Green Korea 2003
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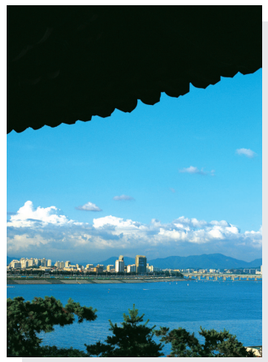
As the eaves in silhouette whisper our traditional beauty, the imagery opens a view of modern Korea where the past meets the future in harmony with nature.



A View of the Han River

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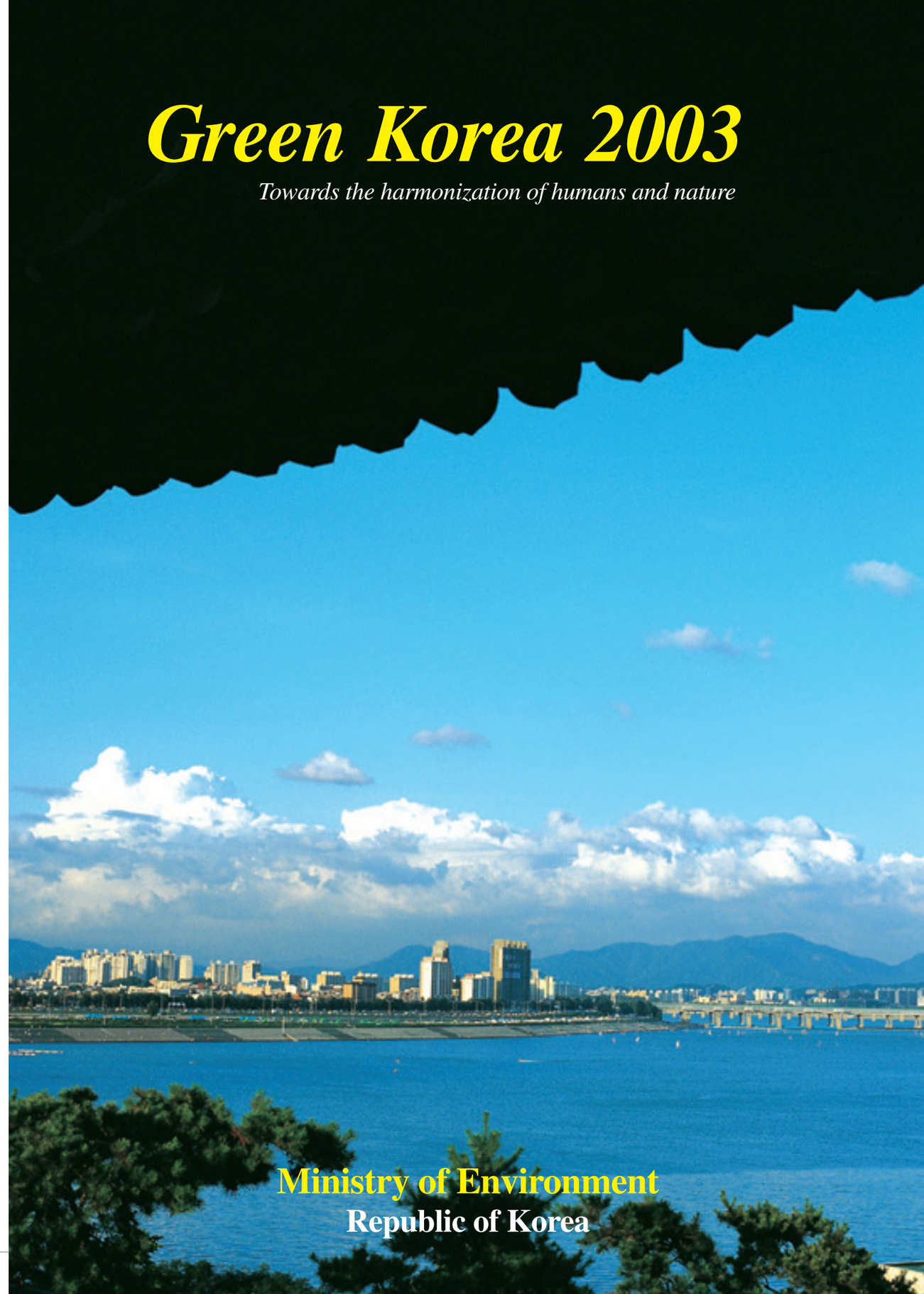
Green Korea 2003

Towards the harmonization of humans and nature



Ministry of Environment
Republic of Korea

DYNAMIC KOREA
CLEAN KOREA

2002 FIFA WORLD CUP

Contents

Preface

As much as it is difficult to make a choice in life and the inevitability of living out the consequences of that choice, it can be rightly projected into the global community and into our collective future.

As a person with great love for nature and concern for the environment, I have developed a habit of interpreting objects and occurrences with focus on their potential impact on the environment. For example, when I saw the rapid diffusion of the internet, I remarked on its usefulness for raising public environmental consciousness rather than worrying about the inherent abuses of the internet.

Likewise, I read "The Road Not Taken" by an American poet Robert Frost (1874-1963) in an environmental light. In the poem, we see the speaker wistfully remembering the time when "two roads diverged in a yellow wood" in his journey of life. After carefully weighing his options, he takes "the one less traveled by" and leads a life distinct from most of his fellow men. His choice has had the force of destiny, and as he approaches his final destination, he sighs for the missed opportunities of the other road.

As much as the poem describes the difficulty of making a choice in life and the inevitability of living out the consequences of that choice, it can be rightly projected into the global community and into our collective future. Of the two roads before us, one leads to sustainable development and the other to material aggrandizement. On the face of it, the latter road appears more attractive with its many economic fruits and technological advancements, but behind this facade lie bare mountains, debilitated ecosystems, unsafe water and polluted air. It affords me much relief to see that the humanity has been foresighted enough to perceive the shadow of this road and navigate our way toward sustainable development, where our children can live in harmony with nature.

We observe that global communities have been striving in earnest to protect the environment since the historic 1972 Stockholm Conference on the Human and Environment. Most recently, countries with different environmental, economic and social conditions put a new cornerstone for sustainable development by agreeing upon the detailed Plan of Implementation at the World Summit on Sustainable Development (26 August-4 September 2002, Johannesburg). As a witness of all these events, I am proud to be a global citizen of this era.

