed during product use as 'GHG emissions at the phase of product use.
The company converts the annual improvement effects of each product in terms of energy efficiency into GHG emissions reductions. Although its product sales increase every year, GHG emissions during product use have decreased due to improvements in the energy efficiency of Samsung Electronics' products. In 2012, Samsung Electronics improved its average product energy efficiency by 30% compared to BAU in 2008 and reduced GHG emissions by a total of 25,420 tons. Since 2009, it has indirectly reduced GHG emissions by an accumulated total of 58.34 million tons.

Emissions Calculation Standards: Corporate Value Chain (Scope 3) Accounting and Reporting Standard of World Resources Institute (WRI)

GHG Reductions at the Phase of Product Use

Unit: 1,000 tons of CO_2



* The calculation of the carbon reduction goal is based on the assumption of an annual increase of 10% in the company's sales since 2008.
** The calculation range: all products sold worldwide (parts excluded)

Example of GHG Reductions during Product Use

In January 2013, Samsung Electronics received approval from the United Nations Framework Convention on Climate Change (UNFCCC) for the UN's Clean Development Mechanism (CDM) project based on the sales of its highly energy efficient refrigerator range in India.
The CDM project is based on the tradable permit system authorized by the U.N. Once a country or company voluntarily makes investments in GHG reductions, obtains approval from the United Nations, and reduces its greenhouse gas emissions accordingly, the U.N. recognizes the amount as a CER (Certified Emission Reduction).
Samsung Electronics is recognized as having launched highly energy efficient products continuously, reduced consumers' energy bills, and contributed to reducing GHG emissions in communities through its voluntary investments. Samsung Electronics is planning to secure about 2.63 million tons of CER over the next ten years: It will compare the energy efficiency of all two-door refrigerators sold by various companies in India to that of Samsung Electronics' refrigerators sold in the country since 2010. It will then convert the electricity consumption saving into its GHG emissions reductions.

GHG Emissions from Logistics

Samsung Electronics monitors GHG emissions produced by product, materials and parts logistics.
The company's logistics emissions are rising every year owing to the marked expansion of its global business, including a burgeoning number of subsidiaries and increasing production and sales around the world.
In 2012, its logistics emissions increased by 20% over 2011 to 10.12 million tons. Yet the emissions relative to KRW-based sales decreased by 2% in the same period.
To reduce its logistics emissions and improve load efficiency, the company continues to launch ever lighter and slimmer products, endeavors to use low-carbon means of transportation, and develops optimal transportation routes.

Standards for Emissions Calculation: Corporate Value Chain (Scope 3) Accounting and Reporting Standard, World Resources Institute (WRI)

GHG Emissions from Logistics by Transportation Mode (Global)

Unit: 1,000 tons of CO_2

Description		2010	2011	2012**
Global	Air	1,250 (17%)	2,017 (24%)	2,952 (29%)
	Sea	6,071 (82%)	6,320 (75%)	7,086 (70%)
Korea	Rail/Road	111 (1%)	104 (1%)	87 (1%)
Total Emissions		7,432	8,441	10,125

GHG Emissions from Logistics by region (Global)

Unit: 1,000 tons of CO_2

Region	2010	2011	2012**
Latin America	784	1,980	3,942
Europe	2,078	1,646	1,626
North America	2,055	1,345	1,386
Asia	648	1,698	1,245
CIS	929	717	760
The Middle East	485	533	564
Africa	343	406	468
Oceania	110	116	134
Total Emissions	7,432	8,441	10,125

* Final destination based statistics
** The figures for 2012 reflect the structural reorganization, consisting of separation of the LCD business division and incorporation of the LED division, undertaken by the company in April 2012.

GHG Emissions from Employees' Business Travel

GHG emissions generated by employees' business travel are on the rise because of the company's business expansion and efforts to develop new markets.
However, Samsung Electronics has introduced initiatives designed to minimize such emissions. It has set up a companywide teleconference management system (WyzManager) in order to minimize the need for employees to travel overseas; and also encourages employees to use mass transportation for their business travel so as to minimize their contributions to GHG emissions.
In 2012, the company's employees in Korea contributed to generating 128,042 tons of GHG emissions during their business travel.

Standards for Emissions Calculation: (1) Corporate Value Chain (Scope 3) Accounting and Reporting Standard, World Resources Institute (WRI) (2)Carbon Footprint Guideline, Ministry of Environment, Korea (3) Calculation Tools for Employees' Business Travel

Emissions from Employees' Business Trips (Korea)

Unit: tons of CO_2

Description	2010	2011	2012*
Airplane	94,220	105,520	120,621
Car	5,621	5,849	6,219
Taxi	521	529	513
Train	384	411	415
Bus	239	288	274
Total Emissions	100,985	112,597	128,042

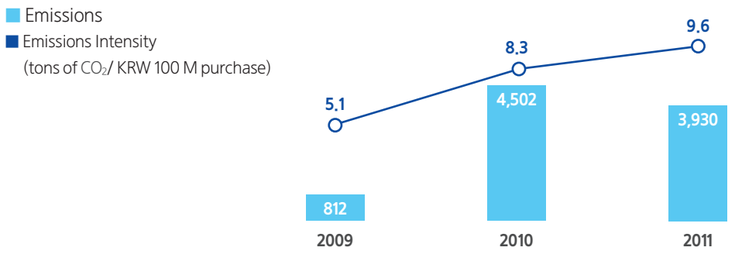
* The figures for 2012 reflect the structural reorganization, consisting of separation of the LCD business division and incorporation of the LED division, undertaken by the company in April 2012.

GHG Emissions from Suppliers

When calculating a particular supplier's GHG emissions, Samsung Electronics considers the proportion of the supplier's transactions with Samsung Electronics in its total sales volume. Samsung Electronics manages the emissions of more than 2,000 global suppliers that supply parts to the company. At the company's request they enter their activity data into the company's GHG Management System, which then calculates their emissions instantaneously. Those suppliers which responded to the 2012 emissions survey accounted for 65.4% of Samsung Electronics' suppliers in terms of suppliers' transaction volume with Samsung Electronics. Samsung Electronics began to investigate its suppliers' GHG emissions in 2009. As emissions per unit purchase have tended to grow, the company plans to analyze the causes and take measures once more detailed emissions data have been collected from the suppliers. Samsung Electronics supports the efforts of its suppliers to reduce their GHG emissions in a variety of ways. In 2012, the company joined the Energy Reduction Coalition between Large and Small Companies under the support of the Ministry of Trade, Industry and Energy, Korea. Through this coalition, large companies play the role of mentors to small enterprises with regard to energy audit and identification of their energy savings or GHG reduction challenges, with the support of the Ministry. Thus far, Samsung Electronics has conducted energy audit to five suppliers and proposed more than 30 improvement items including chilling pump inverter control and waste heat recovery. The company plans to expand the service to other suppliers and help them make significant progress in the area.

Suppliers' Emissions

Unit: 1,000 tons of CO_2



* The suppliers' GHG emissions in 2012 will be made available in the second half of 2013.
* The scope of the supplier survey has been changed as follows: 40% in 2009, 63% in 2010, and 65% in 2011 in terms of global purchase volume.

Operation Site Energy Management

Operation Site Energy Management System

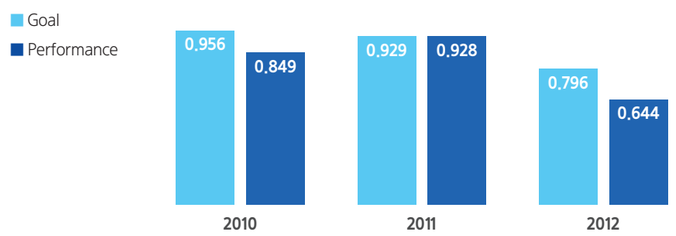
At Samsung Electronics, there is an exclusive department at each operation site that takes charge of its energy demand and supply management as well as its energy efficiency improvement activities. At the company headquarters, the Environmental Strategy Team at the CS & Environment Center gathers information on energy use companywide and analyzes the causes of increases and decreases in energy use on a monthly basis. It also issues data on the quarterly performances of each site. The company also promotes energy savings at operation sites through the bimonthly GHG & Energy Working Group Council Meetings, during which their performances are reviewed and exemplary cases are discussed comprehensively.

Energy KPI and Accomplishments

To reduce energy consumption, Samsung Electronics manages energy cost ratio and energy consumption as its KPIs. As Samsung Electronics' production output continues to grow, so does its energy consumption. The energy cost ratio is used to compare energy costs to sales volume, thus helping to identify changes in energy efficiency.
Samsung Electronics has been trying to bring down the ratio by 2.5% every year since 2009 in order to meet its target of 0.77% at the end of 2013. In 2012, it exceeded its annual target. The company's constant efforts to conserve energy include the optimization of the operation of its manufacturing and utility facilities, the introduction of highly efficient facilities, and the recovery of waste heat.

Energy Cost Ratio (Korea)

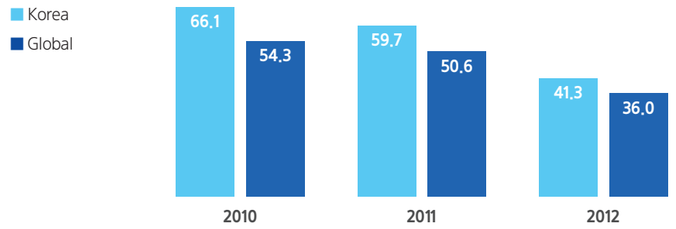
Unit: %



* Energy Cost Ratio(%) = Operation site energy costs in Korea / HQ turnover*100
** The figures for 2012 reflect the structural reorganization, consisting of separation of the LCD business division and incorporation of the LED division, undertaken by the company in April 2012.

Energy Consumption

Unit: GJ/KRW 100 M



* KRW-based energy conversion formula: Energy consumption(1) ÷ (HQ-based turnover / price index(2))
(1) Total energy (GJ) consumption
(2) Total energy (GJ) consumption
** KRW-based global energy conversion formula: total global energy consumption ÷ (global integrated sales / price index(2))
*** The figures for 2012 reflect the structural reorganization, consisting of separation of the LCD business division and incorporation of the LED division, undertaken by the company in April 2012.

Electricity and LNG Consumption

	Description	2010	2011	2012
Korea	Electricity (GWh)	11,894	12,925	8,697
	LNG (1M Nm3)	170	197	172
Global	Electricity (GWh)	13,435	15,047	10,926
	LNG (1M Nm3)	197	237	217

Energy Savings Activities and Accomplishments

Samsung Electronics conserved 140,000TOE of energy in 2012 by optimizing its manufacturing and utility facility operations, installing highly efficient facilities, and adopting waste heat recovery. As a result, it was able to save KRW 62.7 billion in energy bills and further reduce GHG emissions by a total of 300,000 tons.

To ensure systematic energy management at its operation sites, Samsung Electronics has established its own energy management system (EnMS), which monitors energy consumption and promotes energy savings against the established targets. The company is working hard to ensure that all its operation sites around the world obtain the ISO 50001 certification, an international platform for energy management systems, as early as possible.

All of its Korean operation sites acquired ISO 50001 certification between July 2011 and June 2012. For energy equipment and facilities to be used in its operation sites, the company implements its own 'Advance Certification System for Energy Efficiency' to ensure that facility suppliers deliver high-efficiency facilities to its operation sites.

