Corporate Environmental Report

STMicroelectronics
Corporate Environmental Report 2000

Corporate Environmental Report

Message from the President

Sustainable Development has been at the top of our agenda since the early 1990s. The concept embodies the shared values that we published at that time and which formalized the Company's culture.

We set ambitious and measurable environmental targets in 1994. These aimed to produce specific achievements by 2000 in 10 key areas, such as energy efficiency and water consumption. We summarized our commitment in our Environmental Decalogue, which has become an integral part of the way we operate and assess the performance of our line managers.

The Decalogue has been communicated to all our employees and widely distributed to external stakeholders. It has helped strengthen our environmental awareness and culture of Total Quality and Environment Management, which is based on teamwork, empowerment and continuous improvement. In some limited areas our environmental performance in 2000 fell short of our expectations, but we are generally pleased with our achievements and progress. For example, compared with our baseline of 1994, electricity consumption (at equal production) is down by 29%, water use by 45% and greenhouse gases emissions by 29%.

Nevertheless, we are strongly motivated by a spirit of "constructive dissatisfaction", and we cannot be complacent. There is much more to do and we are still far from meeting the needs of today without compromising the ability of future generations to meet their own needs.

Energy is probably the biggest environmental issue confronting the planet today; the present social and economic model based on fossil fuel (particularly in developed countries) is not sustainable; we need to develop new ways to reduce drastically the consumption of oil, gas and coal, thus reducing the emission of greenhouse gases that are now widely recognized as the cause of climate change.

This is the reason why we at ST are working very hard on the energy efficiency of our manufacturing sites, as well as on alternative energy sources such as cogeneration and wind turbines. Knowing that this will not be enough to stop the global warming process, we at ST are also investing in reforestation (carbon sinks) to compensate our remaining CO2 emissions. **Our goal is to be in 2010 a completely neutral company as far as greenhouse gases are concerned**. We believe this is the most challenging goal for a big manufacturing company, and we hope that many other world corporations will take the same direction.

Water consumption is the next item on the agenda, and we are implementing techniques to increase the amount of recycled water in our plants, aiming at a 90% ratio so that we will cut our raw water draw-down by 90%.

Far from eroding, our environmental commitment is growing year after year. In 2000, we were recognized by Innovest Strategic Value Advisors as the best semiconductor company out of fourteen analyzed, and we are one of the "Sustainable Companies" selected by the Dow Jones Sustainability Index since 1999. We are also supporting the Global Compact launched by Kofi Annan in 1999, promoting nine principles on Human Rights, Social Rights and Environment.

Deeply embedded in our Company's culture, this commitment is nurtured by two strong beliefs:

- Ecology is free:
  - prevention is cheaper than correction, because it is more effective to anticipate future legislation than to react once it is enforced;
  - eco-efficient corporations use less natural resources, and therefore they are intrinsically more profitable than the others;
  - shareholders' value is not threatened by corporate social and environmental responsibility; on the contrary, we believe that by being good citizens we can amplify stakeholders' value and return to investors.
- Ethical values, responsibility and ideals are an important base for motivating people to enhance their capacities as individuals and as members of our organization.

Environmental commitment is not an option, and we are committed to be a leader in this field.

Pasquale Pistorio
President and Chief Executive Officer

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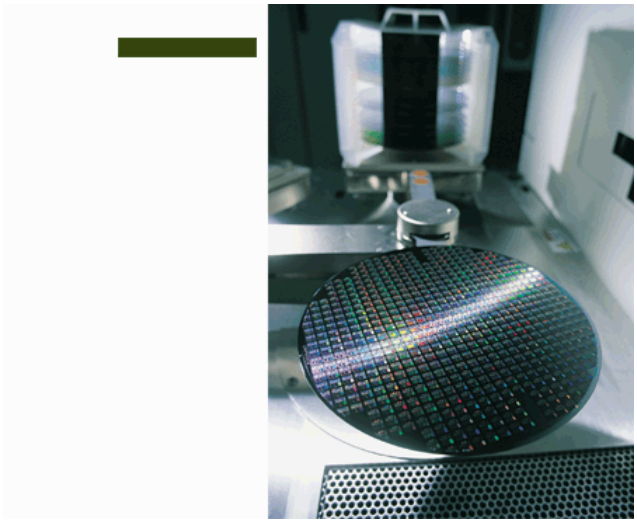
STMicroelectronics at a Glance

- STMicroelectronics is a global independent semiconductor company that designs, develops, manufactures and markets a broad range of semiconductor integrated circuits and discrete devices used in a wide variety of microelectronic applications including telecommunications systems, computer systems, consumer products, automotive products and industrial automation and control systems.
- In 2000, ST's net revenues were US $7,813.2 million.
- The group today has 19 primary manufacturing sites around the world and over 43,000 employees.
- Corporate Headquarters as well as the Headquarters for Europe and the Emerging Markets Region are in Geneva. US Headquarters are in Carrollton (Dallas, Texas); those for Asia/Pacific are based in Singapore; and Japanese operations are headquartered in Tokyo.
- ST has 74 direct sales offices in 27 countries and offers some 3,000 main types of products to more than 1,500 customers.
- With 12 advanced research and development units, 33 design and application centers, ST possesses an extensive portfolio of intellectual property: in excess of 19,000 patents covering 11,000 inventions.
- The Company is active in numerous collaborative research projects worldwide as well as playing a key role in Europe's advanced technology research programs such as MEDEA+.
- ST champions quality and environmental initiatives and has won 33 major awards recognizing its successful implementation of environmental policies. In 2000 ST topped 14 global semiconductor enterprises with the only AAA ranking in eco-efficiency by Innovest Strategic Value Advisors. Also during the year, ST's CEO, Pasquale Pistorio, received the prestigious Akira Inoue Award for Outstanding Achievement in Environment, Health and Safety in the Semiconductor Industry. (Awards and Accolades received by ST are noted in Appendix 1)

Corporate Environmental Report

Our Commitment to Sustainability



Our ultimate goal is to be in balance with the earth, to take no more than we can give back. We see the protection of our environment as a key corporate mission, because it is essential to the success of our business.

At ST we bring certain values to our workplace. We stake our reputation on the integrity of our people, our principles and the way we make things --- the starting points for all our strategies and the cornerstone of our continued success.

We value the earth on which we all depend for life. We value our society, the communities where our talented employees live and, of course, we value our shareholders - the people who own our Company.

Our environment is under grave threat, mainly from the way we have lived in the past and as a consequence of our lifestyles now. We are confronted today by dramatic environmental challenges that could threaten future economic development and the quality of our lives.

In 1995, with that in mind, our Company established an Environmental Decalogue summarizing our main environmental policies and objectives and detailing quantified, timed and measurable targets to help the Company move towards environmental neutrality.

OUR VISION
To be recognized by all our stakeholders as a leader in environmental care by following our Environmental Decalogue and by exceeding regulatory requirements in both degree and timing wherever possible.

OUR MISSION
To strive for sustainable development in minimizing the impact of our processes and products on the environment by maximizing the use
of recyclable or reusable materials and, where possible, adopting renewable sources of energy.

OUR POLICY
To aim for ambitious improvement of our environmental performance with a view to reducing our impact on the environment to levels which do not exceed those corresponding to the Economically Viable Application of the Best Available Technology (EVABAT).
To take a proactive approach in environmental activities, built on the principle of Total Quality Management (TQM) and guided by the 16 principles of the International Chamber of Commerce (ICC) Business Charter for Sustainable Development.

To be a world leader on the basis of three main commitments to society:
The first, and most important is ethical. We, as a corporation are responsible to society as a whole.

The second is economic. Companies that independently and voluntarily conform to increasingly tough environmental protection standards have a definite advantage over those that only comply with the law. What's more, environmentally-sound technologies and processes consume less energy and natural resources, which makes them more efficient and less expensive to use.

Third, as a leader in environmental issues, we are better placed to attract young talent and top human resources we need to maintain our performance in this fast-moving business. To know that a company is environmentally aware is likely to provide this young talent with extra personal satisfaction and motivation.

Profits remain one of the main sources of funds needed to achieve our economic and environmental goals. We firmly believe that social and environmental responsibility is a necessary part of creating good value and excellent returns for shareholders. This is because it encourages us to strive for efficiency - the essential ingredient in retaining our competitive edge.

Environmentally destructive activities have no place at ST. For us, profits and principles go hand in hand.