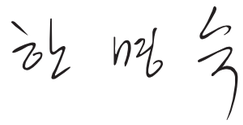
In parallel with these international efforts toward sustainable development, the Republic of Korea has been developing and implementing a wide range of policies to achieve a Symbiotic Community of All Living Organisms based on the principle of precautionary, integrated, and demand-side management. For example, together with various stakeholders, our government legislated the special management acts for all four of our domestic river systems and mandated the enforcement of the total pollution load system, and designation of buffer zones.

Furthermore, the Ministry of Environment has taken bold steps in developing "The Special Act on Air Quality Improvement in the Seoul Metropolitan Area", the drastic measures to protect and improve the air quality of the capital region within ten years. The key features of this special act entail strengthening of precautionary air quality management mechanisms like the total maximum loading system of pollutants, emission trading system, and enhancement of low emission vehicle supply. In light of the Ministry's efforts, the agreement was made among the stakeholders and relevant ministries to further progress the "Special Act on Seoul Metropolitan Air Quality Improvement", and the Ministry is now in the process of preparing the detailed articles of the special act for an enactment in 2003.

We also reinforced the prior environmental review system for environmental soundness of major development projects, and began implementing the Extended Producers Responsibility system in January 2003 to reduce the amount of waste generated and create a resource-circulating society.

Along with such domestic measures, Korea will contribute to global environmental efforts by effectively implementing the WSSD Plan of Implementation, work with our industries to reduce greenhouse gas emissions. In March 2004, we will host the 8th UNEP Special Session of the Governing Council and the Global Ministerial Environment Forum in Jeju Island, a UNESCO-designated biosphere preservation area, to demonstrate our commitment to engaging in global discussions to resolve major environmental problems.

In Green Korea 2003, you will find a good overview of Korea's environmental visions for the 21st century as well as our efforts to realize environmental sustainability. I hope that this publication will prove useful in understanding our policies and in guiding toward sustainable environmental models. Please enjoy.



Myeong-Sook HAN

Minister of Environment
Republic of Korea

Environmental Vision of the Participatory Government

Annual Briefing on the Environmental Policies.

The Republic of Korea is now entering the age of full-scale democratization.

As demonstrated by the 2002 presidential primary of the Millennium Democratic Party, the World Cup soccer finals, and the 16th presidential election, Korean people have become a proactive entity that can change the currents of history through participation. Their voluntary fundraising activities and election campaigns, which were underpinned by emphasis on principle and common sense, induced the emergence of the Roh Moo-Hyun Government.

The Roh Administration stands as the Participatory Government, borne in its very essence by people's voluntary and active participation. The ideals of the Participatory Government indicate that people are now the decisionmakers of national administration and that their participation is essential to achieve reform, integration and sustainable development.

In the five years of the Participatory Government, Korea will develop and implement various environmental policies to realize environmental soundness, economic efficiency and social balance and to open doors to an era of life-respecting and participatory green nation.

A Healthy Living Environment through Precautionary Policies

First of all, Korea will legislate the Special Act on Air Quality Improvement in the Capital Region this year to create a clean and clear atmospheric environment in Seoul and its vicinities to the level of other developed countries.

Secondly, MOE will take measures necessary to improve the quality of water supply sources in the four major domestic rivers and provide safe drinking water to people.

Thirdly, MOE will strengthen the safety management of hazardous chemicals along with waste source reduction and recycling projects.

Finally, MOE will strengthen the safety management of hazardous chemicals, which are rapidly proliferating due to the development of new technologies.

The Republic of Korea will develop and implement various environmental policies to realize environmental soundness, economic efficiency and social balance.

Preservation of a Beautiful Natural Environment

As a priority, MOE will conduct research for the establishment of a sound, 10-year-long Master Plan on Land Environment Preservation. In parallel, we will put into place a basic framework for national land environmental preservation by constructing the National Environmental Performance Assessment Map that divides and manages the entire nation as either preservation or development-permitted zones.

A Symbiotic System between the Environment & Economy

The Korean Government will foster the development of environmental technologies and industries with an objective of becoming one of the key environmental industrial countries in the world by 2010. We will expedite clean technology development and devise a viable solution to regional environmental problems by consolidating the Eco-Technopia 21, which has been underway since 2001 with the total investment of 1 trillion won for 10 years.

International Environmental Cooperation and an Efficient Green Administration

Korea will engage actively in environmental cooperation in line with the new international environmental action plan created after the World Summit on Sustainable Development in September 2002. Additionally, we will prepare to take on the greenhouse gas reduction obligation upon the ratification of the Kyoto Protocol and prepare coherent negotiation strategies for the Doha Development Agenda of the WTO.

In order to promote environmental cooperation with the Asian and the Pacific region to make inroads into foreign markets, we will establish the five-year Strategy for Environment Cooperation with East Asian Countries. Through the periodic publication of Korea Environmental Policy Bulletin, we will share our environmental policies and achievements with other countries.

Besides these efforts, Korea will also make efforts to successfully host the 8th UNEP Special Session of the Governing Council and Global Ministerial Environment Forum (March 2004, Jeju Island), which expects representatives from 150 countries from around the world.

Environmentally Friendly World Cup

Citizens gathered at Seoul City Hall Plaza to cheer for the World Cup Games.

Environmental Management of International Sports Events

Marking a monumental leap in human civilization, the 21st century is moving away from the industrial society towards a dynamic digital society. Complementing the waves of knowledge information and globalization, the paradigm of sustainable development, which puts priority on life and the environment, will govern the workings of the new society.

The environment has become one of the three axes of international sporting events, along with sports and culture. Environmental friendliness now holds key to ensuring the success of sports events as much as state-of-the-art stadiums and efficient event operations.

Against this backdrop, the 2002 Korea-Japan World Cup provided players with an optimal environment to compete, and impressed the world with an image of a pleasant and environmentally advanced country. The World Cup also served as an excellent opportunity to enhance Korea's overall environmental management capabilities, while improving the quality of the environment nationwide, especially in the 10 host cities.

Guided by a comprehensive Environmental Master Plan from initial design to actual operation stages, the Korean Government strove to make the 2002 World Cup an environmentally sustainable sporting event by implementing the following: ① construction of eco-stadiums and creation of a pleasant surrounding environment; ② efficient management and target setup on energy and water resource saving, water quality improvement, and waste reduction and recycling; ③ evaluation and monitoring of environmental performance throughout the event; and ④ partnership establishment among the host organization, the government and citizens, with emphasis on environmental education and publicity.