Renewable Energy

Renewable Energy Expansion Plans and Activities

To reduce the use of fossil fuels and the generation of GHG emissions at operation sites and buildings, Samsung Electronics promotes the increased use of renewable energy by installing renewable energy generation facilities and purchasing green electricity and renewable energy certificates among others.

The company is planning to install 1MW of hydropower generation facilities and 1.4MW of photovoltaic power generation facilities at operation sites. It will continue to use more renewable energy in its buildings in North America and Europe, in particular.

Support for Clean Energy Policies [G20 G2A2 (Green Growth Action Alliance)]

G20 Business Summit

Launched at the G20 Business Summit in Mexico in June 2012, the G2A2 has been joined by more than 50 global companies including Samsung Electronics and various financial institutions of the G20 countries, as well as a number of influential international organizations. The G2A2 submitted its policy proposals for the promotion of global green growth to the G20 member governments. The policies for 2012 included the expanded use of renewable energy, the promotion of eco-product trade, improvements in energy efficiency, and accelerated investments in green growth by private companies. At the G20 business summit, Samsung Electronics reiterated its belief that low carbon green growth is both the only way for global companies to sustain their corporate sustainability, and the most promising engine of growth in the 21st century.

Commitment to Renewable Energy

Samsung Electronics joined the US EPA Green Power Partnership for its semiconductor production plant in Austin, Texas and its materials warehouses in Rancho Dominguez, California. In 2012, the company expanded the partnership to its entire operations in the United States including the buildings and production facilities throughout the country.

The company replaced 3.3% (28.5GWh) of its power consumption in the United States with renewable energy through the operation of photovoltaic power generation facilities and the purchase of green electricity and renewable energy certificates.

In 2012, the company also expanded its use of renewable energy in other countries to 28.7GWh, a marked improvement over the 25.6GWh used in 2011.

Furthermore, the company views renewable energy as a sustainable growth engine. It has invested in solar batteries, smart home appliances, geothermal heating, and cooling systems among other technologies. To contribute to the development and spread of smart grid technology, it is participating in the Jeju Smart Grid Demonstration Project which is being promoted by the Korean government.

A smart grid is a modernized next-generation electrical grid that uses information and communications technology to gather and act on information about the behaviors of suppliers and consumers among other types of data, in order to improve the efficiency of the production and distribution of electricity.

Launched in December 2008, the Jeju Smart Grid Project has already established the smart grid infrastructure for such key areas as electricity, telecommunications, automobiles and home appliances. Demonstrations are currently in progress.

Green Buildings

In order to reduce energy consumption by its buildings at home and abroad, Samsung Electronics is expanding the introduction of the BEMS (Building Energy Management System), which identifies waste factors in energy facilities and energy management processes and makes the integrated control of energy facilities possible.

The BEMS gathers and analyzes diverse information on energy management facilities in real time and improves energy efficiency instantly. At the end of the day, the system reduces energy consumption by 5~15% on average

Samsung Electronics plans to obtain major eco-building certificates including LEED (Leadership in Energy and Environmental Design) of the United States for its new R&D center buildings in Korea and abroad. To that end, the company reflects eco-friendly factors such as energy savings and renewable energy in its plans for new buildings and facilities.

In 2012, Samsung Electronics Suzhou China (SSEC) adopted BEMS for its operation sites and reduced their electricity consumption by 32.3% during a single year. Thanks to such outstanding accomplishments, the subsidiary received the Eco-friendly Green Energy Company Certificate from the Chinese government.

Samsung Electronics plans to expand the application of BEMS to its multiple buildings and plants in other countries around the world with the aim of making a significant difference in energy savings and GHG emissions reduction.

Eco-Products

Eco-Product Strategies

Goals and Strategies

Many countries are enhancing their policies to address environmental issues including the reduction of GHG emissions. Environmental regulations on products across a range of areas including energy (ErP: The Energy-related Products Directive), hazardous substances (RoHS: Restriction of Hazardous Substances Directive & REACH: Registration, Evaluation, Authorisation and Restriction of Chemicals) and recycling (WEEE: Waste Electrical and Electronic Equipment Directive) are continuing to expand, while consumers' concerns and requests about green products keep rising.

To respond to the ongoing expansion and reinforcement of product environmental regulations preemptively and reflect market demands swiftly, Samsung Electronics has set its goals and strategies for the development of Eco-products.

Under its mid-term green management plan EM 2013, Samsung Electronics has set the Eco-Product development ratio and the energy efficiency improvement ratio as its two key KPIs. According to the plan, Samsung Electronics will raise its Eco-Product development ratio to 100% by the end of 2013 and improve its product energy efficiency by a total of 40% over the figure for 2008 within the same period.

Accomplishments in Eco-Product Development

As of the end of 2012, Samsung Electronics raised its Eco-Product development ratio to 99% and improved its product efficiency by 31%, on average, compared to 2008.These accomplishments are attributable, in part, to its implementation of an Eco-Product rating system and its promotion of the development of low-carbon products since 2009.

Meanwhile, the company has obtained a number of major eco- and carbon-labels both at home and abroad thanks to its outstanding accomplishments in the improvement of electronic product energy efficiency. Samsung Electronics has secured an unparalleled competitive edge in the government procurement markets of many countries. Furthermore, through its unique eco-management initiatives, the company has continued to reinforce its eco-friendly corporate image.

Eco-Product Development Ratio

Unit: %

KPI	Description	2010	2011	2012	2013
Good Eco-Product Ratio	Goal	90	96	97	100
	Performance	91	97	99	-
Good Eco-Device Ratio	Goal	70	80	85	100
	Performance	72	85	88	-

Energy Efficiency Improvement Ratio

Unit: %

KPI	Description	2010	2011	2012	2013
Energy Efficiency Improvement Ratio	Goal	15	23	31	40
	Performance	16	26	31	-

※Energy Efficiency Improvement Ratio indicates the average energy efficiency compared to its improvement rate, which is applicable to eight major products of 2008

Eco-Product Development Processes

LCA (Life Cycle Assessment) and Eco-Design Process

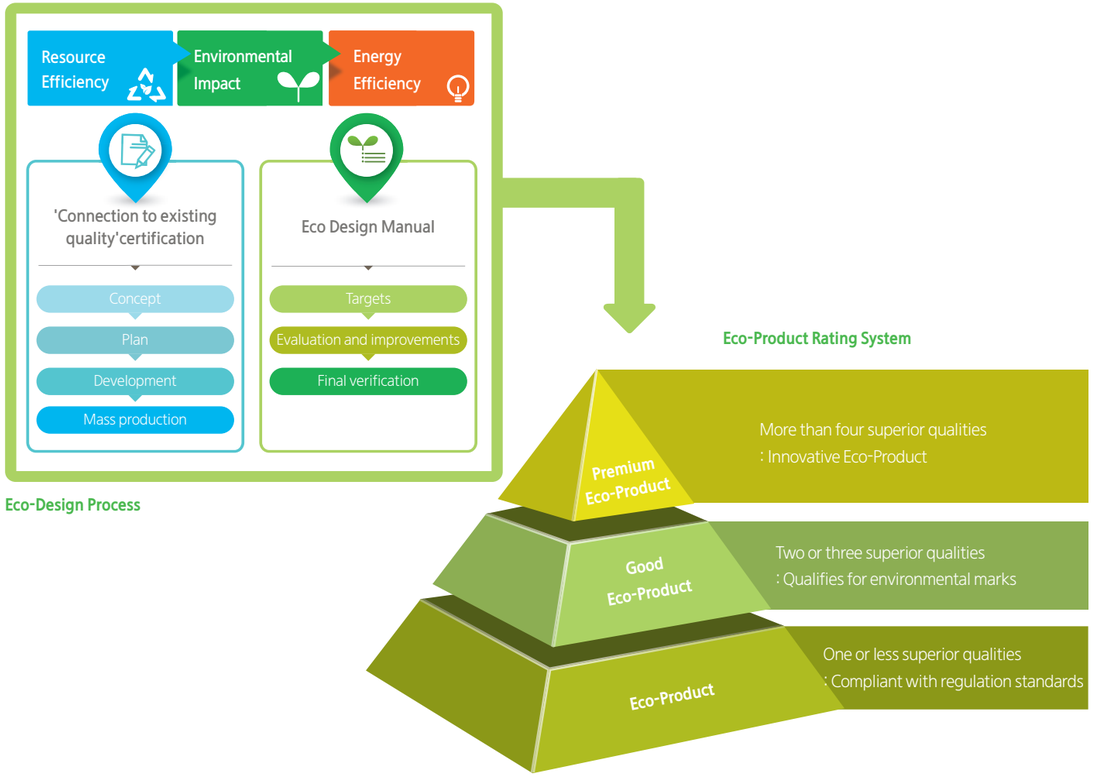
In 1995, Samsung Electronics began to implement the LCA (Life Cycle Assessment) according to the principle of EPR (Extended Producer Responsibility), which is also referred to as Product Leadership within the company. From then on, the company began to thoroughly investigate the potential impact of the entire lifecycle of new products on the environment in their R&D phase.

In 2004, Samsung Electronics adopted the 'Eco-Design Evaluation Process' and mandated the environmental impact assessment (EIA) of new products under development. In 2008, it established the EDS (Eco-Design System), and has since implemented the 'eco-friendly rating system' for individual development projects.

Eco-Product Rating System

Samsung Electronics evaluates the eco-friendliness of all of its products that are under development and classifies them into three groups: Premium Eco, Good Eco, and Eco. To that end, a product's eco-friendliness is evaluated in three major categories such as resource efficiency, energy efficiency, and environmental hazards. Then, its eco-friendliness is further observed in more than 40 areas such as recyclability; use of single materials and unbleached chlorine-free paper; nonuse of hazardous substances; and reduced power consumption including standby power. Samsung Electronics continues to expand the proportion of premium Eco-Products in its product portfolio.