GENERAL PRINCIPLES

- The Total Quality Management (TQM) approach is a practical way of working and managing all aspects of a business to achieve the best results for all stakeholders. In the environmental context, this policy is termed Total Quality Environmental Management (TQEM). The ST Environmental Policy goes beyond the TQM principle of Customer Satisfaction and aims for Stakeholder Satisfaction through initiatives and programs based on the Company's Decalogue for the Environment (our vision for environmental responsibility and sustainable development). The second Decalogue was issued in August 1999 with objectives up until the year 2010. See Appendix 2.

The objectives are:

- To ensure Management commitment to a culture of environmental protection throughout the Company.
- To design products and processes to minimize their environmental impact from "radle to grave". To strive for continuous reduction of waste and pollution and in the consumption of water and energy, in a quest for sustainable development, as proof that ecology saving methods are both responsible and profitable.
- To benchmark ST against leading companies the world over, so as to equal or exceed the best performing companies.
- To apply the most advanced statistical tools (Statistical Process Control, Design of Experiment, Failure Mode Effects Analysis) to processes and products. Apply environmental tools such as Environmental Impact Analysis, Life Cycle Assessment to the environment parameters so that environmentally responsible manufacturing processes are developed and implemented.
- To share results and best practises throughout all ST sites through a global exchange network allowing others benefit from lessons learned.
- To ensure that training in environmental awareness is an integral part of each individual's training and development plan.
- To inform customers on recycling and safe disposal of ST products at the end of their useful life and to promote partnership with suppliers in order to achieve ST's environmental goals, involving contractors working for ST.
- To promote an open dialogue with workers and the communities in which ST operates; cooperate in a positive spirit with industrial and scientific communities, governments and non-governmental organizations to develop laws, regulations and guidelines for the continuous improvement within these communities, promoting a global and healthy competitiveness.

ENVIRONMENTAL MANAGEMENT

Environmental protection is a key element of our corporate culture. In a fast-changing world our global success depends on our ability to react quickly. We do this through independent operational units that are bonded by a common culture. Our strong culture of Total Quality Management (TQM), teamwork, the empowerment of individuals and a focus on continuous improvement, helps us pursue our Decalogue goals across the Company.

ORGANIZATION

Environmental care is a high-level concern. The Corporate Environmental Steering Committee (ESC) is chaired by our CEO and supports all aspects of the Decalogue. A Corporate Vice-President heads our Total Quality Environmental Management (TQEM) organization.

The Environment Strategy group promotes a company-wide culture of environmental protection and the implementation of our vision, mission and policy. Locally, an Environmental Steering Committee and a Site Environmental Champion (SEC) are active in every environmental initiative. They provide a link between the Corporate Environment Strategies Group, Site Management (Purchasing, General Services, for instance), as well as with other functions such as R&D and Operations. Several strategic teams (Corporate Environmental Working Groups - CEWGs) ensure environmental consistency at ST sites around the world, providing guidance and support.

- **Maintain the ISO 14001 certification and EMAS validation of all our sites worldwide. Certify new sites within 18 months of their operational start-up.**

ENVIRONMENTAL MANAGEMENT SYSTEMS

By the end of 1997, 17 of ST's manufacturing sites were EMAS validated and ISO 14001 certified. Of the remaining two sites recently acquired by ST, one is ISO 14001 certified and the other will apply for certification by the end of 2001. As a prerequisite to obtaining EMAS validation, every site prepared and published a detailed Environmental Statement outlining its consumption of natural resources and release of substances to the environment. As required by EMAS, all sites update this Statement annually.

To maintain ISO 14001 certification, all sites receive a yearly surveillance visit by third parties. EMAS revalidation and ISO recertification (after the three-year cycle) of all ST manufacturing sites was completed successfully before November 2000.

Our product design plant in Grenoble, France, was the first of our non-manufacturing sites to achieve certification to EMAS at the beginning of 2001. The design teams at Grenoble have made a range of environmental improvements, such as promoting energy efficiency in product design and a transport initiative encouraging employees to use alternatives to the car.

- **Meet the most stringent environmental regulations of any country in which we operate, at all of our locations worldwide**

REGULATIONS
The Corporate Environmental Working Groups, when necessary are assisted by external resources, to strictly monitor environmental regulations worldwide. This information is used to keep our environmental standards updated.

- **Measure progress/achievement using 1994 as the baseline where applicable, and publish results in our annual Corporate Environmental Report.**
  Cooperate with international organizations to define and to implement eco-efficiency indicators.

MEASUREMENT
Measuring drives behavior. Without measurement, we cannot achieve excellence.

Environmental data from each site is measured against the relevant Decalogue target. This process is managed through the Environmental Database, which enables environmental indicators to be compared, site by site. Internal benchmarking and sharing of information is done through the dissemination of best practises.

Our Environmental Decalogue calls for cooperation with international organizations to define and implement eco-efficiency indicators. This activity has already started and ST has worked closely with the World Business Council for Sustainable Development (WBCSD) on the definition of these indicators and their implementation at ST.

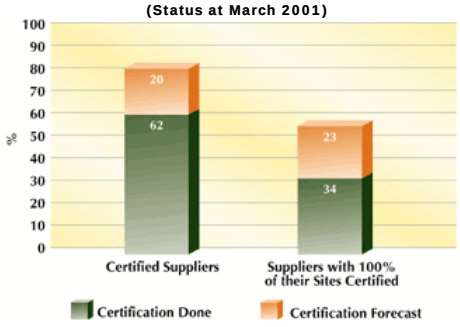
We have begun to use the Environmental Burden approach in several categories of air and water emissions. This is a measure of the potential of a group of substances to exert effects on a particular environmental impact category, such as acidification or aquatic eco-toxicity. The measure allows us to better assess our overall effects on the environment and focus our attention on those areas where the most improvement can be made quickly. We have tested the approach of our global warming potential (see page 19) and will report further on our environmental burdens next year.

- **Continuously monitor our progress, including periodic audits of all our sites worldwide.**

AUDITS
Corporate Environmental Audits are conducted every 18 months at every site to ensure that environmental procedures are carried out and to monitor performance and progress against goals. Each audit ends with an action plan and revelant scoring of the audited site. Both site and corporate audits are verified by external, accredited verifiers during EMAS revalidation, ISO 14001 recertification and ISO 14001 yearly surveillance.

SUPPLY MANAGEMENT
Our supplier audits include questions on environmental performance, which account for 10% of the total score. We also strongly encourage our suppliers and subcontractors to become EMAS validated or ISO 14001 certified and assist them through training, support and auditing. Our goal is for 80% of our key suppliers to be certified to either of these standards by the end of 2001. By March 2001 over 80% of our key suppliers have obtained or are in the process of getting environmental certification (and 34% of them have all their sites certified).

CORPORATE MATERIALS SUPPLIERS CERTIFICATION
(Status at March 2001)



ENVIRONMENTAL AWARENESS AND TRAINING
Training is provided at each site to increase the environmental awareness of employees and outside contractors. This includes:

- a detailed commentary on the Decalogue and the site's Environmental Statement
- an overview of the Corporate and Site Environment Manual
- an explanation of the role and responsibility of each new employee in the site's environmental management system
- a tour of the site's main environmental facilities
- an environmental session in the induction training for new employees.

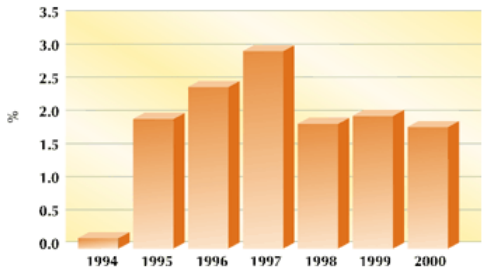
Supported by the Site Environment Champion, local trainers offer specific instruction on the control of the potential environmental effects listed in the relevant Site Register. This applies to all personnel operating, supervising, monitoring or maintaining environmental infrastructure, such as wastewater treatment, scrubbers, chemical and waste stores. Employees working with or around chemicals receive specific training how to respond to incidents and the use of protective equipment.

The training is part of the job Certification Program. ST personnel are given a yearly refresher course or whenever there are major changes. In addition, an advanced Environmental Awareness seminar on a CD-ROM, designed and developed at STMicroelectronics University, is available to ST's suppliers and customers.

INVESTING IN THE ENVIRONMENT
In the long term, we believe that companies investing in environmental protection have a significant advantage over those who delay. This is because any investment will be largely repaid if production processes are pollution-free and the use of natural resources and energy are reduced. We have already proved that business can be both environmentally responsible and profitable.

None of our investments in energy conservation has taken longer than three years to recover - average payback time has been less than two years.
Environmental investments account for approximately 2% of our total Company investments.