Environmental Management of the World Cup

In the preceding two years of the World Cup, MOE carried out environmental management strategies in collaboration with civil society and relevant government agencies in line with the Environmental Guideline on International sporting Events and the World Cup Environmental Improvement Plan. By helping to build environmentally sound stadiums along with a pleasant city landscape, MOE contributed greatly to the success of the 2002 World Cup. MOE also put a launch pad for active public participation and demonstrated the spirit of "Dynamic Korea, Clean Korea."

The environment has become one of the three axes of international sporting events, along with sports and culture.

Improvement of Air Quality in the Host Cities

The World Cup took place in June, when the climate in Korea comprises high temperatures, low precipitation and marked rise in ozone concentration. As such, the month of June requires particularly intensive air quality management.

In face of these conditions, MOE replaced diesel-powered city buses with natural gas counterparts in the host and other major cities. As of June 2002, 2,046 buses were distributed for operation mostly in host cities. MOE also expanded the supply of high-quality fuel to reduce air pollutants like ozone. Through a voluntary agreement with domestic oil refineries, ultra low-sulfur fuel (sulfur content: 430→less than 15ppm) and low vapor pressure gasoline (70→less than 60kPa) were supplied respectively to the heavily polluted capital region and the rest of the country starting in 1995.

During the course of the World Cup, MOE implemented air pollution source special management measures, including an odd and even number vehicle operation system on the day and the day before a match. As a result, the level of particulate matters in Seoul in June 2002 fell by 22.2% from the same month last year (81→63 $\mu g/m^3$ per day).

Creation of a Beautiful & Clean Urban Environment

The World Cup provided a strong impetus for transforming Seoul into a green ecological city. In line with this objective, the Korean Government created a World Cup Ecological Park in Nanji Island, which served as a landfill site for Seoul's waste for 15 years since 1978. The host cities also undertook "Planting Ten Million Trees of Life" and "Green Daegu" campaigns, while carrying out an urban afforestation project that makes use of unique local characteristics. For example, downtown rivers and tributaries were designed into a natural river with abundant fish and water plants.

As for unsanitary landfill sites near stadiums, they were streamlined into a visibly less offensive site, and foul facilities like Mapo Agriculture and Fish Market, Ulsan chemical complex, and Daejeon livestock farm were subject to more stringent management.

During the World Cup soccer games (31 May-30 June), a total of 226 waste patrol teams (662 persons) and 231 mobile cleaning teams (885 persons) were organized and put into force. Also as part of an emergency clean-up system, the number of waste bins in bus stations and other such public spaces grew from 16,800 to 24,500. Meanwhile, at some 400 street cheering venues nationwide, citizens engaged in voluntary clean-up activities after games were over and displayed a mature civic mind. Both national and international media alike reported on the dynamic street cheering and independent clean-up activities, complimenting Korea's highly disciplined awareness on cleanliness and order.

Operation of the Environmentally Friendly World Cup

In August 2001, the World Cup Organizing Committee called for restraints on excessive design and distribution of advertising materials and guide

Special Reports

Taking advantage of the World Cup-created image of "Dynamic Korea, Clean Korea," MOE is executing Post World Cup Environmental Measures.

pamphlets. The Committee also took measures to prohibit smoking in spectator stands and install separate discharge bins for reusable wastes. In addition, in order to lay the groundwork for waste-less cheering culture, the Committee held informal discussion forums with the Red Devils, the official supporters of Korea's national soccer team.

Throughout the World Cup, clean management staffs (120 - 150 persons) were assigned to each stadium to take charge of waste bins and collect trash in spectator stands promptly upon the conclusion of a game. Furthermore, MOE induced voluntary clean-up efforts in stadiums by introducing the first ever Clean-up Time System in World Cup history, airing Clean-up Visual Presentation on electric boards (130 times at 32 games) and recruiting Clean-up Leaders from among the pool of ticket holders (4,900 persons nationwide).

Waste Generation in Stadiums Before and After the World Cup

	Before	After	Net Decrease (Ratio)
Average Amount of Solid Waste per Game	18.1 tons	10.4 tons	7.7 tons (42%)

Environmental World Cup Publicity and Public Participation Programs

In conjunction with 4 non-governmental organizations, including the "Korea Waste Movement Network" and the "Local Agenda 21 National Association", MOE drafted the "Daily Action Guidelines for Food Waste Reduction" and the "Ten World Cup Environmental Citizen Action Guidelines" to encourage the use of public transportation and clean-up activities. Through sustained publicity via environmental campaigns and press media, such as subway advertisements, newspapers and broadcast in Seoul, Busan, Incheon and Daegu, MOE motivated citizens to take voluntary actions.

In addition, MOE launched a cyber publicity campaign to induce participation from e-generations, whose major source of information is the internet. MOE ran an Environmental World Cup Banner on major homepages, disclosed the level of air quality in the host cities on a real-time basis, and initiated a joint project with one of the biggest domestic portal sites (www.daum.net) to minimize food waste.

Establishment of Evaluation and Support System for the Environmental World Cup

In order to support, review and adjust World Cup environmental improvement measures in an efficient and coherent manner, MOE organized the World Cup Environmental Management and Evaluation Team in December 2000. Subsequently in July 2001, this Team was reorganized into a World Cup Environmental Support Team, in which the Organizing Committee, academic community and civil society each had a substantive part to play. In February 2002, MOE converted the Support Team, which operated on the basis of negotiations, into an action-oriented World Cup Environmental Task Force with the Vice Minister of Environment as its head. Wholly responsible for the environmental performance of the World Cup, the Task Force conducted on-site management and a series of precautionary initiatives.

Starting on Day 40 (21 April), when the World Cup was close at hand, MOE operated the Environmental World Cup Monitoring Office, maintaining a 24-hour duty system to keep track of all events that lead up to and take place during the World Cup. Additionally, we created a Chemical Terror Counter Team (Head: Vice Minister of Environment) to prepare for the potential outbreak of chemical terrors. This Team devised specific emergency countermeasures that ranged from a mock accident drill to special inspection of facilities that handle poisonous substances. Vehicles that carry such substances were also prohibited from driving in stadium-surrounding routes.

Post-World Cup Environmental Policies

Not complacent with the success of the 2002 World Cup, which is regarded as an outstanding environmental sporting event made possible by voluntary public participation and effective public-private joint environmental measures of the last two years, the Korean Government is elaborating and reproducing the World Cup environmental measures with a view toward cementing people's awareness on environmental preservation. Taking advantage of the World Cup-created image of "Dynamic Korea, Clean Korea," MOE is executing Post World Cup Environmental Measures to jump start on being an environmentally advanced country in the 21st century.