Eco-Design and Eco-Product Rating Process

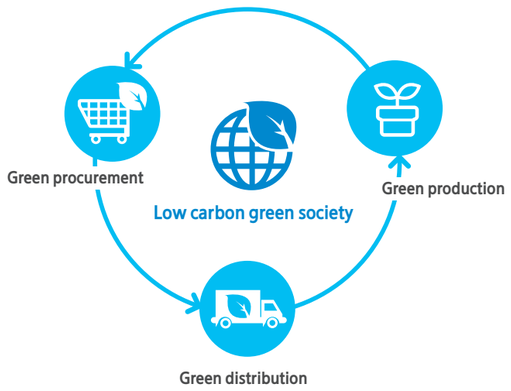


Environmental Responsibillity throughout Product Life Cycle

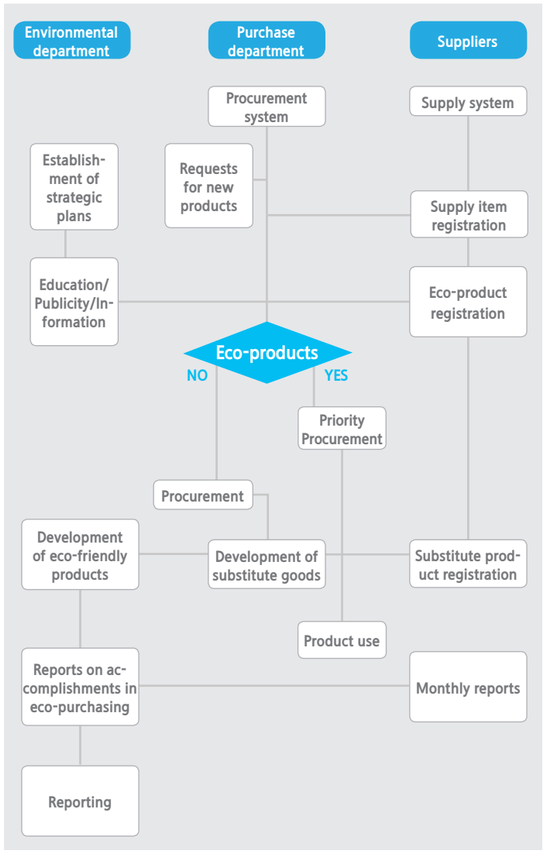
Green Procurement

Recognizing the importance of the corporation's role in promoting green growth through green production and green consumption, in 2007 Samsung Electronics established guidelines designed to give preference to Eco Products upon purchase of parts and materials from its suppliers. It also prepared its own Environmental Management Manual and Green Purchase Regulations in the same year. The company also set up a system that gives priority to Eco-products upon the company's purchase of office supplies and consumables. Samsung Electronics strongly urges its employees to purchase eco-products in their daily lives. Samsung Electronics signed the Voluntary Agreement on Green Purchasing with the Korean Ministry of the Environment (MOE) in 2005 as part of the first wave of companies to do so. As a company that has declared itself a green producer, Samsung Electronics does its very best to realize its commitments to green production through product stewardship and to green consumption by every means possible. The company has also established the 'hazardous substance management procedure' to ensure that it always purchases parts and materials free of hazardous substances as assured by the implementation of its own eco-product certification system for its suppliers.

Green Procurement Vision



Green Procurement Process



Green Procurement in Korea

Unit: KRW 1M

	2010		2011		2012	
	No. of Items	Amount	No. of Items	Amount	No. of Items	Amount
Parts with Reduced Hazardous Substances	Many	68,216,339	Many	75,115,246	Many	77,671,452
Green Products (Environmental certification, GR certification, etc)	409	86,538	445	38,590	362	55,733
Total	Many	68,302,877	Many	75,153,836	Many	77,727,185

Improvements in Product Energy Efficiency

Energy regulations on product power consumption including standby power are being strengthened on a continual basis across the world. Samsung Electronics closely monitors energy regulatory trends in major countries. The company continuously improves its product energy efficiency.
Samsung Electronics launches products with much higher energy efficiency than regulations require across the globe. According to its mid-term green management plan EM 2013, Samsung Electronics will improve the annual energy efficiency of its products by a total of 40% by the end of 2013 compared to the figure in 2008, and reduce GHG emissions during product use by a total of 84 million tons during that five-year period.

Accomplishments in Energy Efficiency Improvement

Between 2008 and 2012, Samsung Electronics reduced the annual power consumption of its eight major products by 31% and reduced GHG emissions by 25.43 million tons at the phase of product use.
The accumulated total of reduced GHG emissions during the same period was 51.08 million tons, and it is expected that the goal for 2013, 84.68 million tons, will be met easily. In 2012, Samsung Electronics launched products with markedly improved energy efficiency such as LED TVs equipped with ambient light sensors, PCs with eco-mode, refrigerators equipped with vacuum insulation, and high-efficiency compressors and drum washing machines armed with highly efficient motors.

Power-saving Eco Ambient Light Sensor

Eco ambient light sensor technology adjusts the brightness of backlighting according to the brightness around a product. When the surrounding brightness is high, the product brightness intensifies, and when the surrounding brightness is low, the product brightness dims.
The sensor installed in an LED TV saves energy consumption by as much as 53%.

Energy Efficient Eco Mode

Eco-mode technology enables computer users to check their power consumption through the watt meter installed in the system and decide if they want to conserve energy. The 'eco mode' conserves energy consumption by as much as 41% compared to 'normal mode' on an annual basis. Assuming that the average computer lifecycle in Korea is four years and the number of computers in use is 5.5 million, eco-mode computer usage reduces GHG emissions by 180,000 tons per year around the country, which is equivalent to planting 1.6 million trees.

Extension of Product Life Cycle

Samsung Electronics makes continuous efforts to extend product life cycles through improvements not only in terms of product performance but also in terms of product durability. An extended product life cycle eliminates the necessity of additional production, thereby cutting down on GHG emissions and preventing the waste of resources. Examples of the company's successes in extending its product life cycles include the Samsung drum washing machine motor, about which VDE(Verband Deutschle Elektrotrchniker) certified 20-year durability, and the Samsung Evolution Kit for its Smart TVs.

Drum washing machine motor certified for 20-year life cycle

Samsung Electronics received a 20-year life cycle certification for its drum washing machine motor from VDE (Verband Deutschle Elektrotrchniker) of Germany.
Established in 1893, VDE ranks among the world's most prominent independent testing organizations for electric and electronic products. The VDE certification center conducts numerous product tests annually and is very well known for its strict product quality testing. Thus the VDE mark is considered to be the symbol of the highest safety standards in the world. To see if there would be any deterioration in the functions and features of the motor over a long period of time, the VDE H/Q carried out testing on the motor for sixteen months under the same conditions in which consumers would use the washing machine. VDE certified the motor for an 'Official Credibility Period of 20 Years' claiming that the Samsung motor would be capable of 4,400 loads of laundry over 20 years based on 4.2 loads a week or 220 loads a year.

The Evolution Kit for Samsung Smart TVs

Typically, consumers replace their TVs every five to six years. Multimedia contents such as online games and video are increasing at an explosive rate every year. Consumers are willing replace their products in order to gain access to upgraded content. Such a short TV life cycle causes unnecessary production and related impacts on the environment.
Samsung Electronics unveiled its Evolution Kit at CES 2013 as the first device of its kind in the world. The main purpose of the kit is to extend the life cycle of TVs.
By simply attaching the Evolution Kit device to the back of a 2012 Samsung Smart TV, consumers can enjoy the latest features that the 2013 Smart TVs have to offer because the key features of the existing TV evolve into the latest ones. Therefore, all old Samsung premium TVs can be upgraded into the newest Smart TVs simply by installing the evolution kit.

Chemicals Management in Product

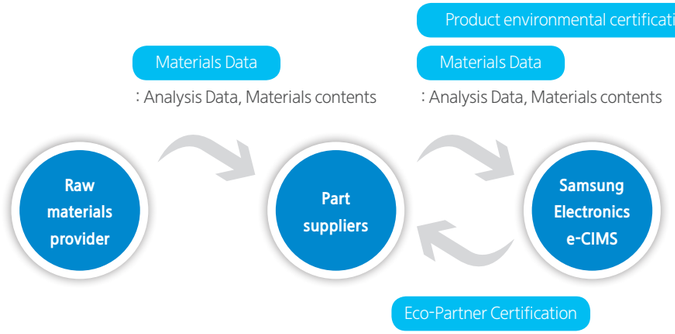
Product Chemicals Management Policies

Samsung Electronics has established a chemicals supply chain management system that strictly controls the chemicals to be used in its products. In addition to mandatory restrictions based on RoHS and REACH, the company has adopted the precautionary principle and voluntarily controls chemicals that are not yet subject to a legal ban but which might harm the environment nevertheless. Samsung Electronics manages both legally restricted substances and voluntarily restricted substances through the Standards for Control of Substances concerning Product Environment (OQA-2049).
In order to prevent 'controlled substances' from entering its products outright, the company strictly tests and controls all the materials and parts delivered to its operation sites.

Product Chemical Management in Supply Chain

For the control of hazardous substances throughout its supply chain, Samsung Electronics is implementing the Eco-Partner Certification System for all of its suppliers. The company only deals with those suppliers that have set up their own environmental management systems and passed the environmental tests conducted by Samsung on their parts and materials to be supplied to the company. For a supplier to qualify for the Samsung certification, it must meet the company's requirements concerning the control of hazardous substances in its parts and materials and fulfill the company's requirements concerning the environmental quality management system. The certified suppliers can renew their certification through Samsung's on-site evaluations or their own in-house evaluation procedure depending on the degree of risk involved in the parts and materials to be supplied to Samsung Electronics. To run its Eco-Partner certification scheme more efficiently, Samsung Electronics established the e-CIMS (Environmental-Chemicals Intergrated Management System), which controls hazardous substances incorporated into its global suppliers' parts and materials, in 2009. Through the system, the company obtains information on the material composition of the suppliers' parts and materials along with the data on their use or nonuse of hazardous substances, on the basis of which Samsung Electronics calculates the material composition and chemical contents of its products.

Chemical Management in Supply Chain



Accomplishments in Product Chemicals Management

Samsung Electronics has been running a world-class environmental analysis laboratory capable of analyzing hazardous substances and VOCs (volatile organic compounds) since 2005. The lab has received certification from US UL, Korea KOLAS, and Germany BAM as an internationally recognized analysis institution, thus securing international credibility for its published analysis data.
The analysis lab has standardized the analysis processes for not just regulated substances like phthalates and VOCs, but also for new substances for which regulation is anticipated in the near future. Thus far, it has secured a total of 80 analytical methods. Most notably, in order to comply with the RoHS directive, the lab restricts the use of six major hazardous chemicals (i.e. Hg, Pb, Cd, Cr6+, PBB and PBDE).
Regarding the 138 candidate substances on the EU REACG SVHC (Substances of Very High Concern) list, the company has completed content investigations for all of its products. Samsung Electronics discloses the relevant information on the company website whenever one of its products is found to contain more than 0.1% of a SVHCcandidate substance in terms of weight. In April 2010, the company removed PVC(Polyvinyl chloride) and BFRs(Brominated flame retardant), which are on its list of voluntary restrictions, from mobile phones and MP3 players across the world.
In January 2011, Samsung Electronics began to remove PVC and BFRs from its new notebook PCs. As for its TVs, monitors and home theaters, the company began replacing their PVC content in January 2011.

Eco-friendly Mobile Phone Certified by the Chinese Government

In July 2012, Galaxy S3 was awarded the Voluntary RoHS Certification by the Chinese government (the Ministry of Industry and Information Technology), the first such recognition given to a mobile phone by China's government.
First introduced by the European Union, RoHS is a directive on ecological conservation that bans the use of six hazardous substances, including four heavy metals (lead, mercury, cadmium, and chrome) and two flame retardants (PBBs and PBDEs, i.e. poly brominated biphenyls and polybrominated diphenylethers), in electrical and electronics goods.
With this certification, Galaxy S3 has won the title of the first eco-friendly mobile phone to be certified by the Chinese government.