ENVIRONMENTAL INVESTMENT
(% of Total Company-approved Investments)



PAYBACK FROM ENVIRONMENTAL INITIATIVES
Increasingly, investors - including banks and socially-responsible funds - are choosing companies that deliver an excellent environmental and financial performance. As well as attracting investment, environmental improvements can help us save money through efficiency gains.

ST continues to be highly ranked among the leading companies pursuing sustainability. In the semiconductor industry, the Dow Jones Sustainability Group Indexes (DJSGI) ranks us as leader in the integration of sustainability in a comprehensive Total Quality Management System. In July 2000, Innovest Strategic Value Advisors (a US institutional research organization) ranked us first of 14 international and North American semiconductor companies - ST was the only company to be given the highest AAA rating.

- **Encourage our people to lead or participate in Environmental Committee, symposia, groups etc.**

STAKEHOLDER DIALOGUE
We have a long history of being good community citizens. We want
our neighbors to know about our environment successes as well as our challenges. Good community relations - built on excellent performance, genuine dialogue and trust - bring benefits to our stakeholders as well as our Company.

- **Support local initiative for sponsoring environmental projects at each site in which we operate.**

Stakeholders include employees, neighbors, customers, the financial community, suppliers, citizens groups, government, and competitors. We are establishing a methodical process to communicate with each stakeholder group, to supplement existing informal dialogue. We work with national and international associations as well as with local groups.
Since 1994 ST has coordinated the European participation in the International Semiconductor Conference on Environment, Safety and Health (ISESH) sponsored by the Semiconductor Industry Association (SIA), the European Electronic Components Manufacturers Association (EECA), the Electronic Industry Association of Japan (EIAJ), and the Korean Semiconductor Industry Association (KSIA).

ST is also a member of the World Business Council for Sustainable Development (WBCSD), the Sustainable Business Forum and World Semiconductor Council (WSC) ESH Task Force where priority projects include reductions in PFC emissions (see page 28), energy use and chemicals. Our involvement in national and international trade associations is listed in Appendix 3.

Closer to home, we realize that many people, including our employees, are concerned about the effects of intensive agriculture, including the use of genetically modified organisms, on the quality of food and the rural environment. The cafeterias of our sites in Agrate and Castelletto in Italy have begun offering organic food at minimal extra cost and hope to go totally organic in the near future. We intend to do the same, where possible, in other countries.

PROBLEMS
The presence of CFCs in a new ST property in Phoenix, Arizona (quoted in last year's CER) is now solved with the substitution of the chillers.
During 2000, due to huge capacity increases, some of our waste water treatment plants had to be upgrated to respect environmental legislation. This was the case at our Rancho Bernardo site in California. A Notice of Violation from the City of San Diego for exceeding the waste water discharge limit of Cyanide was received. This deviation was immediately corrected.

The Texas Natural Resource Conservation Commission(TNRCC) inspected the site of Carrollton in May 2000 and issued a Notice of Violation related to labeling and storage requirements for hazardous waste. The site responded within the required 45 days of the inspection describing corrective actions.

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Our Environmental Achievements

We are committed to saving natural resources, reduce waste and emissions to air, water and land. We focus on continuous improvement to our environmental performance. The following pages show corporate results and specific achievements from several of our manufacturing sites. These examples are part of our knowledge-sharing network, helping others to benefit from good practices.

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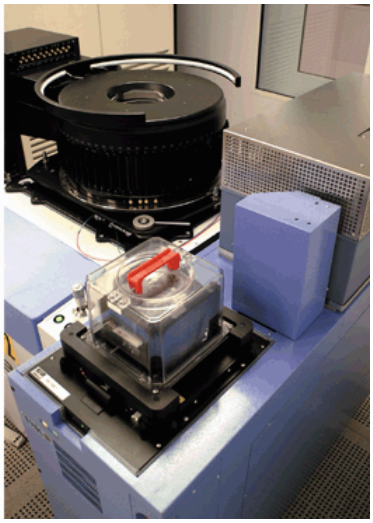
Energy

ST is expert in the practical application of manufacturing science, widely applied throughout its manufacturing operations. For example, at the site in Agrate, Italy, energy savings of 85% in the wafer testing process have been achieved. Instead of testing wafers in an expensive Clean Room atmosphere, a mini-zone of purified air is created only around the wafer itself. Most of the wafer testing can thus take place in air quality similar to that of offices.



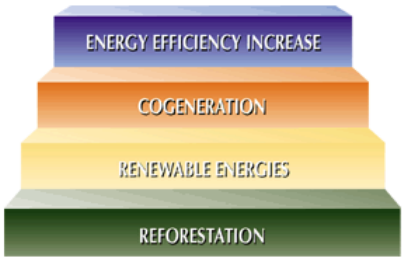
We believe that the most pressing environmental threat is climate change, caused by the increase in greenhouse gas (GHG) concentrations in the atmosphere. We have therefore set the highly ambitious goal of becoming carbon dioxide (CO_2) neutral by 2010. This means that by that date our operations will not contribute to climate change.

CO_2 is the principal greenhouse gas. This is produced when fossil fuels - gas, coal and oil - are burned to make heat and electricity for homes and industry. Experts fear that the increased concentration of GHGs is making the world hotter - often referred to as global warming.

We use energy in our factories and when distributing our products. Even though our total contribution to climate change is relatively small in global terms - we use enough electricity to supply a town roughly the size of Venice in Italy - we are determined to do all we can to reduce our contribution to climate change.

For a typical semiconductor manufacturer, electricity can be the largest single expense. Our target is to reduce total energy consumption by at least 5% a year for each million dollars of added value. (Added value refers to sales revenue minus purchasing costs). This will help us meet our goal to neutralize our CO_2 emissions by 2010. We intend to achieve this by: increasing energy efficiency; using heat and power plants; using renewable energies and creating carbon sinks through reforestation.

CO_2 EMISSIONS REDUCTION TOOLS

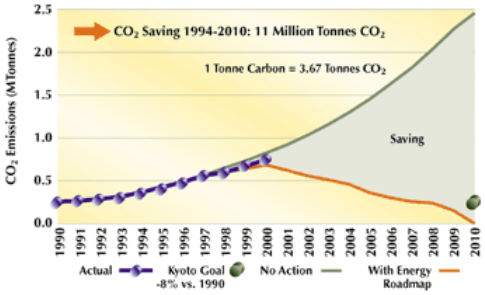


If the improvement in energy mix foreseen for 2010 is achieved (65% cogeneration, 30% conventional, 5% renewable), this will allow CO_2 emissions for each million dollars of production to drop by more than 80% from the 500 tonnes 1990 to only 80 tonnes in 2010. Reaching the Decalogue goal for energy will result in company-wide savings of $900 million for the period 1994-2010.

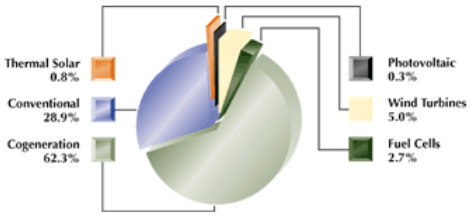
We have developed an energy roadmap for reducing CO_2 emissions and estimate that overall CO_2 savings of 11 million tonnes can be achieved during the period 1994-2010. Based on our energy roadmap, we estimate that conventional energy will account only for 29% of our total energy demand in 2010.

CO_2 EMISSIONS SAVINGS

(Baseline 1994)

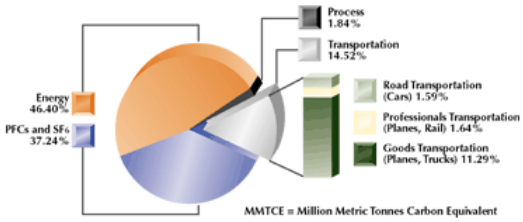


ELECTRICAL ENERGY ALLOCATION: 2010
ST Energy Roadmap 1997 - 2010

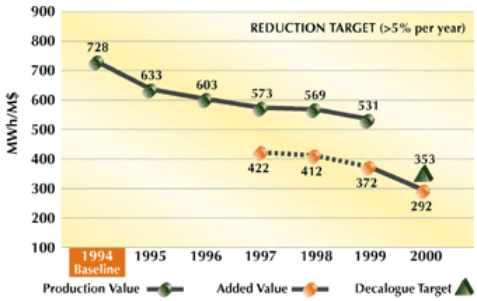


The chart below shows our greenhouse gas emissions by source, converted to carbon-equivalent, to measure our Global Warming Index for 2000. It includes direct emissions from our facilities and manufacturing processes, indirect emissions from energy consumption, emissions from employee transport and emissions from product transport. Overall, ST estimates 0.49 million metric tonnes of carbon equivalent.