First of all, MOE expanded the natural gas bus supply project to replace all 20,000 diesel-powered city buses nationwide with natural gas counterparts by 2007. We also implemented the "Blue Sky 21 Special Measures" to bring up air quality in the capital region to the level of OECD member countries within 10 years. The natural scenery improvement project that went underway in full-scale with the World Cup was expanded to the rest of the country for more coordinated urban afforestation, wall demolition, and creation of ecological parks and natural-shaped rivers. MOE plans to continue reinforcing and further developing the success models of the Environmental World Cup.

Secondly, we will extend the green sporting culture of the World Cup, like non-smoking, restraints on the use of disposable plastic balloon sticks, and activation of Clean-up Time System to other sporting events. MOE also plans to institutionalize and advance the public's voluntary commitment to cleanliness and orderliness that were demonstrated at the 2002 World Cup.

Finally, MOE will promote the World Cup image of Dynamic Korea, Clean Korea to the international community as part of our overseas marketing strategies, and lay sound steppingstones for domestic environmental industries to enter the global environmental market.

UNEP 8th Special Session of the Governing Council in Korea

The venue for the 8th UNEP GCSS to be held in March, 2004.

The 8th UNEP **Special Session of the Governing Council(GCSS)** and the 5th Global Ministerial Environment Forum, the highest decision-making body of the United Nations Environment Programme, will be hosted by the Republic of Korea in Jeju Island from 29 to 31 March, 2004. Korea's selection as the host country was determined at the 22nd UNEP Governing Council at its headquarter in Nairobi, Kenya, in February 2003 with the active support of participating countries.

After Cartagena and Malmö, this is the third time that the Special Session has been held outside of Kenya and the first to take place in Asia. At the Session, approximately 1,500 participants, including government representatives from some 150 countries and members of international organizations and NGOs, will gather to review and evaluate the state of the global environment, review the implementation progress of the WSSD outcomes, and discuss ways to contribute to the Commission on Sustainable Development. They will also exchange views on and seek effective means of addressing major environmental issues. Prior to the Special Session, the Global Civil Society Forum and the High-level Meeting on Trade, Environment, and Sustainable Development organized by the UNEP Division of Technology, Industry, and Economics will also take place in connection to the Special Session.

In particular, the host venue- Jeju Island- promises to make the Special Session memorable for all participants. Located in the southernmost part of the peninsula, Jeju Island is a tourist attraction site renowned for its beautiful natural sceneries.

It has a subtropical climate with four distinct seasons, and its mild weather in March is sure to afford participants with an optimal environment for the conference. As an island ensconced among mystical volcanic features and surrounded in all sides by grandeur coastal views, Jeju presents Korea's scenic masterpieces. In particular, Halla Mountain at the center of Jeju Island, which is the highest peak in South Korea, is an ecological treasurehouse to 7,000 different species of animals and plants. In light of this ecological value, Jeju was designated as a Biosphere Reserve by the UNESCO in December 2002. At the Special Session next year, participants will be able to experience the mysteries of Jeju Island.

Located in the southernmost part of the peninsula, Jeju Island is a tourist attraction site renowned for its beautiful natural sceneries.

Furthermore, in March 2003, a large-scale conference center equipped with the latest technologies and facilities opened in Jeju. The Jeju International Convention Center, consisting of 5 ground floors and 2 underground floors, can accommodate up to 6,500 persons. It has 3 big conference halls, 3 VIP rooms and various small-scale conference rooms and event halls. Especially, the beautiful beach stretched before the Convention Center affords participants with a refreshing coastal vista, making their time at the Center both an enjoyment of nature and in-depth discussion of global environmental issues.

In terms of flight connections, Jeju Island has direct flights from Japan's Tokyo, Fukuoka and Nagoya, and China's Beijing, Shanghai and Hong Kong. From Gimpo Airport in Seoul, 40 flights depart for Jeju (60 minutes of flight time) each day. The Korean Government will make thorough preparation to assure the convenience of participants by operating a shuttle bus between Incheon International Airport- Korea's biggest international airport- and Gimpo Airport.

Finally, Korea is making multifaceted efforts to successfully host the Special Session so that we can take part in the global environmental protection and enable participants to get involved in the Special Session without experiencing any inconvenience. The Government established a separate taskforce to prepare for the Special Session and is in the process of negotiating with the UNEP Secretariat on such matters as conference venue, agenda topics, estimated expenditure, exit and entry, and transportation.

Location of the venue for the 8th GCSS

High-level meeting in Korea for preparation of the 8th GCSS

Development and Promotion of Environmental Technology

The Korean Government will invest approximately one trillion Korean won to the Eco-Technopia 21 Project.

Eco-Technopia 21 Project

Building upon the experience and capacity developed through the implementation of the G-7 Project (1992-2001), MOE initiated Eco-Technopia 21 Project to find technological answers to environmental newly emerging problems like dioxin and endocrine disrupters. The Project also seeks to bring up the competence of domestic environmental technology to the ranks of advanced countries.

For 10 years starting in 2001, the Korean Government will invest approximately one trillion Korean won to the Eco-Technopia 21 Project with private research institutes and enterprises slated to participate. The planned technology development consists of 30 core tasks across 12 areas, including Clean and Safe Air and Satisfactory Drinking Water.

In 2001, MOE invested 50 billion won from the national treasury to support the development of technologies for export, industrialization, environmental pollution remediation, and public infrastructure necessary for integrated environmental management. In 2002, MOE devised the Technology Road Map as a 10-year master plan for systematic and efficient implementation of the Eco-Technopia 21 Project.

In line with this Road Map, MOE extended support to materials and process technology development in the environmental industry sector, which can be widely used to foster original and cutting-edge technology as well as to mitigate pollution and improve the environment. It is estimated that in 2003, the national budget of 75 billion won will be allocated to promoting the development of new technology.

The outcomes of the project so far show that as of November 2002, there were 37 cases of technology transfer among enterprises, 69 cases of commercialization, 145 cases of enterprise property application and registration, and 837 cases of scholarship presentations. Moreover, the Project resulted in 3 billion won in exports, 2.8 billion won in domestic constructions, and 1.7 billion won in product sales.