Eco-Product Development Performance

Eco-Product Development

As well as releasing a great variety of eco-friendly products that reduce resource and energy consumption, Samsung Electronics minimizes the use of hazardous substances and features specialized eco-friendly technologies. In 2012, the company launched the following eco-friendly products:

Product	Model	Eco-friendly Characteristics	Product	Model	Eco-friendly Characteristics
	LED TV (ES6500)	• Korea Energy Frontier • Australia Super- efficiency • US TV ENERGY STAR 6.0 compliance • EU Energy Efficiency A+		Mobile phone (Exhilarate)	• 80% of the exterior composed of PCM(Post Consumer Material) • BFRs, beryllium, and phthalates Free • UL Environment Platinum Sustainable Product certification
	Monitor (S27B750)	• 17% reduction in power consumption over the previous model • US Monitor Energy Star 6.0 compliance		Mono printer (Polaris)	• Green technology certification • Power saving software • 30% reduction in power consumption
	Blu-ray Display (BD-E5300)	• 24% energy reduction over the previous model • US AV Energy Star 3.0 compliance		Note PC (NP900X3B)	• Ultra-thin & light • BFRs & PVC Free • Registered by EPEAT & Certified by TCO
	Refrigerator (RF263TEAESP)	• MOST EFFICIENT (DOE-30%) • US Energy Star Most Efficient (DOE: 30%) • Application of inverter compressor & vacuum insulation panels		Air conditioner (AF-HD253)	• Korea energy efficiency Class A • High-efficiency inverter
	Washing machine (WF455A)	• Lowest power consumption in North America (90kWh/y) • Low temperature washing technology		Camcorder (HMX-Q20)	• Vegetable-based ink printing manual • High-efficiency adapter

Take Back and Recycling

Take Back and Recycling Policies

Under the principle of 'Individual Producer Responsibility', Samsung Electronics does its utmost to reduce waste and maximize collection and recycling by adopting systematic approaches to the issue at both the design and production phases. Samsung Electronics has set up a 'E-Waste recycling system' for the first time in the electronics industry in Korea. Starting with the Asan Recycling Center established in 1998, the company now runs a total of seven recycling centers in Korea. Most notably, 1,500 sales centers and 20 regional logistics centers in Korea serve as collection agencies to transport end-of-life electronics to recycling centers.
In April 2010, Samsung Electronics joined BAN (Basel Action Network), a non-profit toxic watchdog organization of the United States, as an E-Steward Enterprise for the first time in the Korean industry.
BAN promotes the E-Stewards Certification program to ensure that exports of hazardous electronics waste to developing countries are eliminated. Samsung Electronics fully supports a ban on exporting hazardous waste to the developing world, and sending E-Waste to landfil. Since August 2012, Samsung Electronics has been participating in the Environmental Protection Agency's SMM (Sustainable Materials Management) Electronics Challenge at the Gold Level, the highest in the tiered structure, calling for more effective use of resources and the safe disposal of electronic waste.

Global Take back & Recycling Program

Globally, Samsung Electronics is running e-waste take back programs in more than 60 countries including the United States, Canada, India and many countries in Europe.
Launched in 2008, SRD (Samsung Recycling Direct), a voluntary recycling program in the United States, is running about 700 take back centers in all 50 US states. Over the border in Canada, Samsung Electronics is operating a total of 1,476 collection centers. In India, the company began a voluntary recycling program in 2010, and now runs 235 collection centers. For large household appliances, consumers can request take back simply by calling a Samsung call center. Recycling information is continuously supplied to the public on the company website. In May 2012, Samsung Electronics set up a take back system in Australia, and now collects waste mobile phones, TVs, PCs and printers among other appliances. Detailed information on take back and recycling around the world is available at the following company website: (http://www.samsung.com/us/aboutsamsung/sustainability/environment/takebackrecycling/howtorecyclesamsungproducts.html)

EUROPE
29 countries take-back & recycle

SOUTH AFRICA
service centers offer collection boxes

ASIA
Korea
take-back network among distribution centers and agents, Asan Recycling Center open since 1998

India
collection programs available since December 2009

China
collection available from 2012, recycling to be introduced in the near future

Japan
collection services, participation in recycling consortium

Taiwan
offers national recycling system

OCEANIA
Australia
collects televisions, computers, and printers for recycling, offers cell phone collection programs

THE AMERICA
Canada
16 points of collection

U.S.
Operate voluntary take back program across 50 states

Colombia
collection boxes at service centers

Brazil
collection boxes at service centers

Accomplishments in Global Take Back & Recycling

In 2012, Samsung Electronics collected and recycled about 320,000 tons of electronic waste.
As shown below, the take back quantity dropped by around 4% in Europe in 2012 in line with marked sales decreases in the region. However, with the launch of take back and recycling programs in Australia and India in July 2012, the take back volume is expected to grow continuously from 2013.

Global Take Back & Recycling Quantity

Unit: tons

Region	2010	2011	2012
Europe	219,948	245,838	230,492
Asia	60,923	54,233	53,089
North America	22,773	39,347	41,964
Total	303,644	339,418	325,545

Recycling Statistics (Korea)

Unit: tons

Category	2010	2011	2012
Products	57,218	51,940	49,677
Packaging	4,787	5,045	4,993

Recycling Statistics by Product (Korea)

Unit: tons

Description	Refrigerators	Washing Machines	Displays	Others	Total
Recycling Quantity	21,791	9,336	14,734	3,816	49,677

Reutillization of Resources (Korea)

Unit: tons

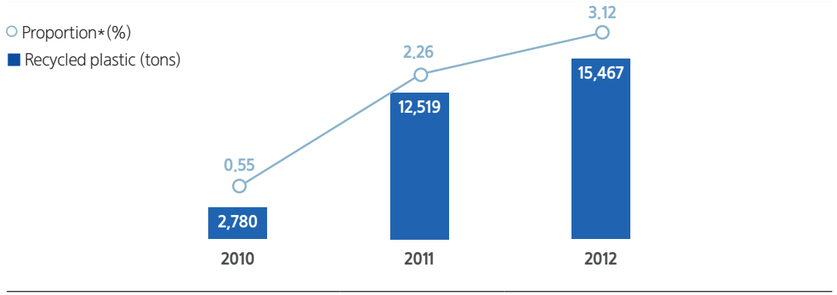
Recycled Resources	Scrap	Non-ferrous	Synthetic resins	Glass	Waste	Others	Total
Quantity	15,879	5,744	10,836	8,730	3,628	4,860	49,677

Recycled Plastic

Samsung Electronics is planning to increase the proportion of recycled plastic in its total use of resin to 3.4% by the end of 2013 and to 5% by 2015 in order to promote more aggressive resource recycling and improve resource efficiency.
Recycled plastic is used mostly in washing machines, refrigerators, air conditioners and vacuum cleaners. The use of recycled plastic has recently been expanded to the company's overseas operation sites, too. Recycled plastic has begun to be partially used in mobile phones and monitors. In 2013, the use of recycled plastic will be further expanded from home appliances to IT products like mobile phone chargers and printers.

The Use of Eco-friendly Packaging Materials

Recycled Plastic



* 'Proportion' means the ratio of recycled plastic in the total quantity of resin used.

Shrink Packaging

In May 2010, Samsung Electronics began to use shrink packaging for its drum washing machines. It now uses the technique for refrigerators, microwave ovens and dishwashers.
With shrink packaging, a product is wrapped with a buffer material followed by LDPE shrink film, before compressing the ensemble with heat. This technique reduces the weight of packages by an average of 44% compared to paperboard packaging, thereby reducing transportation costs and cutting down GHG emissions from transportation, too.
It is also estimated that the emissions of air pollutants like formaldehyde and TVOCs (Total Volatile Organic Compounds) are reduced by 77% and 21%, respectively, with the adoption of this innovative packaging technology.

Shrink Packaged Products


refrigerator


washing machine


microwave oven


dishwasher

Recycled Packaging Materials

Since November 2012, Samsung Electronics has been using packaging materials made of porous polypropylene, which can be used more than 40 times instead of just once packaging. By saving tape and Styrofoam, Samsung Electronics has reduced its TVOC use by over 99.7%. It is estimated that this measure alone will reduce CO_2 emissions by 7,000 tons per year, which is equivalent to the effect of planting an additional 60,000 trees.


Recycled Packaging Materials

Environmental Certification

Eco-friendly Vinyl Packaging Materials

Robotic Vacuum Cleaner Battery wrapped with Eco-friendly Vinyl

Vinyl used for packaging tends to end up in streams or ground soils as a serious source of environmental degradation.
Samsung Electronics began to use eco-friendly vinyl packaging materials in December 2012.
The new vinyl product contains oxo biodegradable additives that cause the plastic to fragment into pieces.
Starting with the battery for its robotic vacuum cleaner, Samsung Electronics is planning to expand the use of these packaging materials to other products.

Global Environmental Certification

By the end of 2012, Samsung Electronics had received environmental certification marks for a total of 2,926 of its product models, the highest number for any company in the global electronics industry, from the world's top-ten environmental certification organizations in such countries as Korea, the United States, Sweden and China.

Global Environmental Certification Marks Received

as of the end of 2012

Region/ Country/ Group	Korea	China	USA	EU	Germany	Total
	809	632	380	267	99	
2012	Sweden	Northern Europe	Canada	Taiwan	UL/CSA	2,926
	557	101	59	5	17	

Global Carbon Footprint Labeling

Samsung Electronics measures the carbon emissions from all of its production processes, addresses any issues involved immediately, and continues to work hard to minimize them. Typically, GHG emissions from product use take up a bigger proportion than any other in the entire life cycle of an electronic product.
The company's efforts to reduce power consumption and GHG emissions, therefore, start right at the design phase in order to improve product energy efficiency. By securing carbon labeling and low carbon product certification for its products, the company has dominated government procurement markets while consolidating its environmental leadership role in the private sector. Apart from its efforts to develop low carbon eco-products, the company continues to strive for the galvanization of its roles in the Korean carbon labeling system. The company was instrumental in establishing Korea's carbon labeling system as initiated by KEITI (Korea Environmental Industry & Technology Institute) in 2009. At the end of 2012, Samsung Electronics was certified for its ability to implement carbon labeling certification tasks for itself by the organization.

Certification for Preliminary Carbon Labeling Verification Activities

In December 2012, Samsung Electronics was certified by KEITI (Korea Environmental Industry & Technology Institute) for its preliminary verification ability for an eventual carbon labeling by the agency.
Samsung Electronics now measures its own carbon emissions throughout the manufacturing processes of tablet PCs and other mobile devices, for instance, and gets approval for the measurement from the country's certification organization. This arrangement is expected to significantly reduce the time and costs previously borne by the company to obtain carbon labeling.

Certification in Korea

Samsung Electronics has proactively participated in KEITI's carbon labeling schemes. As of the end of 2012, the company had received KEITI certification for 47 models in 12 product groups including such products as mobile phones, monitors, PCs, and air conditioners, and parts like LED and semiconductor memories. 'Low-carbon product certification' is given by KEITI to those products whose carbon emissions have been reduced compared to previous models. Samsung Electronics has received the certification for seven models in four product groups.