GLOBAL WARMING INDEX



ELECTRICITY CONSUMPTION



Continue to reduce total energy consumption for million dollars of added value by at least 5% per year

INCREASE ENERGY EFFICIENCY
The trend in energy saving continues to improve - 29% over the period 1994-2000 at equal production. We recently changed our indicator - from Production Value to Added Value - but this has not influenced the trend.

Examples

Technical improvements in the way we test wafers at our site in Agrate, Italy, provides an energy saving

of 85%. This has been achieved through a new competitive technology to probe wafers by creating a minizone of clean area around the wafer under test. This delivers productivity improvements and a more flexible plant layout, eliminates the need for an expensive clean-air work area and allows most of the testing to take place in air quality similar to offices.

- Our Ball Technic System (BTS™), an energy-saving technique to descale condenser tubes pioneered at our Toa Payoh site in Singapore, is now being used by other plants, as a result of the ST Knowledge Sharing initiative. This has produced a saving of 18,000 MWh per year (equivalent to more than $1.2 millions per year).

- In our Malta site before 1999, no means of heat recovery in HVAC was available. A heat recovery system was installed in 1999 and since then the recovery system from the compressors has resulted in a powerful tool for the improvement of energy conservation (less fuel consumption), with the additional benefit of reduction of CO2 emissions as shown in the chart below.

Alternative Energies: adopt, wherever possible, alternative energy sources such as cogeneration and fuel cells

USING COMBINED HEAT AND POWER PLANTS

Conventional power stations that burn fossil fuels give off a lot of heat, wasting as much as 70% of the energy they consume. We are starting to use a more efficient generating technology that uses a system known as combined heat and power (CHP), or cogeneration, that captures most of the waste heat and uses it to make steam or provide heating.

By 2010 combined heat and power energy should supply 65% of ST's electricity with 30% coming from conventional methods.

Examples

- At Catania in Italy we intend to buy electricity, heat and cooling from a new gas-driven CHP plant being built close to our site. This will prevent the emission of more than a quarter of the CO2 that would otherwise have been released. The same approach will be adopted in six other factories and all new plants will get their energy from CHP plants.

Renewable Energies - wind, photovoltaics and thermal solar. Increase their use to provide at least 5% of our total energy supplies by end 2010

USE RENEWABLE ENERGY WHERE ECONOMICALLY VIABLE

There is a lot of energy in the wind and the sun. Societies throughout the ages have made use of this renewable resource to drive windmills (to grind wheat and pump water). Engineers have designed new technologies that can harness the wind and the sun to make electricity. Modern windmills drive turbines and photovoltaic cells convert light into electricity.

While these methods are clean and the power endlessly renewable, they are still not as efficient as fossil fuels and are therefore a lot more expensive at current prices. Wind power can be competitive in certain windy areas. The cost of solar power is falling as the technology improves and demand for solar cells increases.

Greater interest in renewable energy - driven by the threat of climate change - and improvements that reduce costs are making the technologies increasingly attractive. We have started pilot projects in both wind and solar energy.

Examples

- In Phoenix, Arizona, USA, we have installed a 20 kW solar power generating plant on the roof of our factory, in a joint project with the local energy company. Although it will supply less than 1% of our electricity needs there, we hope that the pilot will lead to improvements in the technology and wider use of solar power.

- In Saint Genis, France, close to the Jura Mountains, we are planning to erect a 660 kW wind turbine that will be connected to the electricity grid. This will supply about 40% of the electricity needed for our nearby offices. CO2 output will by reduced by 67 tonnes a year - about the same as a gasoline car would produce traveling for 250,000 kilometers.

- A feasibility study for a larger project is also in the final negotiation stages in Morocco where we plan to install a wind farm. The electricity generated by this power plant should supply about 20% of the current power demand of our two Moroccan sites - bringing savings in CO2 of some 13,000 tonnes of CO2 annually.

Carbon Sequestration: compensate the remaining CO2 emissions due to our energy consumption through reforestation or other means aiming at total neutrality towards the environment by 2010

PLANT TREES TO ABSORB CARBON DIOXIDE

Carbon is absorbed and stored when plants grow (through the biological process of photosynthesis) and also by the sea (the salt water reacts with the CO2). These carbon stores are called sinks. Planting more trees is the easiest way to ensure that greater quantities of CO2 are absorbed - a process known as sequestration. In theory, a carbon-emitting activity, such as a plane flight, can be "neutralized" by planting an appropriate number of trees to absorb the CO2. And because global warming is a global problem, it means that trees can be planted anywhere in the world to achieve the same effect.

But there are also problems associated with planting forests for this purpose. First, the trees will release CO2 if they die or are burned in a forest fire. Second, some trees need a lot of water and can deplete groundwater reserves in dry areas. Exotic species can cause infestation when their seeds are spread by the wind. To prevent these and other environmental impacts, great care has to be taken to plant the right trees in the right places, and provide long-term care.

We are involved in the final stages of negotiation for a significant carbon sequestration program which, through extensive reforestation, aims to neutralize our greenhouse gases emissions. Working with the Stephen F. Austin State University in East Texas, the plan is to plant native pine trees over an area of 2,000 to 8,000 hectares.

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Water

Water plays a critical role in semiconductor manufacturing and, because of the precision required, only ultra clean water can be used. With water reserves being used up or polluted faster than they can be replenished, ST's focus is on conservation, optimization and recycling. At the Company's front-end manufacturing site in Tours, the use of water per wafer produced has been reduced by 46% since 1994. Water which is returned to the Loire River is cleaner than when it entered the plant.

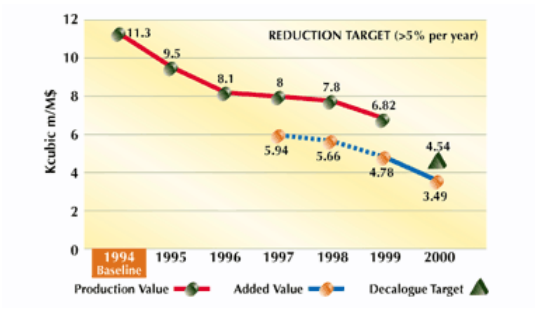
Continue to reduce water draw-down (for million dollars of added value) by at least 5% per year, through conservation, optimization and recycling.
Water recycling: reach a minimum of 90% recycling ratio in two pilot sites by end 2005

Clean water is becoming increasingly scarce throughout the world. In many areas the situation is already in crisis. Underground supplies are running dry and water reserves are being used up or polluted faster than they can be replenished. Almost a billion people do not have enough safe drinking water. Rapidly growing populations, especially in cities, are demanding more water than can be supplied. Shortages of clean water impact on the quality of people's food and domestic life, their health and general welfare.

Water plays a critical role in the semiconductor manufacture. It takes about 1,500 liters to make one wafer. Only ultra-clean water can be used because of the precision demanded. Conservation of water is one of our corporate goals and it is an imperative at several sites where water supplies are scarce or diminishing. We are concentrating our efforts on developing methods to reuse wastewater in manufacturing.

Much like cleaning clothes, we wash off chemicals and metal residues from our products and these impurities end up in wastewater, which must be cleaned before it is reused or released to rivers and seas.

RAW WATER CONSUMPTION

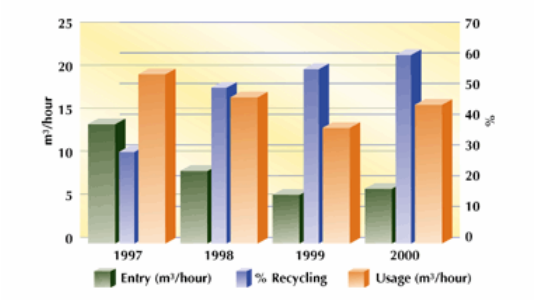


We largely met our Decalogue target, saving 45% at equal production value in the period 1994-2000.

Examples

- Our Malta plant has made dramatic improvements in water use. Actions include microfiltration to remove silicon dust after wafer cutting; using reverse osmosis ion-exchange resin to clean water from plating processes; recovery of waste brine from the Electrodialysis Reverse (EDR) water purification system - used as toilet flush water; storing of rain water; using less soft water for the regeneration ion exchange resins. The site will be the first to reach our 90% water recycling target by 2005. A second pilot site has been selected at Rennes in France.