Strategic Outline of Eco-Technopia 21

	Basic Goal	Government Investment
FIRST STAGE (2001-2003)	• Develop sophisticated treatment technology for environmental pollution • Develop technological infrastructure for the manufacturing of cutting-edge environmental products • Secure the basis for environmental hazard assessment • Develop technology for environmental pollution monitoring	195 billion won
SECOND STAGE (2004-2007)	• Develop mid-term strategic environmental technology • Develop technology for environmental hazard assessment • Develop integrated environmental monitoring component and systems technology	440 billion won
THIRD STAGE (2008-2010)	• Develop key future environmental technology • Develop advanced technology for pollution prevention • Develop original environmental hazard assessment technology • Develop nano-environmental pollutant monitoring technology	365 billion won

• Current Exchange Rate : US$1.00 = approx. 1,200won

Promotion of New Environmental Technology

MOE began operating an Environmental Technology Evaluation System for new technologies to objectively appraise and disclose the quality of their technical performance at the request of developers. The System administers a performance test through full activation of new technologies for 3-6 months at pilot plants. Those that demonstrate outstanding functions are designated as New Technology by the Government, which subsequently provides various incentives such as extra points to New Technology users at public project biddings.

Furthermore, MOE created an Environmental Venture Fund of 13 billion won in 2001 and 11 billion in 2002, and actively identified and supported promising venture

Change in Eco-Technopia21 Project Budget Needs

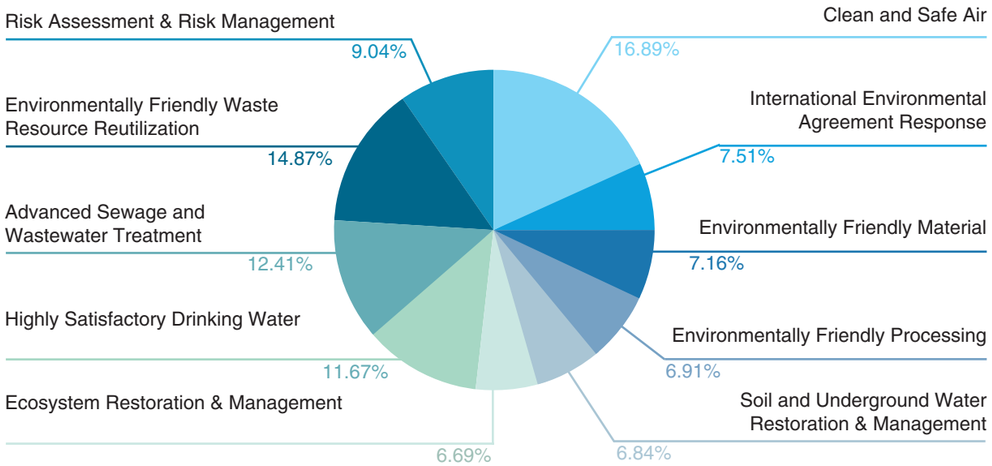
companies. MOE also instituted a Venture Nurture Center at the National Institute of Environmental Research to assist venture activities of those at the frontier of environmental technology development.

MOE launched the National Environmental Technology Information System in 2000 to effectively publicize innovative technologies, facilitate information exchange and encourage creative technology development efforts. Through the Information System, MOE has been providing information on the latest technology via some 2,500 databases. Each year, presentation and exhibition on new environmental technologies are held, and persons who made notable contribution to environmental improvement and industry growth by developing instrumental environmental technology are identified and rewarded with an Environmental Technology Award.

In 2003, MOE plans to revise the relevant laws and lay the legal framework for the acceleration of development and diffusion of new eco-technologies. Among others, the Act will mandate public institutes to deploy new technology when environmental facilities are being installed.

The Act will also place "ET" labels on new eco-technologies, which indicate that they are at the forefront of innovative environmental technologies.

Proportion of Investment Budget for Priority Strategic Programs



Operation of Regional Environmental Technology Development Centers

With local universities at the center, administrative agencies, research institutes, industries and non-governmental organizations have established a cooperative mechanism and designated Regional Environmental Technology Development Centers to collectively counter unique local environmental problems.

Since the establishment of the first two Centers in Ulsan and Yeosu in Dec 8 1998, more have been built in 2000, followed by 5 in 2001 and 1 in 2002, putting the total at 16 in major universities of 14 cities and provinces across the country. The responsibilities of each center include identification of local environmental pollution, development of enviromental technology, environmental education and technical support to enterprises coping with environmental management problems, and dissemination of new environmental technologies.

The outcomes of the Centers' work indicate that local communities are keenly interested in the resolution of local environmental problems. Up until 2002, these Centers carried out 487 research projects to address specific local problems, in addition to forming a technical support expert pool (1,437 persons) that offers consulting services to enterprises over 951 occasions. Environmental education programs are also being administered, including courses for environmental managers and citizens and joint seminars among industries, research institutes and academic communities.

In tandem with decentralization and pursuit of a science and technology-oriented society, MOE plans to expand government financial support among others, in order to foster Local Environmental Technology Development Centers into a focal point for autonomous environmental management initiatives and researches by industries, research institutes and academia.

In tandem with decentralization and pursuit of a science and technology-oriented society, MOE plans to foster Local Environmental Technology Development Centers.

Development of Clean Energy Technology.

The Environmental Industry

Environmental Technology has been classified as a value-added industry with bright prospects.

The Environmental Market in Korea

Succeeding the 1990s, Korea unveiled a gradual development of the environmental industry in accordance with growths in public awareness and governmental efforts toward environmental protection. Although an economic downfall in East Asia caused a shrink in the market, Korea's environmental industry diligently sought for ways of constant improvements. As a result, by 2001, a growth rate of the environmental protection expenditure was restored to 11.3%, the growth rate before the economic downfall.

Since 1990, a growing number of environmental corporations, reaching 12,167 presently, are complying with direct supervisions of environmental laws. This growth in number was achieved by strengthening permissible standards on air and water pollutions, as well as corporate efforts in making marked investments for environmental protection.

Based on the facts of 2001, the environmental protection expenditure on water and land (47.7%) ranks the top, followed by waste (34.3%), air (14.5%), and noise & vibrations, etc. (3.5%) respectively.

Strategies for the Environmental Industry Development

In recent years, Environmental Technology has been classified as a value-added industry with bright prospects, along with Information Technology and Biotechnology. Notably, in other developed countries like the US and Japan, Environmental Technology serves as a major global business strategic tool, supported by extensive efforts to foster further technological enhancements.