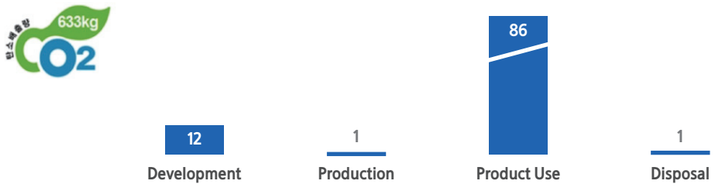
Low-carbon Product Certification

Unit: tons CO_2/100 M

TVs	Note PCs	Air Conditioners	Semiconductors	
				
UN55D8000YF	NT202B5B, NT200B5B	ADX200VSHHXA1	2G DDR3 (35nm), 4Gb DDR3 SDRAM	64Gb NAND Flash MLC

LED TV Carbon Emissions (Model: UN55D8000YF)

Unit: %



Notebook Carbon Emissions (Model: NT202B5B)

Unit: %

A/C Carbon Emissions (Model: ADX200VSHHXA1)

Unit: %

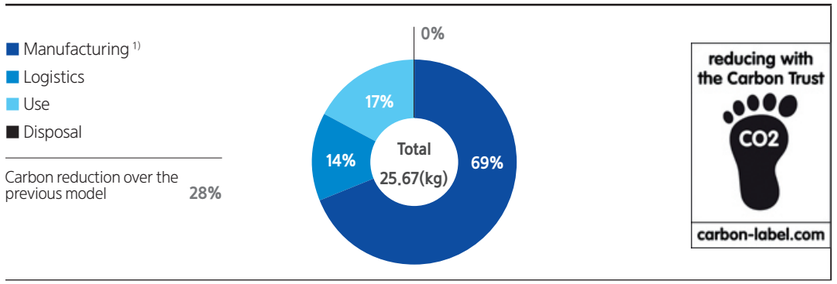
Global Certification

In 2011, Samsung Electronics received a certification from The Carbon Trust of the UK for its Galaxy S2. It has since received certification for its Galaxy Note and Galaxy S3, its flagship smartphone. In 2012, the company received Japan's Carbon Footprint label for its Galaxy Note2 for the very first time in the electronics industry.

Global Carbon Certification

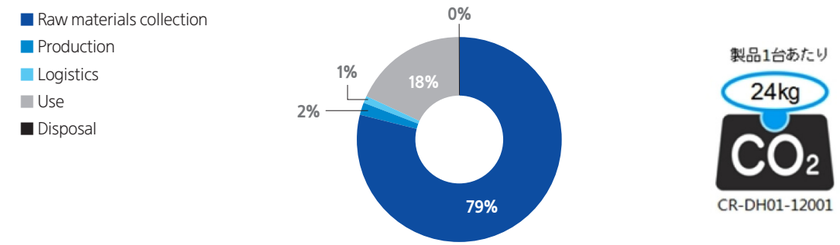
Description	Certified Items	Date	Certification Contents/Characters
The Carbon Trust, U.K.	Galaxy Note2	Jan. 28, 2013	Reduction of carbon emissions compared to the previous model (Galaxy Note)
	Galaxy S3	Jul. 30, 2012	Reduction of carbon emissions compared to the previous model (Galaxy S2)
	Galaxy Ace Duos	Jul. 30, 2012	Satisfactory level of carbon emissions
	Galaxy Note	Mar. 2, 2012	First certification for a mobile phone (along with Galaxy S2)
	Galaxy S2	Mar. 2, 2012	First certification for a mobile phone (along with Galaxy Note)
Carbon Footprint, Japan	Galaxy Note2	Nov. 30, 2012	First certification for a mobile phone

Galaxy Note2 Carbon Emissions certified by The Carbon Trust (on the basis of British Standards)



1) Emissions from the manufacturing stage include those from parts manufacturing.

Galaxy Note2 Carbon Emissions certified by JEMAI(Japan Environmental Management Association for Industry)



Green Certification in Korea

Green Certification is awarded by KIAT(Korea Institute for Advancement of Technology) under the auspices of the MOTIE to eco-technologies and eco-business that have contributed to energy and resource conservation and GHG emissions reduction. It is one of the Korean government's key initiatives for low carbon green growth.

By the end of 2012, Samsung Electronics had received 21 green technology certificates and one green business certificate for its establishment of a large-scale decomposition and treatment facility for discharge PFC gases from semiconductor processes.

녹색인증
Green Certification

Green Operation Sites

Operation-Site Environmental Management System

Policies and Starategies

Samsung Electronics operates its green management system to preserve the global environment, and is involved in related activities such as reducing greenhouse gas emissions, water resource consumption, and the amount of waste generated, as well as increasing resource recycling. Samsung Electronics is establishing response measures for various environmental risks while continuing such efforts to secure sustainability. Based on these activities, harmful effects are minimized and environmental incidents are prevented at the source.

Targets and Assessment of Achievements

The EHS Strategy Council is convened on a regular basis to devise policies aimed at preventing EHS accidents and to assess environment and safety risks. The council reviews and analyzes global environmental guidelines and national policies, and makes decisions on the relevant corporate policies. It also analyzes the green management environmental indices of the company's global workplaces and shares the implementation results and success stories to improve the environmental safety level continuously.

Samsung Electronics has selected the following four key green management environmental indices and focuses on the achievements.

First, the rate of management system certification acquisition indicates whether the detailed setting of targets and activity, and the review process of the company's workplaces are systematically performed. New workplaces aim to acquire the certificate within one year of their establishment by developing the environmental safety management system. Second, the greenhouse gas index* is a representative index of response to global climate change. Samsung Electronics manages the scopes 1-3.

Third, the water resource use index indicates the results of efforts to save water resources at workplaces. The index is designed to achieve water source stability. Fourth, the waste generation quantity index shows the circulation efficiency of the resources used in a given workplace, with the ultimate aim of recycling all waste materials generated by the business place.

KPI Target and Performances

Category	Rate of management system certification acquisition **			Water resource	Waste	
	ISO 14001	OHSAS 18001	ISO 50001	Water intensity (Water withdrawal / Sales)	Rate of recycling	Waste intensity (Waste quantity/ Sales)
Level of achievement in 2012	100%	100%	29%	41 tons /KRW 100 million	94%	0.34 ton /KRW 100 million
2015 target	100%	100%	100%	50 tons /KRW 100 million 2009 level	95%	0.38 ton/KRW 100 million*** 2009 level
Implementation strategies	• Standardizing management system operation • Certificate acquisition for a new entity within one year			• Securing stable water resources • Increasing water reuse	• Developing the resource cycling type system • Increasing the number of recycling items • Suppressing waste generation	

* For greenhouse gas targets, refer to the climate change response.

** Based on 34 manufacturing workplaces (6 in Korea, 28 in foreign countries).

*** The target was recalculated due to the split of the LCD Business Division and the merger of the LED Business Division.

Samsung Electronics carries out continuous activities and investments to secure water resources, preserve ecosystems, prevent resource depletion, and increase resource recycling. In addition, it has successfully met all the relevant legal requirements by developing a pollutant and chemical management system, with no violations recorded in 2012.

Internal/external communication

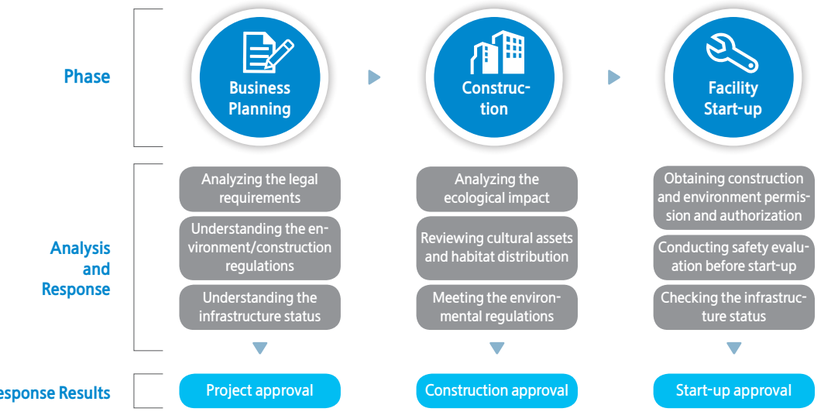
Samsung Electronics publishes an annual sustainability report, and discloses its environmental safety management information to key stakeholders, including employees and local communities. In addition, Samsung Electronics operates an environmental safety committee to resolve employee issues and handle local community requirements. Company representatives and an environmental safety expert are members of the committee. Committee decisions and implementation results are disclosed transparently, using various communication methods including local community briefing sessions and websites.

Environment and Safety Risk Assessment

Samsung Electronics conforms to the guidelines and global environmental regulations presented by international organizations (such as the UN) and private organizations. In addition, Samsung Electronics preemptively responds to the prevailing environmental, safety, and health regulations, which are becoming more stringent year by year; as well as applies to corporate management.

Risk Analysis and Response Process

Risk analysis and response when building or expanding a business site



Environmental Safety Accident Response System

Samsung Electronics has drawn up a number of emergency scenarios to cope with potential safety accidents such as harmful chemical leaks or spills, environmental pollution, fire and/or explosion, and natural disaster; and verifies the effectiveness of the emergency response system by conducting regular emergency response exercises. Based on these emergency scenarios, an emergency response team is formed and an additional damage is prevented by taking emergency measures. In addition, emergency evacuation drills and emergency exercises are performed regularly to ensure that employees are able to evacuate the site quickly and safely. Upon completion of the response to an incident, its cause is analyzed to prevent the recurrence of similar incidents in the future.

Emergencies Response Procedure

Accident Occurrence
- Diffusion of situation information
- Assessment of accident type
- Risk phase analysis

▶

Emergency Measures
- Formation of risk management committee
- Implementation of emergency measures
- Implementation of emergency escape /emergency masures

▶

Investigation & Cause Analysis
- Secondary accident prevention activity
- Accident investigation / cause analysis

▶

Counter-Measures
- Recovery measures
- Goods support
- Business continuity plan

▶

Preventive Measures
- Establishment of recurrence prevention measures
- Review of effectiveness of accident response system

Employee Injury Management

Samsung conducts risk assessments according to OHSA18001(Occupational Health and Safety Assessment Series) in all of manufacturing workplace, and continues to improve the work environment. Samsung also conducts regular education programs to increase the awareness of health and safety among its workers and run emergency relief system. While the accident rates happened during work hours remained the same compared with last year, accidents happened during non-work hours such as sports activities takes 71%* of total accidents. Thus, Samsung is establishing safety guidelines for all leisure activities within the company.

Injury Management

Description		Industrial Accident Rate			
		Frequency rate of injury**	Accident rate***	National Accident rate	Manufacturing Accident rate
Korea	2012****	0.452	0.072	0.59	
	2011	0.336	0.067	0.65	0.97
	2010	0.165	0.035	0.69	1.07
Global	2012	0.347	0.063		
	2011	0.262	0.052		
	2010	0.393	0.082		

* 46 non-work related accidents among 65 total employee accidents of Korea in 2012 (71%)
** Frequency rate of injury = (number of disasters/annual work hours)*1,000,000
*** Accident rate = (number of the injured/number of workers)*100
**** The split of the LCD Business Division and the merger of the LED Business Division were reflected.

Environmental safety management system certification

All of Samsung Electronics' manufacturing workplaces have acquired ISO 140001 and OHSAS 18001 certification - the international environmental safety management system; and maintain environmental management through follow-up and re-certification reviews. In addition, six domestic workplaces and four overseas workplaces acquired the international energy management system ISO 50001 in 2012; and all of Samsung Electronics' work places across the world aim to obtain the certificate by 2015.