WATER CONSUMPTION AND % OF RECYCLING



Examples

- In our Rousset site in France the conventional technology (ion exchange) used to produce ultra pure water has been replaced with electro-deionization. This has reduced the use of chemicals (50% less sulphuric acid and 90% less sodium hydroxide). Using less chemicals has produced other benefits, including smaller storage areas, easier compliance with regulations, fewer truck movements and no polluted effluents.

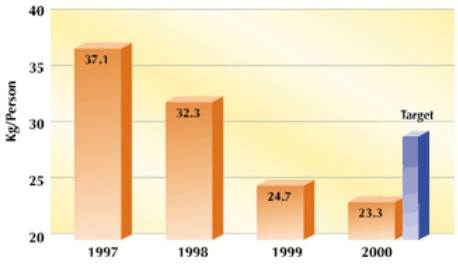
Corporate Environmental Report

Paper

Trees: reduce office and manufacturing paper consumption (kg per employee) by at least 10% per year

Use of recycled paper has risen from about 50% in 1994 to over 98% in 2000. We have reduced the use of paper per employee by 37% from 1997-2000.

PAPER



We produce thousands of different products, each with complex specifications that are documented in detailed technical manuals, datasheets and user notes. We use significant amounts of paper in publications, printouts, photocopies, office forms and clean-room paper (lint free).

Examples

- By publishing technical documents on CD-ROM and DVD the number of publications printed by our corporate technical documentation center in Agrate, Italy, decreased from 120 tonnes in 1995 to only 2.4 tonnes in 2000.

Corporate Environmental Report

Emissions to air

Air scrubbers are installed at all ST sites and treat acid droplets and fumes from the manufacturing processes which may by harmful to man and to the environment. As well, all scrubbers are equipped with variable frequency drives to conserve energy.

Ozone depleting substances (ODS): phase out all remaining Class 1 ODS included also in closed loops of small equipment, before end 2001

All Class 1 Ozone Depleting Substances were eliminated from production processes by 1993; by 1997 from all large refrigeration units (chillers); and since 1998 from fire-fighting systems. These actions required investments of some $20 million. The phase out of all the remaining Class 1 ODS still present in some small equipment was successfully achieved as well as the ODS present in the air conditioning system in an acquired building in Phoenix, Arizona.

Many semiconductor manufacturing process use chemicals and gases that can be harmful to the environment. For example, the wet etch process uses acids such as Hydrochloric Acid, Hydrofluoric Acid, or Sulfuric Acid. Without treatment, emissions could acidify the environment.

Scrubbers are installed at most of our manufacturing facilities to abate emissions, such as as acids, alkalis and solvents. All scrubbers are equipped with variable frequency drives to conserve energy and to maintain the standard exhaust pressure needed by the equipment.

Examples

- At our Carrollton site in Texas, USA, a system was installed in 2000 to segregate acids, VOCs and ammonia exhaust for treatment. Over 95% of all VOCs are removed through absorption and extreme heat - an approach being adopted at other ST sites worldwide.
- At our Agrate site in Italy, a system was installed in 2000 to segregate VOC exhaust and to reduce other air emissions. Inorganics were reduced from 8.2 tonnes/year to 0.79 tonnes/year. Powders were reduced from 1.17 tonnes/year to 0.54 tonnes/year.

PERFLUORINATED COMPOUNDS (PFCs)

PFC: reduce emissions of PFC (tonnes of carbon equivalent per M$) by at least a factor of 10 in 2008 versus 1995

Perfluorinated compounds (PFCs) - widely used in the semiconductor industry - are very stable, non-toxic, ozone-benign substances that have a long life in the atmosphere and contribute to climate change.
Our industry uses several types of PFCs with Global Warming Potentials ranging from 6,500 to 23,900 times the carbon dioxide equivalent.

ST leads the European task force of the World Semiconductor Council (WSC) which has set a challenging goal to reduce the aggregate absolute PFC emissions from the industry to 10% below 1995 levels, by 2010. Twenty four companies have signed a Memorandum of Agreement to share all technical information on PFCs and to report results and progress according to the international standards developed by the Intergovernmental Panel for Climate Change (IPCC).
Experts have suggested three major solutions:

- Process optimization to reduce PFC consumption and emissions
- Use of alternative chemicals

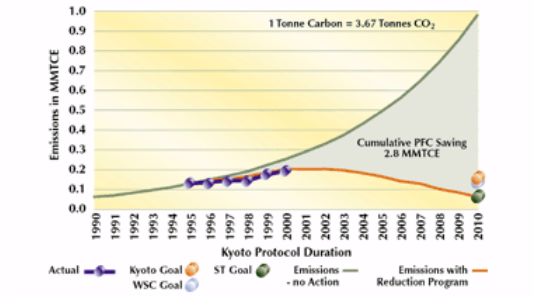
- Abatement systems that destroy most (more than 95%) of the PFC emissions

We will contribute to this program by reducing our PFC emissions by 10% below 1995 levels, by 2008 - at least two years before the WSC deadline. More than 60 PFC abatement systems have already been installed.

Alternative compounds, such as C3F8 (reduces emissions by 40-70%), are being used in several of our locations, in the USA, France and Singapore. New equipment using an alternative called NF3 (can cut emissions by 95%) is operating in our advanced manufacturing sites.

We are working in partnership with universities to research alternative compounds. New solutions, such as plasma abatement technologies, are being tested in Rousset, France, Agrate and Catania in Italy, and Phoenix USA. Catalytic absorption systems are being tested in Catania, Italy.

PFC ABSOLUTE EMISSIONS
(Calculated with IPCC Tier 2c method) - Baseline 1995



Although absolute PFC emissions (expressed in carbon-equivalent) have increased due to the growth in manufacturing output, there has been a 35% reduction in PFC emissions per wafer produced between 1995 and 2000. PFC emissions per $million of added value dropped 30% down between 1995 and 2000.

Corporate Environmental Report

Contamination

Handle, store and dispose of all potential contaminants and hazardous substances at all sites, in a manner to meet or exceed the strictest environmental standards of any community in which we operate

Semiconductor manufacturing requires the use of potentially contaminating chemicals and gases. In 1996 we adopted a very rigid policy to assess the impact of new chemicals on environment, safety and health. This states:

“No new production or non-production chemical and no product containing a new chemical will be brought on-site until it has been evaluated. No new equipment requiring the use of a new chemical will operate on the site until the new chemical has been evaluated for its potential impact on the environment or on the site's environmental control/abatement system”.

Spills or leaks of acids, solvents, fuel or other chemicals are a potential hazard to land and groundwater. This is why liquid chemicals are surrounded by containment structures to prevent contamination if there is an accidental spill or emergency. In manufacturing areas, chemicals and toxic substances are stored in separate and clearly marked containers. In the chemical stations, the loading points of the different chemicals are mechanically differentiated to avoid any accidental mixing.

Supplying chemicals in bulk containers (instead of several smaller ones) and piping to the point of use reduces the risk of spills. Other preventive measures are also in place, such as double-skinned pipes, automatic leak detection, and abatement systems.

ST emergency preparedness has two main steps: first, assess risk of sudden releases of chemicals and other noxious materials; second, plan for emergency response if preventive measures fail.

All sites have an emergency response team composed of:

- an emergency coordinator with overall responsibility for organizing and coordinating the response to an emergency
- specialized emergency response teams
- people in charge of contacting key personnel and public authorities
- adequate emergency response equipment and at least one emergency on-site control center

The site emergency plan includes:

- description of the environment surrounding the site
- summary of major accident scenarios and relevant responses
- emergency response organization staffing plan; emergency contact lists
- location of on-site control center(s); evacuation paths and location of assembly points
- location of emergency response equipment and resources
- clean up procedures
- maintenance of incident log book
- mutual aid resources, where applicable; in such a program, the companies in an industrial zone agree on mutual aid should an emergency occur - fire teams, for example

Some sites use “just-in-time” chemical delivery to minimize chemical inventory.

Ground wells at the up-gradient and down-gradient of every site have also been installed to track the quality of the groundwater flowing underneath manufacturing sites. Analyses are made at least once a year, and more often if there is a potential concern.

Corporate Environmental Report

Chemicals

Besides an aggressive roadmap for chemicals reduction through process optimization and recycling -- simple actions often make significant improvements to health and safety. At ST's site in Carrollton, Texas, chemical developer was originally handled in 172,821 separate bottles and 220 drums. By implementing bulk distribution via 1,200-liter containers, safety was greatly improved and plastic waste reduced.