In step with this global trend, Korea established the Planning team of Environmental Technology Development in collaboration of the Ministries of Environment, Finance and Economy, and Industry and Resources.

Furthermore, Korea has established and is implementing the Strategies for Environmental Technology Development, aimed at advancing the Environmental Technology to the level of other developed countries by 2010. In efforts to accomplish the aimed growth, the government is preparing a concrete developmental framework, which entails three primary measures: ① Development of the cutting-edge Environmental Technology for the 21st century; ② Expansion of investments in basic environmental facilities as well as in environmentally friendly production-consumption patterns; ③ Fostering of environmental businesses prospected to well serve the future environmental demands. To that end, the Government will strategically support those measures by developing a concrete legal framework while assisting the national environmental technology's entry to the foreign market.

More concretely, the government is undertaking the Environmental Technology Development Project for the next generation-primarily focusing on precau-

(Monetary Unit:₩100,000,000)

A Scope of the Environmental Market in Korea

Category	1998	1999	2000	2001
Environmental Expenditure	72,461	80,231	83,114	92,521
Growth rate in comparison to a previous year (%)	-13.9	10.7	3.6	11.3
Environmental Expenditure rate in GDP (%)	1.6	1.66	1.59	1.70

Source: Korea Bank, Environmental Protection Expenditure Estimation Results (2002.12)

A Tape-Cutting Ceremony at the International Exhibition on Environmental Technologies (ENVEX) 2003.

A View of the ENVEX 2003.

The MOE is undertaking the Environmental Technology Development Project for the next generation- primarily focusing on precautionary and clean technologies.

tionary and clean technologies - underpinned by 10-year investment totaling of over US $800 million.

In July 2001, Korea established the Korea Environmental Technology Exhibition Center in Beijing, China, to foster a bridge between the environmental industries in Korea and the business market in China. The center exhibits environmental technologies of sixteen Korean companies and provides a collection of Chinese market research. In accordance with the successful operation of the exhibition center, US $2 billion of exports were achieved by twenty environmental companies in Korea, brightly forecasting a further growth of business activities in the Chinese market.

In July 2003, Minister Han and Minister Xie met in the State Environmental Protection Administration of PRC in a united effort to enhance further environmental cooperation. The agreed actions brought by the meeting include taking concrete steps to develop environmental flagship projects using Korea's Economic Development Cooperation Fund (EDCF), and annual co-hosting of the Korea-China Environmental Industry Investment Forum.

In continuous efforts, private and public sectors are working together in carrying out the Environment Industry Cooperation Association to vigorously serve environmental industries entering the foreign market while performing efficient international marketing activities. Also, MOE has been hosting environmental trainings and seminars, inviting participations of government officials and buyers from Southeast Asian countries. In the time to come, MOE also plans to develop the One-Stop Business Center to cultivate an expanded market for Korea's environmental industry by hosting business activities such as the Korea-China-Japan Environmental Industry Round Table.

The Korean government gives priorities to a successful implementation of environmental policies seeking to establish a sound market for the environmental industry while promoting an environmentally friendly business cycle. Established in 1995, the Environmentally friendly Company Designation System has awarded 137 companies by 2003; also, the Environmentally friendly Company Network was established in May 2001 to promote exemplary cases of outstanding sustainable business performances.

The Business Environmental Report Guideline continuously assists corporations in carrying out environmentally friendly managements, while the products of Eco-Label labeling were gradually expanded, reaching 577 kinds by June 2003. In addition, 16 product categories and 130 products have been certified by the Environmental Declaration of Products (EDP) Program, which measures environmental impacts of a product throughout its lifecycle.

Financial Supports for Expanding Environmental Investments

A taxation support system has been underway as means to help induce exemptions on income tax, corporate tax, and tariffs applied to environmental protec-tion expenditures.

In addition, lowered long-term interest rates have been assisting further developments of environmental protection facilities and technologies.

Sustaining a Sound Environmental Industry

In hands with relevant governmental agencies, the Ministry of Environment will actively foster a cultivation of the environmental industry and its entry to the foreign market, which in turn will spur the Nation's economic growth. To that end, Korea will take the lead in the efforts to sustain and protect the environment as a responsible member of the international community.

On-site briefing at the ENVEX 2003.

A business talk with foreign investers on Environmental Technology.

Environmental Education

Those individuals should realize the significance of the environment and take responsibility for their actions.

In order to accomplish a sustainable society with a successful settlement of the environmental policies, individuals of the society should have environmentally friendly life patterns. Furthermore, those individuals should realize the significance of the environment and take responsibility for their actions.

In an effort to enhance the public's environmental awareness, the MOE has prepared academic and social education programs to provide structured environmental education. The academic program consists of environmental education for students, and environmental guidance education that offers teaching strategies to the instructors. The social program consists of the professional education for the governmental conservation education for the citizens.

Environmental Education in School Curricula

MOE tries to encourage more middle and high schools to choose environment-related subjects aimed at widening environmental education opportunities for the youth. We are also improving educational conditions including teaching materials and tools designed to enhance the quality of environmental education.

To assist teachers in environmental education, MOE has been publishing various reports, including the "Performance and Evaluation Criteria for Environmental Subjects in Secondary Schools." We also plan to continue cooperating with relevant agencies and foster a popular support base for the adoption of environmental subjects in academic curriculum.

Since 1985, we have been conducting a project aimed at designating and operating a total of 141 pilot environmental elementary, middle and high schools every two years. These efforts seek to help students gain right views about the environment and regularly practice environmental conservation, as well as develop and disseminate model cases to schools.

Enhancing the Front-line Experiential Environmental Education Programs

MOE offers a learn-by-experience forum for the youth to understand and increase their awareness on the environment in daily life. We also provide state subsidies to the local goverments and educational agencies at municipal and provincial levels respectively, as means to support the outstanding learn-by-experience programs approved by the government.

Activating Publicity Groups for Environmental Education

MOE expanded the "Environmental Education and Publicity Group" consisting of seniors, activists, leaders and experts in environment by increasing its members from 220 to 320. This growth aimed to encourage adults who had few opportunities to get the systematic education on the environment to practice an environment-minded life and increase their awareness on the environment.

MOE also undertakes publicity activities through the MOE website (www.me.go.kr) and shares information on environmental education by holding workshops on "Environmental Education and Publicity Mission" (Nov-Dec 2002).

For greater effectiveness, MOE carries out environmental education campaigns in partnership with local groups in a given region.