Status of environmental safety certification

Region	Acquisition rate (no. of workplaces)		
	ISO 14001	OHSAS 18001	ISO 50001
Korea	100% (6)	100% (6)	100% (6)
Global	100% (34)	100% (34)	29% (10)

Certification acquisition status

Area	Work place	ISO 14001		OSHAS 18001		ISO 50001	
	(Corporate)	Certificate acquired date	Certification agency	OSHAS 18001	Certification agency	Certificate acquired date	Certification agency
Global (34)	Suwon	1996-10	UL DQS	2000-11	UL DQS	2012-06	UL DQS
	Gumi	1996-11	UL DQS	2001-10	UL DQS	2011-07	UL DQS
	Gwangju	1996-10	UL DQS	2002-10	UL DQS	2012-05	UL DQS
	Giheung	1996-09	BV	1999-12	BV	2011-11	BV
	Hwaseong	2001-11	BV	2001-11	BV	2011-11	BV
	Onyang	1996-09	BV	1999-12	BV	2011-11	BV
	SAMEX	2000-12	UL DQS	2003-12	UL DQS		
	SAS	2001-01	PRJ	2007-10	PRJ		
	SEM-P	2004-11	UL DQS	2006-06	UL DQS		
	SEDA-P(C)	2009-11	UL DQS	2009-11	UL DQS		
	SEDA-P(M)	2001-02	BV	2006-03	BV		
	SERK	2009-04	UL DQS	2009-04	UL DQS		
	SEH-P	2005-05	BV	2005-11	BV		
	SESK	2003-09	UL DQS	2003-09	UL DQS		
	SEPM	2010-12	UL DQS	2010-12	UL DQS	2012-11	UL DQS
	SEIN-P	2003-04	SUCOFINDO	2003-10	SUCOFINDO	2012-10	UL DQS
	SAVINA	2001-12	UL DQS	2002-12	UL DQS		
	SDMA	1999-08	DNV	2002-08	DNV		
	SEV	2009-09	BSI	2009-09	BSI	2012-12	BSI
	TSE	2001-12	UL DQS	2003-11	UL DQS	2012-11	UL DQS
	SEMA	2005-12	DNV	2005-12	DNV		
	SEPHIL	2002-09	SGS	2003-10	SGS		
	SIEL-P(C)	2008-09	BV	2008-09	BV		
	SIEL-P(N)	2000-06	AFNOR	2003-08	AFNOR		
	TSEC	2000-02	BV	2004-10	BV		
	TSOE	2008-02	CQC	2010-02	CQC		
	TSLED	2010-04	BSI	2010-04	BSI		
	SEHZ	2005-05	CQC	2006-03	CQC		
	TSTC	2005-05	UL DQS	2005-05	UL DQS		
	SSKMT	2005-04	SSCC	2005-04	SSCC		
	SSDP	2004-09	UL DQS	2004-11	UL DQS		
	SESC	2004-02	CQC	2004-02	CQC		
	SESS	2004-05	SGS	2004-05	SGS		
	SSEC	2003-11	CQC	2005-06	CQC		

Status of Workplace Environment Management

Water resource management

With the problem of water shortages having emerged as a widespread global issue, Samsung Electronics clearly recognizes its responsibility as one of the world's leading IT companies. As such, it implements enterprise water resource management policies and reduction targets, and prepares and executes response strategies to decrease serious management risks. Furthermore, the enterprise water use status has been monitored for several years. Based on the monitoring results, Samsung Electronics carries out water saving activities, secures stable water supply sources, and makes efforts to maintain them.

Water resource policies

Samsung Electronics recognized the importance of global water resource issues, and therefore established the water resource management policy to minimize management risks due to water shortages and increase communication with its stakeholders.

Basic Philosophy

"Samsung Electronics recognizes the importance of water resources in the sustainability of society and business management, and contributes to its protection as a responsible corporate citizen of global community."

Code of Conduct

1. **Strive to minimize water risk impact by our business activities**
   Analyze the impacts of our products, production activities and services make on water resources and minimize risks by identifying and implementing new technologies.
2. **Instill an awareness of the importance of water resources as a part of our corporate culture**
   Integrate the importance of water resource protection and sustainability management into the corporate culture and ensure responsible water resource management by employees with the highest consideration for the impact on local communities and the environment.
3. **Proactively cooperate with public water policies.**
   Proactively contribute to the establishment and implementation of water resource management policies by international institutes, the government and local authorities in line with relevant guidelines.
4. **Disclose our policies and activities on water resource management**
   Disclose company policies and activities related to water resource use to stakeholders including local communities in a transparent manner.

Water resource status

Using the water resource management tools distributed by the FAO and the WBCSD, Samsung Electronics has identified the water resource risks in its 34 owned manufacturing plants. According to the recommendations of Carbon Disclosure Project, Samsung has analyzed each water resource risk associated with its business sites in countries suffering severe water stress and has developed differentiated emergency countermeasures for each site.

Risk Management

	Description	Risk Countermeasures
Physical Risks	Water quality degradation	• Assurance of water quality throughout Water pre-treatment process
	Floods	• Creation of wetlands, establishment of embankments, and subscription to natural-disaster insurance
	Water supply disruptions	• Building dual main water supply lines and sufficient water storage facilities to prevent disruptions of work
Regulatory Risks	Changes in regulations on water usage & disposal	• Establishment of internal regulations on discharge concentration that are stricter than legally required; increased water recycling to reduce discharge quantity
	Efficiency standards legislation	• Evaluation of water efficiency for new facilities; investments in existing facilities for water efficiency improvements
	Uncertainty over new legislation	• Continuous monitoring of global environmental legislation trends
Reputation Risks	Disposal of wastewater	• Continuous monitoring of discharge water and early establishment of environmental management system (EMS) for new manufacturing facilities
	Wastewater leakage, etc.	• Operation of emergency response organizations and enhanced internal and external communication about the company's water resources management

Water resource Management

In 2012, Samsung Electronics' industrial water consumption declined sharply due to the separation of the LCD sector, which accounted for 48%* of the company's entire industrial water consumption. Municipal water and groundwater consumption experienced slight increases due to added employees, cafeterias and sanitation facilities. Samsung Electronics will implement effective water consumption reduction activities to achieve its target of 50 tons/KRW 100 M by 2015.

Water withdrawal

Description		Withdrawal by water intake source (1,000 tons)				Consumption intensity (ton/KRW 100 M)
		Industrial water	Municipal water	Ground water	Total	
Korea	2012**	49,003	6,014	235	55,252	39
	2011	103,562	5,834	205	109,601	91
	2010	91,225	5,145	180	96,550	86
Global	2012**	49,003	18,806	827	68,636	41
	2011	103,562	17,325	780	121,667	74
	2010	91,225	13,457	607	105,289	68

Waste water generation

Description		Generation (1,000 tons)	Waste water intensity (ton/ KRW 100 M)
Korea	2012**	43,291	31
	2011	97,370	81
	2010	87,639	78
Global	2012**	49,289	29
	2011	102,906	62
	2010	91,183	59

* The proportion of water used by the LCD Business Division in 2011.
** The split of the LCD Business Division and the merger of the LED Business Division are reflected in the figures.

Water resource saving activities

Samsung Electronics' water resource conservation efforts can be divided into two broad types: minimization of water inflow through manufacturing process efficiencies and optimization of water use through retreatment and recycling facilities. In 2012, Samsung Electronics conserved a total of 42,104 thousand tons of water through the following water resource conservation efforts.

Water resource conservation efforts

Optimization of water management processes for utility systems and semiconductor production
- Optimization of the water used for ultrapure water production, web scrubber, cooling tower, and wastewater processing facilities

Installation of discharge water treatment systems for optimum recycling
- Re-processing of acid/alkaline and organic wastewater for the ultrapure water production system
- Re-processing of sewage to produce firefighting and landscaping water

Use of discharged water in other processes
- Re-use of ultrapure water for other processes
- Re-use of condensed water generated by the outdoor air handling unit, and concentrated water discharged from the cooling tower for the web scrubber

Water Recycling

Description		Recycled Water		Recycled Ultra-Pure Water		
		Recycled Quantity (Unit : 1,000 tons)	Recycling Rate (%)	Supply Quantity (Unit : 1,000 tons)	Recovery Quantity (Unit : 1,000 tons)	Recovery Rate (%)
Korea	2012*	34,225	61.9	29,226	13,917	47.6
	2011	81,863	74.7	117,321	59,289	50.5
	2010	72,832	75.4	121,170	67,693	55.9
Global	2012*	42,104	61.3	40,988	21,510	52.5
	2011	90,068	74.0	128,554	66,676	51.9
	2010	79,012	75.0	127,636	72,812	57.0

* The split of the LCD Business Division and the merger of the LED Business Division are reflected in the figures.

Internal/external communication regarding water resources

Samsung Electronics discloses information on its business places' water resource consumption to key stakeholders including employees and local communities in a transparent manner.

Employees can check the status of the company's water resource management, and Samsung Electronics provides water saving guidelines, and encourages its employees to apply guidelines in daily life. In addition, Samsung Electronics carries out river ecosystem preservation activities together with local NGOs and local school students.

Impact of waste water discharge on public waters

Samsung Electronics discharges all wastewater generated by its work places after processing it at internal processing facilities. The company's internal standard, which is more stringent than the national legal standard, is applied to discharge water, and discharge water is monitored. For some of domestic workplaces located inside industrial complexes and overseas work places, wastewater generated at the work place is processed internally first, and then re-processed by sewage treatment facilities before discharge. In addition, Samsung Electronics looks to increase biological diversity and preserve the environment by carrying out environmental preservation activities around rivers in the vicinity of its business places throughout the world, together with NGOs and local school students.

Workplace	Refined wastewater discharged into river
Suwon	Woncheoncheon Stream
Hwaseong	
Gumi	-
Gwangju	-
Giheung	Osancheon Stream
Onyang	Gokgyocheon Stream

Stream Preservation Activities (Gumi work place)

Water ecosystem preservation and water quality improvement activities

The semiconductor work place monitors the water quality of rivers into which wastewater is discharged and the impact on the ecosystem, and carries out continuous improvement activities in association with local colleges.

Large amounts of steam are generated by the discharged water from the company's business places during the winter season, due to the temperature difference with the surrounding area. As such, discharge water reduction facilities have been installed at various rivers to protect their ecosystems. Furthermore, the exotic fish known as the "Nile mouth breeder", which disturbs certain river ecosystems, has been eradicated by reducing the temperature of discharge water to under 10℃ in the winter season. Also, the secondary damage caused by stream around dewatering outlets has been prevented to improve the river environment. Samsung Electronics will continue monitoring the water quality and water ecosystems of its final discharge rivers, and will continue studying and investing in preserving the ecosystem.

Waste management

As part of its efforts to prevent resource depletion and improve the resource recycling rate by minimizing resource consumption, Samsung Electronics aims to recycle all waste materials generated by its work places.

To achieve this goal, the number of waste materials for recycling is being expanded continuously. Meanwhile, waste processing companies are visited regularly to check that they comply with the regulations and Samsung Electronics' standards, in order to prevent illegal processing and movement between nations.