Reduce the consumption of the six most relevant chemicals by at least 5% per year (tonnes per M$), through process optimization and recycling (baseline 1998)

Semiconductor manufacturing processes need significant amounts of chemicals. We make strenuous efforts to minimize their use, for example, by substitution, process optimization, hardware modifications, on-site generation, recycling for reuse, and the installation of Total Chemical Management (TCM) in partnership with key suppliers. This improves the management of chemicals, increases safety and reduces cost.

CHEMICALS SAVING PRIORITIES

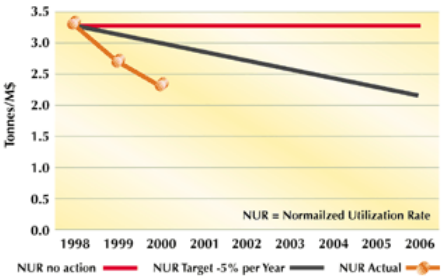
In 1999 we formalized a Corporate Chemical Saving Roadmap based on best practise. In 2000 all our sites established a local chemical saving roadmap which adapted corporate guidelines to local conditions. Particular emphasis is given to the following programs:

- Hardware modifications to enable the use of diluted chemicals in spray processors. This system operates with much lower chemical flow rates and leads to chemical savings of about 90%, achieved with limited investment and producing a payback in less than a year. The program is being adopted by our sites where appropriate, which could save about 150 tonnes of chemicals a year
- Total substitution of sulfuric acid with deionized water and ozone in a wafer manufacturing process. Agrate in Italy was the first to use the new recipe and produced savings of 46,000 liters of H2SO4, 10,000 liters of H2O2 and 3,000 liters of ammonia during 2000. The return on investment is estimated at under four years, with cost savings of $0.07 per wafer in one pass.

Our cumulated consumption of the most important chemicals selected for reduction (photoresists, developers, sulfuric acid, hydrofluoric acid, hydrogen peroxide, solvents) has decreased from 2.7 tonnes/M$ of added value in 1999 to 2.3 tonnes in 2000. That means less chemicals are needed to produce a wafer and consequently to

generate a one dollar of added value, improving the global eco-efficiency of our chemical use.

CHEMICALS CONSUMPTION

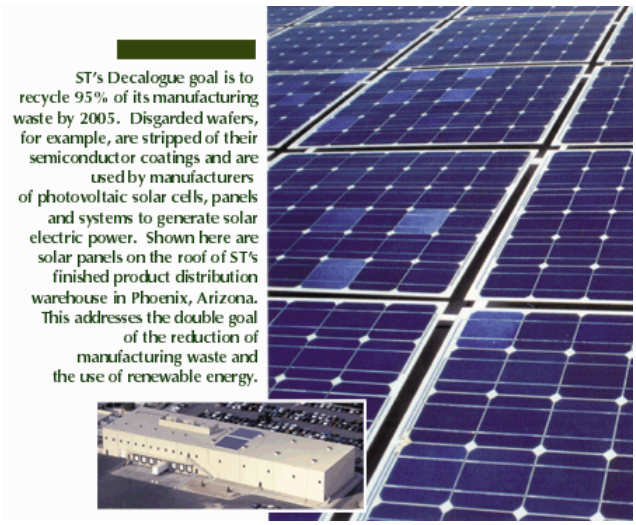


Examples

- New equipment at our site in Tours, France, has reduced sulfuric acid consumption by 67% in a year. In 2000, 400 tonnes of sulfuric acid and 133 tonnes of hydrogen peroxide were saved. Return on investment is under two years.
- Our site in Phoenix, USA, has evaluated an aqueous substitute for a hazardous solvent used for etching. Its use will also help reduce the use of isopropyl alcohol. This solution is being implemented and the technique will be shared with other sites.
- Development work continues at our site in Agrate, Italy, on a cleaning sequence that does not need sulfuric acid and reduces the use of hydrogen peroxide and hydrochloric acid by 75%. Our researchers are hoping the process can be further developed to eradicate the use of hydrogen peroxide and ammonia.
- A new dryer in Catania, Italy, reduced isopropyl alcohol use by 108 kilograms per day (saving $392 a day). New pumps and an improvement to a manufacturing process produced chemical savings of 4,000 kilograms a year, and saved $1million a year.
- Modifications at our Singapore site saved 1,500 liters of hydrofluoric acid a year (payback of under one year). Consumption of hydrogen peroxide in 2000 was reduced by 13% per wafer.
- Our Muar plant in Malaysia has eradicated the use of sulfuric acid in some lines by simplifying the existing process, saving 81,200 liters annually, worth $15,000 per year. Improvements to the deionised water system produced savings of $21,000 a year.

Corporate Environmental Report

Waste

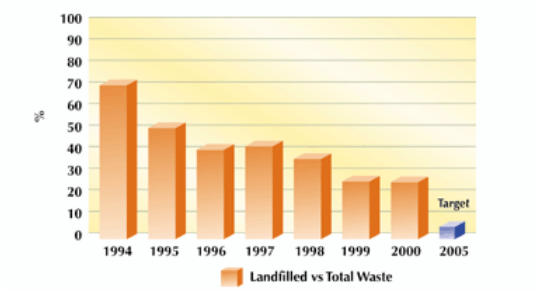


Waste may pose a threat to the environment, is subject to legislation, and can also be turned into a source of revenue. The best approach is to emphasize prevention and eliminate waste at the design stage (see Ladder Concept in Appendix 4).

Landfill: reduce the amount of landfilled waste below 5% of our total waste by 2005

LANDFILL
Landfilling waste is becoming more expensive because of tougher legislation and the increasing scarcity of sites. We separate our waste into more than 30 different categories, facilitating re-use and recycling, thus reducing the quantities that go to landfill. Waste sent to landfill has decreased by a factor of almost three from 1994 to 2000. The flat trend for 2000 is due to building waste from new and expanded buildings.

LANDFILLED WASTE



Reuse or recycle at least 80% of our manufacturing and packing waste by end 1999, and 95% by end 2005

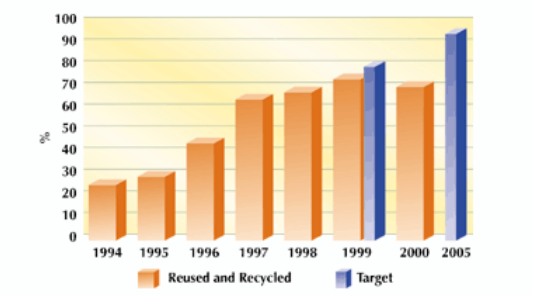
MANUFACTURING
Recycling waste is less expensive than discarding it. The graph shows the achievement obtained in manufacturing waste reuse/recycling. (Building waste from new and expanded buildings has slightly affected the total waste figure).

Examples of some of our actions to improve our waste reuse and recycling include:

- sludges produced by the waste water treatment plants are sent to the cement and brick industry

- deflashing waste powders are sent for precious metals recovery
- extensions of laser deflashing to avoid resin flash waste
- cleaning and reusing gloves and overshoes, where possible. For example, in 2000 at our site in Tours, France, we reused 26% of gloves (saving $15,000) and 34% of overshoes (saving $16,000)
- reject silicon wafers are increasingly used in solar panels, which avoids landfilling and resmelting

MANUFACTURING WASTE
(Reused and Recycled)

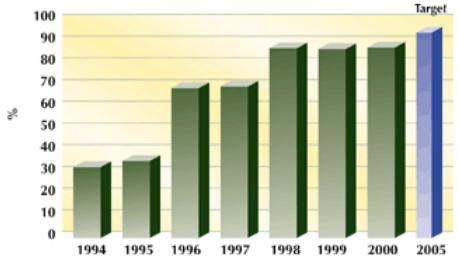


PACKING WASTE
We have arrangements with recycling and packaging companies to take back packing tubes and plastic trays for recycling.

We buy a mix of recycled and new plastic trays. This saves money, for example, our site at Malta has more than halved its costs between 1998 and 2000 and Singapore spends 75% less on trays. At our Catania site, wafer packing is reused for inter-company shipments, saving approximately $1.1 million a year.

The following chart shows the amount of packing waste (ie boxes, plastic tubes, plastic trays used for transporting products) that is recycled and reused.

PACKING WASTE
(Recycling + Reused vs Total)



RESTRICTION OF HAZARDOUS CHEMICALS
Detailed information on all ST products is provided to customers, including a technical description of the chemical and physical characteristics of ST packages.