Operating Vehicles for Environmental Education

MOE will design a special bus containing environmental experiment equipments as well as other environmental education tools and materials, including outstanding books and environment-related publications. This bus will be used to offer visual and audio education on environmental preservation to kindergarten children, primary and secondary school students, farmers and fishers as well as housewives and soldiers.

The bus will also serve as a computer information center, mobile environmental library, and laboratory for environmental experiments like measuring water pollution level using biological indicators. This specially designed bus administers both mobile environmental education and on-site ecological lessons.

Environmental education to foster the early development of environmental awareness.

The MOE develops and disseminates model cases to operate for pilot environmental school programs.

Preservation of the Natural Environment

Baek-du Mt. Range is important also for its value as a habitat for most of the 564 kinds of wild animalspecies found in this country.

Natural & Geographical Characteristics

Located in the northeastern part of Asia, Korea consists of a 1,000km-long peninsula and some 3,200 islands. Topographically, Korea's eastern side is high and steeply sloped and its western side low, while its southern coastal area forms a gentle slope.

In terms of climate, Korea has cold dry winters and hot wet summers with temperate monsoon seasons. Our average annual rainfall records 1,283mm, which is 1.3 times greater than the world's average, but due to Korea's high population density, yearly per capita rainfall is 3,000 tons, only 10% of the world's average (34,000 tons).

More than half of the entire Korean landmass consists of forests (65.4%). The central region has well-developed deciduous forests, while the southern region and eastern and western coastal areas have flourishing evergreen broad-leaved trees. In the southernmost region and southern islands, sub-tropical and temperate evergreen trees proliferate.

Korea is also home to diverse biological organisms. As of 2002, 18,052 animal and 8,271 plant species have been identified and recorded. Among the 1,440 species of vertebrates, 905 are fish, 41 amphibians and reptiles, 394 birds, and 100 mammals. 11,853 species are classified as insects. There are also 1,625 different types of fungi, 736 protophytes and 11,167 procaryotes.

The Korean peninsula offers an optimal habitat for wild animals and plants.

Baek-du Mt. Range Preservation

Baek-du Mt. Range is a 1,400 km-long chain of mountains that extends from Mt. Baek-du in North Korea past Mt. Songni in Chungcheong Buk-do to Mt. Jiri in South Korea. It is a symbol of the national spirit and a treasure trove of our rich nature and cultural heritage.

The Baek-du Mt. Range- the backbone for the Korean peninsula- offers an optimal habitat for wild animals and plants due to its rugged features that make human access difficult. With its continuous linkage of grasslands and wetlands in high mountains, the Baekdu Mountain Range plays a critical role in ecosystem maintenance by facilitating the transportation of wild animals and plants as well as their population diffusion.

Baek-du Mt. Range is important also for its value as a habitat for most of the 564 kinds of wild animal species found in this country. It consists of needle-leaf trees in the cold zones and deciduous broad-leaved trees in the temperate zones. Due to its unique geographical and topographical characteristics, indigenous northern and southern plant zones cross over in Baek-du, rendering it useful as an index for habitat environment.

In order to preserve the Baek-du Mountain Range, MOE has been developing efficient management measures since 2000. We plan to prevent ecosystem degradation by reinforcing the standards for alteration of land use purposes, environmental impact assessment, and prior environmental performance review.

Preservation Measures for DMZ & Transboundary Areas

Transboundary areas, including the Demilitarized Zone (DMZ) and the Civilian Control Zone (CCZ) that emerged out of the Korean War (1950-1953), have come to nurture outstanding bio-diversity by limiting human interference.

Since the historic North-South Korea Summit in 2000, interchange and cooperation between the two Koreas increased and public interest in the trans-boundary area climbed through the enforcement of the Act for Supporting the Transboundary Area. Along with this trend, the potential of development projects to adversely impact the environment became highlighted.

The Korean Government plans to have the DMZ designated as a UNESCO Transboundary Biosphere Reserve to promote systematic preservation of rare

MOE has designated ecosystem preservation zones, wetland protection zones, and special islands.

species in the zone. It will be divided into core (preservation), buffer, and transitional (sustainable use) zones and managed with different strategies. Once the Reserve is officially designated, it will pave the way for effective preservation and management of the ecological axis that connects the east and the west of the Korean peninsula. The designation will also contribute to securing peaceful relations between North and South Korea and evolve into an ecological area symbolizing world peace.

Protecting Dong River

Dong River is a 51km-long snaking stream that runs from Jeongsun Province to Yeongwol Province. Yeongwol Province, which is located at the point of convergence between Dong and Seo Rivers, is vulnerable to damage from recurrent floods. In 1999, there was a three-day long torrential rainfall over (393mm), injuring and taking the lives of 31 people and inflicting an economic damage of 148.5 billion won. This flood triggered a heated debate on the need for a dam construction in Dong River.

The debate sparked a sharp conflict among local residents, local governments, and environmental organizations, which held different views about the proposed dam construction. In September 1999, the Korean Government organized a "Public-Private Joint Survey Team to Review the Soundness of Dam Construction." After extensive studies and opinion polls, the Team concluded that preservation was more beneficial than the dam construction. Subsequently, the Government designated the Dong River Area as an ecosystem preservation zone and developed comprehensive measures for environmental management of this area, including the means to improve the living conditions for local residents.

Protection of Ecologically Outstanding Areas

In order to protect and preserve areas with outstanding ecosystems, MOE has designated ecosystem preservation zones, wetland protection zones, and special islands. In these zones, construction and alteration of land use purposes are restricted to prevent degradation. For already degraded areas, MOE builds pollution buffer facilities and carries out pollution remediation projects.

Protection of Ecologically Outstanding Areas.

Wetland protection zones consist of areas with a primitive state of nature that offer good habitats for rare and endangered wild animals and plants.

Ecosystem Preservation Zone

Ecosystem preservation zones include areas that have been classified as first rate in terms of their ecosystem and naturality degree. These zones also encompass areas with abundant biodiversity as well as habitats and migratory routes for endangered or protected animals and plants. As of the end of 2002, there are 20 ecosystem preservation zones around the country (191.7km²): 10 zones designated by the Government (154.083km²) and the other 10 designated by cities and provinces (37.629km²).

In addition, Korea designates areas with either exceptional natural ecosystems or particularly fragile ecosystems as Special Natural Ecosystem Protection Zones. Currently, the special protection zones comprise of ① Mt. Jiri ecosystem preservation zone, ② Yong Swamp ecosystem preservation zone in Mt. Dae-am, ③ entire water surface of Woopo Swamp ecosystem preservation zone, and ④ Mujechi Swamp ecosystem preservation zone.