Due to the split of the LCD Business Division in 2012, waste quantity reduced by 19% in comparison to that of the previous year. Thanks to continuous recycling efforts, 94% of all waste materials generated at work places throughout the world were recycled. In particular, sludge remaining after wastewater processing and ash remaining after waste incineration were recycled. As a result, the quantity of burial waste was reduced by 43%* compared with the previous year.

Samsung Electronics will resolutely implement efficiency enhancement activities in its resource cycling system, in order to achieve the goal of 0.38 tons/KRW 100 Million** waste generation in revenue KRW and a recycling rate of 95%by 2015.

Generation

Unit: tons

Description		Waste generation quantity		
		Non-hazardous waste	Hazardous waste***	Total
Korea	2012	317,905	61,859	379,764
Global	2012	493,349	86,125	579,474

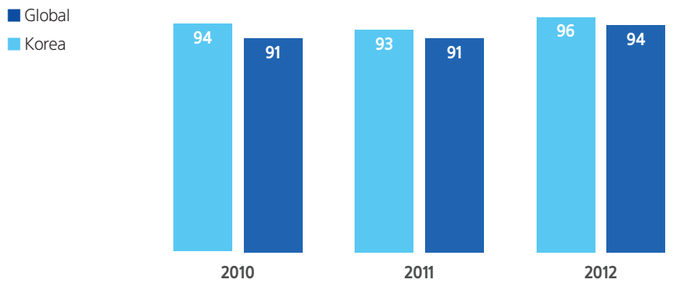
Waste processing quantity

Description		Waste in proportion to processing methods (tons)				Waste intensity (ton/KRW 100 million)	Rate of recycling (%)
		Recycling	Incineration	Landfill	Total		
Korea	2012****	364,588	9,277	5,899	379,764	0.27	96
	2011	490,123	12,255	22,009	524,387	0.43	93
	2010	489,492	17,173	14,252	520,917	0.46	94
Global	2012****	543,233	16,627	19,614	579,474	0.34	94
	2011	645,942	16,786	49,143	711,871	0.43	91
	2010	604,266	22,742	36,144	663,152	0.43	91

* The result of the LCD Business Division in 2011 is excluded from the figure.
** The target was recalculated due to the split of the LCD Business Division and the merger of the LED Business Division.
*** Calculation by work place due to the different calculation criteria of each country.
**** The split of the LCD Business Division and the merger of the LED Business Division are reflected in the figures.

Recycling Rate

Unit : %



Pollutant management

Samsung Electronics conducts research on environmental pollutant reduction and invests in facilities. Furthermore, in relation to the discharge of environmental pollutants, Samsung Electronics manages pollutants by applying an internal standard that is more stringent than the prevailing legal standards.
The discharge density of all discharge facilities in Korea is monitored 24 hours a day using the TMS (Tele Monitoring System); and an emergency response system is operated to take action at the moment a problem occurs.

Air contaminant management

Samsung Electronics has reduced the quantity of pollutant discharge by replacing its boilers with low NOx burner boilers, installing optimal prevention facilities when increasing new production lines, and continuously performing efficiency enhancement activities at its prevention facilities.

Generation of Air pollutant (Korea)

Unit: tons

Description		Air pollutant discharge quantity				
		NOx*	SO_x	Dust	NH_3	HF
Korea	2012**	275	0.008	21	1	8
	2011	409	0.006	44	6	14
	2010	468	0.059	40	10	12

* Recalculated by applying the Special Act on Seoul Metropolitan Air Quality Improvement (The boiler discharge quantity has been added.)
** The split of the LCD Business Division and the merger of the LED Business Division are reflected in the figures.

Managing Ozone Depleting Substances (ODS)

Samsung Electronics does not use CFC substances that have high Ozone Depletion Potential (ODP), among the ozone depletion substances defined by the Montreal Protocol. Instead, it uses HCFC substances in refrigerators, and cooling equipment refrigerants and cleaners in its business places, as they have relatively low ODP. Furthermore, HCFCs will also be reduced by introducing new technologies that use HFCs, which do not deplete the ozone layer, in the near future.

Water pollutant management

The semiconductor workplace has applied the inorganic wastewater re-use system since 2008; and developed an acid/alkaline wastewater recycling technology in 2011, followed by a two-step waste water recycling system in 2012 that reduced overall waste water quantity.

Generation of Water Contaminants

Unit: tons

Description		Category				
		COD	BOD	SS	F	Heavy metals
Korea	2012*	149	92	21	175	20.2
	2011	755	210	91	345	21.6
	2010	584	110	56	244	1.6
Global	2012*	306	92	84	241	20.6
	2011	876	210	184	430	25.3
	2010	685	110	130	274	2.2

* The split of the LCD Business Division and the merger of the LED Business Division are reflected in the figures.

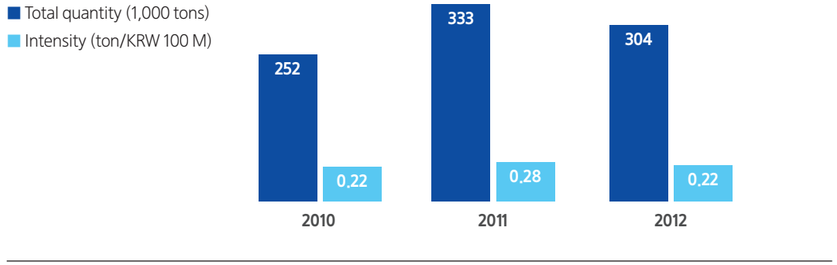
Managing soil contaminants

Samsung Electronics prevents soil pollution by chemicals at the source, by separately storing chemicals used in the production process at non-transmission processed storage facilities.
In addition, the components of burial waste generated at its work places are analyzed and legally processed using a legally-designated handling company. In addition, waste processing companies are visited regularly to check that they are complying with the regulations and Samsung Electronics' standards.

Management of hazardous materials

Samsung Electronics performs EHS pre-evaluation based on the MSDS (Material Safety Data Sheet), Chemical Warranty Letter, and LoC(Letter of Confirmation). Permitted chemicals are strictly monitored in their method of use and place of use while countermeasures are offered for possible incidents. Regular training is provided to the workers responsible for handling chemicals; storage and handling facilities are continuously monitored. In addition, chemicals are used at worksites equipped with safety equipment and the proper protection gear, and separately kept at non-transmission processed storage facilities.

Hazardous Materials Quantity (Korea)



Biodiversity

Biodiversity Conservation: Basic Philosophy and Action Plan

Demand for the protection of biodiversity is increasing since an international agreement on biodiversity protection was signed in 1992. Samsung Electronics is responding to changing demands by raising awareness on the importance of biodiversity. We have created a basic philosophy and action plan on biodiversity protection to promote it in our business activities.

Basic Philosophy of Biodiversity Conservation

"Samsung Electronics recognizes the benefits of healthy ecosystems and rich biodiversity, and we shall minimize negative impacts on biodiversity and actively promote ecosystem protection activities."

Action Plan on Biodiversity Protection

1. **Value Recognition**
   All employees shall regard biodiversity conservation activities as an important part of green management.
2. **Assessment and Reduction of impact on Environment**
   Analyze lifecycle impact of our products on biodiversity and the ecosystem while making an effort to minimize all negative impacts identified.
3. **Biodiversity Conservation Activities**
   Place a higher priority on environmental management of operation sites with higher biodiversity and implement biodiversity protection activities tailored for each site.
4. **Communication**
   Maintain good communication with stakeholders including employees, local communities and NGOs, and collaborate with them to make contributions in local biodiversity protection initiatives.

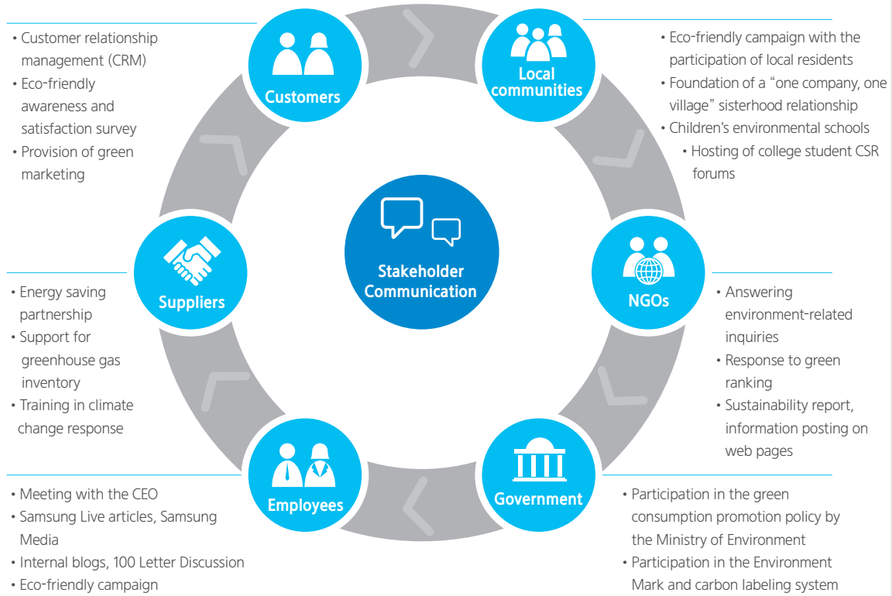
Green Communication

Stakeholder Communication

Stakeholder Communication Programs

Samsung Electronics regards communication with all interested parties as the basis of its green management activities. As such, Samsung Electronics has defined six types of stakeholders as customers, suppliers, local communities, government, NGOs, and employees, and conducted an Materiality Test to reflect the opinions of various stakeholders. Based on this assessment, Samsung Electronics analyzed each internal and external stakeholder to find out the level of interest they have in the program and the impact they can make to the business. The results were applied to Samsung's management activities and the results of sustainability management are disclosed transparently to build positive relations with stakeholders.

Key Stakeholders and Communication Channels



Eco-Forum for college students

The "College Student Eco-Forum" was held in May 2012 to introduce Samsung Electronics' green management activities and eco-friendly products to 100 invited college students interested in corporate social responsibility and green management obligations. The college students who participated in the forum proposed their opinions about environmental protection and climate change response activities, as well as enterprise activities and the release of eco-friendly products by Samsung Electronics. Samsung Electronics will increase its open communication channels in order to hear the voices of college students and people from all walks of life.

PlanetFirst Summer School for primary school students

The PlanetFirst Summer School was opened for two days in July 2012 by inviting primary school students to participate in outdoor learning and eco-friendly education. Forty primary school students visited the 'Green Tomorrow of Samsung Corporation' located at Yongin, Gyeonggido, where they learned all about the eco-friendly Eco-home, and visited the green energy experience hall operated by the Korea Energy Management Corporation. On the second day, they visited the Delight Eco-Zone at the Seocho Samsung Building, and attended a lecture titled "Eco-friendly software in our daily life." Samsung Electronics plans to carry out various educational and experience programs to increase children's interest in eco-friendliness and raise awareness of green life.

PlanetFirst Talk

The PlanetFirst Talk on technologies that can coexist with nature was held in August 2012 and attended by 60 invited college and high school students. The talk explained why environment-related issues such as energy and greenhouse gas are the subjects of serious discussion in contemporary society, and the importance of green management activities. Students were also invited to freely air their opinions on nature-based technologies.