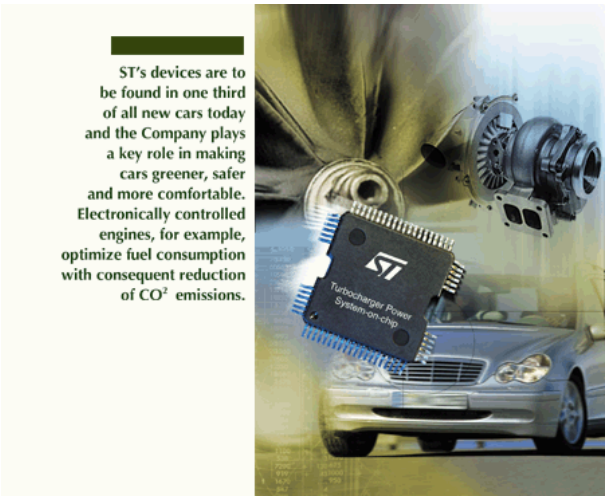
We have also launched the ECOPACK® program which is intended to identify environmental friendly packaging materials. With this program ST will to eliminate hazardous materials (lead, antimony and bromine) in the manufacturing of integrated circuits and discrete packaging. This requires the re-engineering of solder joint technology and the substitution of bromine and antimony as flame retardant in the encapsulation of plastic packages.

The program was started in 1997 with the introduction of Nickel-Palladium plating of SO packages. However due to the increasing cost of Palladium (a 15-fold increase in 3 years) new directions have been developed based on Pb-free Sn-alloys. They will be extended to the large majority of "leaded" packages in 2001-2002.

A Pb-free BGA (Ball Grid Array) package was developed and validated in 1999. In 2000 the first TSOP (Thin Small Outline Package) using bromine/antimony-free molding compounds was qualified and is now in full production.

Corporate Environmental Report

Product and technology



Design products for decreased energy consumption and for enablement of more energy efficient applications

As a broad range semiconductor manufacturer our aim is to make products that are energy-efficient when used. Where possible, our designs comply with the US Energy Star programs, a government-backed energy efficiency initiative for electronic products. The chart below identifies the areas where energy efficiency gains can be made.

LEVERAGE FOR FULL CHIP POWER SAVING

Examples

- Lifecycle studies of mobile phones show that most power is used by the charger, especially when the device remains connected when the battery is fully charged. A stand-by feature on the charger - using an ST solution - disconnects the power when the battery is charged, producing considerable savings. For example, if the new solution was used on the 300 million mobile phones sold in 2000, about 49 GWh of electricity could have been saved - enough to power a town of 10,000 people.
- ST produces a range of solutions for the automotive sector, including integrated circuits for engine control, electronic fuel injection, ignition, airbags, electronic power steering and ABS braking systems.

Electronically activated valves, powered by ST devices will soon replace traditional mechanical versions. ST is developing electronic systems designed to optimize engine performance, significantly reducing pollution. Primarily with our Japanese partners, we are involved in developing hybrid cars that use both an electric and thermal engine.

Corporate Environmental Report

A history of Environmental Progress

These Key Environmental Events are a testimony to our proactive environmental approach

1993

- Change of attitude: from compliance to international and local regulations to a proactive mode
- Created the Corporate Environment Strategies Management organization; issued the Environmental Policy; decided to implement the EMS (Environmental Management System), nominated the Site Environmental Champions (SEC)
- Launched an aggressive, long range company wide initiative with the declared goal of establishing ST as the world leader in environmental protection for the year 2000
- ODS Class 1 complete elimination from our processes

1994

- Initial environmental review on all manufacturing sites
- Decision to apply for EMAS validation
- Adhesion to ICC Business Charter for Sustainable Development

1995

- First Corporate Environmental Day
- Issued the first “Environmental Decalogue” with the quantified main environmental objectives of the Company (distributed to all employees, customers, suppliers and partners around the world)
- First site EMAS validated
- First worldwide Environment meeting (all sites represented)

1996

- Environmental training for top management and start up of the “train the trainers” sessions
- Start up of the first Corporate Environmental Working Groups (CEWG)
- Second worldwide Environment meeting

1997

- All 17 manufacturing sites both EMAS validated and ISO 14001 certified [all 7 European sites EMAS registered by the European Commission (EC)] ODS class 1 elimination from facilities
- First Corporate Environment Report (CER)

1998

- First Life Cycle Inventory (LCI) on a finished product
- Chemical content of S/C package publication
- Environmental training for suppliers (through CDROM)
- Third worldwide Environment meeting

1999

- Second “Environmental Decalogue” issue (setting the very aggressive goal of making ST a zero CO2 equivalent emission Company by the year 2010)
- Energy, PFC and Chemicals Road Maps definition
- Letter of President Clinton congratulating our CEO for the efforts of the S/C industry to reduce the

In 2000, the Akira Inoue Award for Outstanding Achievement in Environment, Health and Safety in the Semiconductor Industry was presented to ST’s CEO,Pasquale Pistorio.

greenhouse gases emissions

- Winner of the EPA Climate Protection Award
- ST selected by Dow Jones Sustainability Group Index (DJSGI) as the world's leading S/C Company for Sustainability
- More than 50% of ST key suppliers environmental certified
- Fourth worldwide Environment meeting

2000

- ST finished first out of 14 international and North American based semiconductor companies and the only Company awarded with the highest AAA rating (by Innovest Environmental Research)
- About 70% of water recycling rate met by Malta plant
- ST ranked among top corporate sustainability leaders worldwide (and rated leader in the semiconductor industry)
- Akira Inoue Award to ST's CEO for the outstanding achievements in the EHS field. The award is presented annually to the person who has made the most outstanding contribution to Environment, Health and Safety
- In 2000, at equal production rate, electricity and water consumption were reduced by 29% and 45% respectively versus the 1994 baseline
- Fifth worldwide Environment meeting

Corporate Environmental Report

Awards and Accolades
Appendix 1

Since 1991 the Company's sites have received more than 70 awards, of which 31 were for environmental issues:

1991	Champion: Clean and Beautiful Factory Competition	Muar, Malaysia
1993	Winner: First Landscape Competition	Muar, Malaysia
	Cornucopia Award: Environmental and Health Coalition	Rancho Bernardo, California, USA
1994	Recognition: Malta Ecological Society	Kirkop, Malta
	Trophy: Best Effort, Clean Up the World Campaign	Kirkop, Malta
	Award: Ministry of the Environment	Toa Payoh, Singapore
	Charter Member: Clean Texas 2,000	Carrollton, Texas, USA
	Certificate of Merit: Recycling and Waste Reduction in the Workplace	Carrollton, Texas, USA
1995	Trophée Hélianthe: Prévention, Récuperation, Valorisation des Déchets	Saint Genis, France
	Winner: Environmental Achievement and Restoration That Help (EARTH)	Carrollton, Texas, USA
	Certificate of Merit: Recycling and Waste Reduction in the Workplace	Carrollton, Texas, USA
	Certificate of Environmental Responsibility	Carrollton, Texas, USA
	Certificate of Plastic Reuse	Carrollton, Texas, USA
	Certificate of Appreciation: Texas Lake and River Cleanup Program	Carrollton, Texas, USA
1996	Recognition: City of San Diego Environmental Services Department's Waste Reduction and Recycling Award	Rancho Bernardo, California, USA
	Recognition: Valley Forward Association	Phoenix, Arizona, USA
	Certificate of Appreciation: Texas Lake and River Cleanup Program	Carrollton, Texas, USA
	Prize: Puliamo il mondo - LEGAMBIENTE	Agrate, Italy
1997	Recognition: French Ministry of the Environment-EMAS Certificate of Registration	All ST sites in France
	Award: EPA Ozone Protection	Kirkop, Malta
1998	Prize: French Ministry of the Environment and French Chamber of Commerc e prize for Gestion Environnementale	All ST sites in France
	Award and special commendation from the Jury: European Better Environmental Award for Industry in the category of Managing for Sustainable Development	All ST sites in France
	Winner: Waste Reduction Award Program (WRAP) California Environmental Protection Agency Integrated Waste Management Board	Rancho Bernardo, California, USA
	Trophy: Trophée Enterprise Environnemental Catégorie Grandes Enterprises by Enjeux-Les Echos and Price Waterhouse Coopers	All ST sites in France