Membership in and Activities of Associations

WSC (World Semiconductor Council)

Samsung Electronics has taken the lead in the industry's joint efforts to reduce semiconductor processing gas (PFC) emissions and energy consumption by participating in the WSC's ESH TF. In 1999, Samsung Electronics voluntarily declared, along with other WSC members, to reduce its PFC (a representative greenhouse gas in the semiconductor area) emissions by 10% in 2010, compared with 1997, and successfully achieved this goal. Currently, WSC members share PFC reduction cases at the ESH Conference twice a year, and collaborate on efforts to develop effective reduction technologies.

KBCSD (Korea Business Council for Sustainable Development)

Samsung Electronics contributes to the sustainable development of Korean society, including greenhouse gas reduction, by participating as a vice-president company of the KBCSD, a Korean network of the WBCSD (World Business Council for Sustainable Development). In relation to greenhouse gas reduction, Samsung Electronics proposes policies for the efficient reduction of greenhouse gas emissions to the Korean government, and researches methods of expanding the infrastructure for the greenhouse gas reduction cooperation businesses of conglomerate companies and small and medium-sized companies.

G20 G2A2 (Green Growth Action Alliance)

Some 50 organizations, including Samsung Electronics, enterprises and financial institutes of the G20 countries, and international organizations, participate in the G2A2, which was established during the G20 Business Summit held in June 2012. The G2A2 proposes policies for promoting global green growth to G20 governments. Its proposals generally concern increase development and use of renewable energy sources, the promotion of eco-friendly product trading, the improvement of energy efficiency, and the promotion of investment by private enterprises in the green growth sector.

EICC (Electronic Industry Citizenship Coalition)

The EICC was established in 2004 by leading global electronics companies to discuss CSR issues and potential response initiatives. The EICC general meeting was held in Seoul in February 2012. At the regular meeting, first held in Korea with the support of Samsung Electronics, key CSR activities are introduced along with the shared growth policies of the Korean government.

Employee Environmental Communication

Samsung Electronics holds various eco-friendly events and training programs, voluntary services, and campaigns in order to encourage its employees to take an interest and participate in environmental protection activities, and engages in active communication with its employees. In particular, Samsung Electronics declared its determination to protect the ecosystem by holding a declaration ceremony of the "basic concept of biological diversity preservation" at Gwangreung Forest, which was designated as a biosphere reserve by UNESCO in July 2012.

Declaration ceremony of the "Biodiversity Preservation"

Samsung Electronics held a ceremony to declare the "basic concept of biological diversity preservation" at Gwangreung Forest, which was designated as a biosphere reserve by UNESCO in 2012. During this event, in which 100 employees and their families participated, children learned about native plants and autogenous insects during the ecology class. Then, participants removed invasive plants that disturb the ecosystem and clean the streams around the arboretum.

Declaration of the "Biodiversity Preservation"

Biodiversity Conservation Activities

Green Insight lectures

Green Insight Lecture

The eco-friendly lecture was held by inviting, the producer of the MBC documentary Tears of the Earth, in order to increase employee's interest in the environment on June 5, World Environmental Day. Some 250 participating employees realized that human greed is destroying the earth's ecosystems, such as the Amazon River and the Antarctic, at high speed; and learned that human beings are a part of nature and thus should coexist with nature, by observing the way of life of primitive tribes and penguins that live in harmony with nature, as examples.

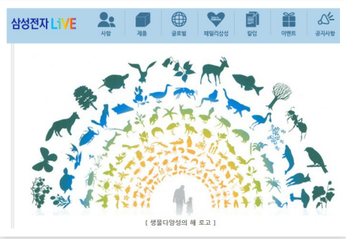
Spring Festival

The "Spring Festival" was held in May 2012 by inviting about 5,000 employees and their families to a virtual experience related to "climate change and greenhouse gases" and an eco-friendly class for children. Participants learned about the significance of Samsung Electronics' PlanetFirst initiative and experienced first-hand the eco-friendly lifestyle habit.

Virtual experience of greenhouse gas

Eco Class

Samsung Electronics Live Channel



Samsung Electronics Live Column

Samsung Electronics Live, an internal online communication channel, is designed to encourage employees to take greater interest in the environment and practice an eco-friendly lifestyle. In 2012, various articles were posted on the channel, including "The importance of water", "PlanetFirst children's green classroom", and "Global warming and biological diversity". Employees are encouraged to read the environment-related information contained in these articles and discuss them online.

Green job creation in Cambodia through UNIDO partnership

Samsung Electronics has been implementing a partnership project in Cambodia by providing US$ 1,350, 000 of support together with UNIDO (United Nations Industrial Development Organization) and KOICA (Korea International Cooperation Agency) since July 2012, in order to train the personnel who will repair electronics and process E-Waste and electronic equipment. Samsung Electronics will prevent environmental pollution caused by the illicit burial of E-Waste and provide jobs to Cambodian youth during this project, which will continue until June 2015. Samsung Electronics plans to educate about 200 engineers in the field of electronics repair services and E-Waste in connection with the Ministry of Labor, Ministry of Environment, and the National Technology Training Institute in Cambodia, by dispatching internal experts to Cambodia. In addition, Samsung Electronics will select and nurture electronic equipment processing companies in five areas including Phnom Penh in Cambodia, and support the employment of the trainees and encourage them to start their own business. More and more electronic appliances are being used in Cambodia every year, but a significant amount of malfunctioning products are needlessly discarded due to a lack of product repair technologies, personnel, and recycling facilities, which further increases environmental pollution. Samsung Electronics proposes E-Waste handling methods to the Cambodian government, using the collection and recycling know-how accumulated, and plans to invite the related parties to visit the related processing facilities in Korea.

Samsung Electronics-UNIDO Partnership

Training engineers to fix E-Waste and electronic equipment

Global Environmental Preservation Activities

Samsung Electronics carries out environmental protection activities all around the world in keeping with its strong sense of responsibility towards the protection of the global environment. In particular, Samsung Electronics is promoting a diverse range of programs, including an environmental purification program and local resident education for developing countries, as well as environmental classes for children from underprivileged social groups.

Korea

Bird Protection

Since 1991 Samsung Electronics has been supporting the "Winter migratory bird-feeding event", "Bird sister school", and "Inviting children from remote islands to Seoul" programs hosted by the Korean Association for Bird Protection, in order to protect Korea's wildlife and natural monuments.

Cleaning and winter migratory bird feeding events have been conducted at the Nakdong River habitat for migratory birds since 2002, with the participation of the environment sister school, the Ministry of Environment, Gumi City, and NGOs dedicated to ecosystem protection. Such events are designed to raise awareness of the importance of the environment among students of the environment sister school.

'World Water Day' Ecosystem Preservation

On March 22, the 'World Water Day', Samsung Electronics conducts various water saving and water ecosystem preservation activities together with local autonomous bodies and NGOs at home (Suwon, Giheung, Hwagseong, Onyang, Gumi, Gwangju) and abroad (China, Thailand).

On the 'World Day for Water' in 2013, Samsung Electronics held a mural painting event for Woncheoncheon Stream;

planted willow trees near the source of the river to create ecological waterways; carried out river purification activities to improve the water quality of rivers situated near to business premises; and promoted an advertisement campaign to protect the Suwon green frog, which is an endangered species.

Green Camp with Family

In October 2012, the Gumi manufacturing site invited 120 employee family members and sister school students to the "Green camp for love of the environment and family" held at the Geumosan Mountain Environment Training Institute, Gyeongsangbukdo. The event was designed to inform local residents and children of the seriousness of climate change and the importance of practicing a low-carbon, green lifestyle. The camp ran various programs designed to promote understanding of climate change, introduce methods of practicing the green lifestyle, and show the participants how to create an ecosystem food chain, as well as a forest experience.


Feeding migratory birds


Source of the river purification activities


Mural painting of the Woncheoncheon Stream


Green Camp


Creating eco-bags


Green Class

China

"One company, one river" and "One company, one village"

The Shenzhen subsidiary in China conducts the "one company, one river" campaign continuously. Some 100 employees helped carry out river purification work every month near the Great Sand River, which has been designated as a protected river by Shenzen subsidiary, the Great Sand Park, Zhongshan Park, and the Mangrove. In addition, as a part of the "one company, one village" activities, eco-friendly education was provided to the students of the sister school as well as to neighboring primary schools. Furthermore, the Suzhou subsidiary in China ran a large-scale eco-friendly advertisement campaign to improve public awareness of the importance of environmental protection in 2012, as a part of the service activities designed to celebrate the 17th anniversary of its foundation. The subsidiary also performed tree planting events and environmental purification activities on major environment-related anniversaries including the Tree Planting Day, World Day for Water, and World Environmental Day.

Shenzen coporate's Clean activities


Children's eco-friendly activities for the "One company, One village" program


Participants in the Suzhou subsidiary 's environmental purification campaign

Central and South America

Amazon School Green Class

The Manaus corporate in Brazil opened a green class at the Amazon School located in the Amazon native village in October 2012. The green class, in which 75 local community students participated, included an essay-writing contest on the theme of climate change and the Amazon, and education about climate change. In addition, the students were introduced to methods of preserving the Amazon rainforest and eco-friendly activities that can be implemented in their daily life.

"Global Action" Event

Fifty employees of the Manaus subsidiary in Brazil participated in the Global Action Environmental event on May 5, 2012, together with 3,500 local residents. The importance of ecological preservation and environmental pollution prevention was discussed during the children's environment class, and an event in which toys were made with waste materials was held.


Amazon School Green Class


Amazon School Green Class


Global Action

South East Asia

Beach Purification in Malaysia

The Malaysia subsidiary carried out a beach purification campaign with the participation of 100 employees at Negeri Sembilan beach, and promoted awareness of the importance of the marine ecosystem and the practice of an eco-friendly lifestyle among tourists visiting the beach.

Tree-planting activity in Thailand

The Thailand subsidiary is planting trees at the Laemcha bang area as it is prone to flooding. This activity is designed to raise awareness among local residents of the importance of the forest ecosystem, and to prevent flooding.


Malaysian beach Clean Campaign


Malaysian beach Clean Campaign


Tree-planting activity in Thailand

Europe

Green Class in Hungary

In Hungary, a green class was held eight times to raise awareness among local community residents and children of the importance of recycling and recycling methods. The green class, attended by 300 people, provided education on recycling methods by waste resource type, the significance of recycling, and Samsung Electronics' efforts to reuse E-Waste, and encouraged the participants to put these ideas into practice.

Making Bird nests in Slovakia

A bird nest-making event is held in Slovakia to protect rare birds that make their nests near the manufacturing sites. Employees made bird nests together with local community children and installed them on the roof of the manufacturing site. The children were also educated about the importance of the ecosystem and environmental protection.

Green Class in Hungary

Green Class in Slovakia

Making bird nests in Slovakia

Africa

Solar Power Project of the year

Samsung Electronics has been operating the Solar-Powered Internet School in Africa since 2011. Electricity is supplied to all facilities inside the schoolroom using photovoltaic panels. The Solar-Powered Internet School, which mainly educate youth in rural villages, was selected as the "Solar Generation Project of the Year" at the African Energy Awards in April 2012.

Solar-Powered Internet School

Solar-Powered Internet School

African Energy Awards Ceremony