1999	President Bill Clinton's letter on efforts for Greenhouse gases reduction	Addresses P. Pistorio - ST CEO
	Winner: Waste Reduction Award Program (WRAP) California Environmental Protection Agency Integrated Waste Management Board	Rancho Bernardo, California, USA
	Winner: United States Environmental Protection Agency's (EPA) Climate	All ST, Corporate
	Dow Jones Sustainability Gobal Index (DJSGI) Ranking: ST World's Leading Semiconductor Company for Sustainability	All ST, Corporate
2000	Director's Recycling Award Winner from San Diego City	Rancho Bernardo, California, USA
	Hitachi Certificate of Environmental Achievement	ST, UK
	Italian Environmental Ministry Award for EMAS registered sites	ST, Italian sites
	Innovest Environmental Research (AAA rating) All ST, Corporate	All ST, Corporate
	Akira Inoue Award for outstanding P. Pistorio - ST CEO achievement in EHS	P. Pistorio - ST CEO

Corporate Environmental Report

Second Environmental Decalogue (August 1999)
Appendix 2

At STMicroelectronics we believe firmly that it is mandatory for a TQM driven corporation to be at the forefront of ecological commitment, not only for ethical and social reasons, but also for financial return, and the ability to attract the most responsible and performing people. Our "ecological vision" is to become a corporation that closely approaches environmental neutrality. To that end we will not only meet all environmental requirements of those communities in which we operate but, in addition, we will strive to comply with the following ten commandments:

1.0 REGULATIONS

1.1 Meet the most stringent environmental regulations of any country in which we operate, at all of our locations.

1.2 Comply with all international protocols at least one year ahead of official deadlines at all our locations.

2.0 CONSERVATION

2.1 Energy : Reduce total energy consumption (KWh per K$ of added value) by at least 5% per year, through process and facilities optimization, conservation and building design.

2.2 Water consumption : continue to reduce water draw-down (cubic meters per K$ of added value) by at least 5% per year, through conservation, process optimization and recycling.

2.3 Water recycling : reach a minimum of 90% recycling ratio in 2 pilot sites by end 2005.

2.4 Trees : reduce office and manufacturing paper consumption (kg per employee) by at least 10% per year, and use at least 95% recycled paper, or paper produced from environmentally certified forests.

3.0 GREENHOUSE GAS EMISSIONS

3.1 CO2 : reduce total emissions due to our energy consumption (tons of carbon equivalent per M$ of added value) by at least a factor of 10 in 2010 versus 1990, which is a goal 5 times better than the average of the industries meeting the Kyoto Protocol goal.

3.2 Renewable energies : increase their utilization (wind, photovoltaics and thermal solar) so that they represent at least 5% of our total energy supplies by end 2010

3.3 Alternative energies : adopt, wherever possible, alternative energy sources such as cogeneration and fuel cells.

3.4 Carbon sequestration : compensate the remaining CO2 emissions due to our energy consumption through reforestation or other means, aiming at total neutrality towards the environment by 2010.

3.5 PFC : reduce emissions of PFC (tons of carbon equivalent per M$ of added value) by at least a factor of 10 in 2008 versus 1995.

4.0 POLLUTION

4.1 Noise : meet a "noise-to-neighbors" below 60dB(A) at any point and any time outside our property perimeter for all sites, or comply with local regulations (whichever the most restrictive).

4.2 Contaminants : handle, store and dispose of all potential contaminants and hazardous substances at all sites, in a manner to meet or exceed the strictest environmental standards of any community in which we operate.

4.3 ODS : phase out all remaining Class 1 ODS included also in closed loops of small equipment before end 2001.

5.0 CHEMICALS

5.1 Reduce the consumption of the six most relevant chemicals by at least 5% per year (tons per M$ of added value), through process optimization and recycling (baseline 1998).

6.0 WASTE

6.1 Landfill : reduce the amount of landfilled waste below 5% of our total waste by 2005.

6.2 Reuse or recycle at least 80% of our manufacturing and packing waste by end 1999, and 95% by end 2005.

6.1 Use the "Ladder Concept" as a guideline for all actions in waste management.

7.0 PRODUCTS AND PROCESSES

7.1 Design products for decreased energy consumption and for enablement of more energy efficient applications.

7.2 Contribute to global environmental control by establishing a database of Life Cycle Assessment of our products

7.3 Systematically include the environmental impact study in our development process.

7.4 Publish and update information about the chemical content of our products.

8.0 PROACTIVITY

8.1 Support local initiatives for sponsoring environmental projects at each site where we operate.

8.2 Sponsor an annual Corporate Environmental Day, and encourage similar initiatives in each site.

8.3 Encourage our people to lead/participate in environmental committees, symposia, "watch-dog" groups etc.

8.4 Include an "Environmental Awareness" training course in the ST Universtity curriculum and offer it to suppliers and customers.

8.5 Strongly encourage our suppliers and subcontractors to be EMAS validated or ISO 14001 certified, and assist them through training, support and auditing. At least 80% of our key suppliers should be certified by end 2001.

9.0 MEASUREMENT

9.1 Continuously monitor our progress, including periodic audits of all our sites worldwide.

9.2 Cooperate with international organizations to define and to implement eco-efficiency indicators.

9.3 Measure progress and achievements using 1994 as a baseline (where applicable) and publish our results in our annual Corporate Environmental Report.

10.0 VALIDATION

10.1 Maintain the ISO 14001 certification and EMAS validation of all our sites worldwide.

10.2 Certify new sites within 18 months of their operational start-up, including regional warehouses.

Corporate Environmental Report

Company Involvement in Trade Associations
Appendix 3

MEMBERSHIP AT WORLD-WIDE LEVEL:

- Steering Committee for the annual International Semiconductor ESH Conference of the Microelectronics Industry
- World Business Council for Sustainable Development (WBCSD)
- Sustainable Business Forum (board member)
- Chairmanship of the EU Delegation to the World Semiconductor Council

AT THE EUROPEAN LEVEL:

EECA	Chairmanship of the European Task Force on Greenhouse Gases (PFC) Reduction
	Coordination of the European participation in the International Semiconductor ESH Conferences since 1994
	Membership of ETC (Eeca Technical Committee)
	Membership of ETC Environmental Working Group (WG2)
ORGALIME	Italian Representative in the Environmental Committee of Orgalime (Liaison Group of the European Mechanical, Electrical, Electronic and Metalworking Industries)

AT NATIONAL LEVEL:

France

SITELESC	Chairmanship of the Association
	Chairmanship of the Environmental Group

Italy

ANIE	Deputy Chairmanship of the Environmental Committee
	Chairmanship of EMAS / ISO 14001 Working Group
	Membership of the Working Group on VOC Emissions
AICQ	Presidency and Secretariat of Environmental Committee
UNI/ANPA	Membership of the Working Group on EMAS Guidelines
Milan polytechnic	Membership of the Club of Companies for Eco-Efficiency
Bocconi univ.	Membership of IEFE (Istituto di Economia delle Fonti di Energia e Ambiente)
KYOTO CLUB	Membership
INTERSIND	Membership of the Environmental and Safety Working Group

Usa

AIAS	Membership
IEA	Chairmanship of Strategic Environmental Management Committee
AEA	Membership of Air Program Team

Corporate Environmental Report

European Union Strategy for Waste Management
Ladder Concept Synthesis
Appendix 4

Level of Preferability	End of life Treatment	Economic Impact
1	Prevention - avoid waste	++ Saving at source
2	Reuse - use again for original purpose	+ Replacement reduction
3	Recycle - recover for alternative use	+ Material recovery
3a	Recycle - organic conversion (aerobic or anaerobic)	+ Possible compost or methane
4	Combustion - with recovery of energy	+ Energy recovery
5	Incineration - no recovery of energy	&endash; Consumes energy
6	Landfill	&endash;&endash; Land consumption and contamination

Corporate Environmental Report

STMicroelectronics EMAS & ISO Highlights
Appendix 5

MALTA
First for EMAS outside EU (November 1995)

SINGAPORE
First for EMAS (December 1995) and third for ISO 14401

RANCHO BERNARDO (CA, USA)
First in the USA for EMAS (December 1995) and ISO 14001 (February 1996)

CROLLES, RENNES, TOURS, ROUSSET (FRANCE)
Second, third sixth and seventh for EMAS

MUAR (MALAYSIA)
First both for EMAS (October 1996) and ISO 14001 (August 1996)

CATANIA (ITALY)
First for EMAS

CORNAREDO, AGRATE BRIANZA (ITALY)
Second and third for EMAS

AIN SEBAA (MOROCCO)
Probably first in Africa both for EMAS (July 1997) and ISO 14001 (March 1997)

SHENZHEN (CHINA)
First in China for EMAS (October 1997) and third for ISO 14001