Finally, there are 73 natural parks (76,503km²) in Korea, including 20 national parks (6,473km²) and 128 special islands (9.2km²), including Dokdo Island.

Wetland Protection Zone

Wetland protection zones consist of areas with a primitive state of nature that offer good habitats or migratory routes for rare and endangered wild animals and plants. As of the end of 2002, there were 9 wetland protection zones (81.3km²) in Korea. Seven zones (44.482km²) including Nakdong River estuary, were designated by the Minister of Environment, while the two others (36.828km²), including Muan Tidal Flat, were designated by the Minister of Maritime Affairs and Fisheries.

Internationally, Yong Swamp (1.06km²) of Mt. Dae-am and Woopo Swamp (8.54km²) in Chang-nyeong are registered as Ramsar sites as per the Convention on Wetlands of International Importance especially as Waterfowl Habitat. Also, Mt. Seorak (3,932km²) and Jeju Island's Mt. Halla, Jungsangan and Seogwipo marine parks (831km²) are designated as UNESCO Biosphere Reserve.

Special Islands

Special islands are scenic islands speckled with volcanoes, parasitic volcanoes, and lava caves, where no humans dwell, or where they do, are confined to limited places. These islands are systematically protected to preserve fossils, rare or endangered fauna and flora, and Korea's indigenous species.

For five years between 1998 and 2000, MOE conducted a natural environment survey in desert islands around the country and designated 128 ecologically valuable islands as special islands. In these islands, construction and expansion of buildings and alteration of land use purposes are strictly prohibited, and violators are penalized and ordered to restore the land to its original conditions.

Remediation of Degraded Areas

In order to remediate degraded areas, MOE is implementing technology development projects in the fields of ecosystem preservation and restoration. As part of the Eco-Technopia 21 Project, MOE is promoting technology development for natural environmental restoration in 6 fields, including the recovery of river ecological functions (2001-2004, 975 million won).

Natural Gas Bus for Clear and Clean Sky

The need to develop and supply low-emission vehicles that can dramatically reduce vehicular emissions came to the fore.

It is easy to see natural gas buses in operation throughout many cities these days. As low-emission vehicles, natural gas buses are essential to our endeavor to create a clean urban environment.

Natural Gas

Natural gas, a compound of low-grade hydrocarbons extracted from the sea floor or underground petroleum deposit, refers to combustible gas with methane (CH_4) as its main element. When it is refrigerated to -162℃ for transportation or storage, it condenses into 1/600 of its normal volume and turns into colorless liquid natural gas (LNG). LNG subsequently undergoes vaporization process and is supplied through pipelines for use in power generation, industries and households.

Natural Gas Vehicle

Natural gas vehicles were first introduced in the 1930s when Italy and Russia reconstructed the engines of diesel vehicles to consume overproduced natural gas. However, after two oil crises in the 1970s, countries supplied natural gas vehicles as a means to save energy. In the 1990s, the use of natural gas was actively promoted to reduce emission gases from large-scale diesel vehicles and thereby solve vehicle-generated pollution problems.

As opposed to diesel buses, natural gas buses do not produce any smoke, result in 70% reduction in ozone (O_3) and NOx, and register substantial decrease in noise.

Natural Gas Vehicle Supply in Korea

The number of automobiles in Korea rose from 3.4 million in 1990 to 10 million in 1997 and up to 13.5 million in June 2002, a fourfold increase from 1990. Particularly, greater than half the number of cars nationwide are concentrated in 7 major cities including Seoul, and account for considerable proportion of air pollution. In light of these facts, the Government needs to promptly undertake strategic vehicle management for pollution mitigation.

Until recently, strengthening of vehicle emission standards and on-road inspections have been the major regulatory tools for emission gas reduction. However, these tools have proven to be limited in their ability to produce desired reduction effects due to a steep rise in the number of automobiles. Consequently, the need to develop and supply low-emission vehicles that can fundamentally and dramatically reduce vehicular emissions came to the fore.

The Government began executing the natural gas bus distribution project as a means to reduce emissions from city buses, which record the highest operation frequency and pollution contribution in large cities. By 2007, we will have all 20,000 diesel city buses replaced with natural gas buses. Starting in 2003, we have been replacing large-scale diesel vehicles like garbage trucks with natural gas counterparts to replace a total of 800 trucks by 2010.

Supply of the Natural Gas Vehicles.

Status of Natural Gas Bus Distribution, April 2003

	Total	Seoul	Busan	Daegu	Incheon	Gwangju	Daejeon	Ulsan	Gyeonggi	Other Local Governments
Plan	5,000	1,672	164	463	355	277	375	211	813	670
Operation	3,074	962	102	325	319	210	269	110	511	265

Financial Support for the Supply of Natural Gas Buses

In order to efficiently replace and supply natural gas buses, it is necessary to provide financial support for bus purchase and construction of natural gas supply infrastructure. For city bus companies that purchase natural gas buses, MOE subsidizes 2.25 million won from both national and local government sources to account for the difference in the price of diesel and natural gas buses (3.10 billion won).

In addition to subsidizing the additional cost, several local governments accelerate the diffusion of natural gas buses by providing loans for the remaining purchase cost. As an incentive for the purchase of natural gas buses, the Government exempts value-added tax, acquisition tax and Environment Improvement Charges. Starting in 2002, Korea has also been subsidizing the fuel price of natural gas to maintain the cost difference of diesel and natural gas at 115 won per liter. Meanwhile, assorted incentives are being offered at the national level for the operation of natural gas buses, including the exemption of both smoke and vehicular emission gas inspections.

Support for the Supply of Natural Gas Buses

Operation of natural gas buses is executed jointly by relevant ministries and agencies. The de-

velopment and supply of natural gas buses are coordinated by MOE, while the price and safety of natural gas is managed by the Ministry of Commerce, Industry and Energy. The siting of refueling stations is overseen by the Ministry of Construction and Transportation and financial support and tax reduction are administered by the Ministry of Planning and Budget as well as by the Ministry of Finance and Economy. For actual operation of natural gas buses and administrative support, local governments are in charge. In light of this role division, mutual cooperation between relevant ministries and agencies is essential for the successful diffusion of natural gas buses.

MOE laid the institutional basis for the expedited diffusion of natural gas buses by revising the Air Quality Preservation Act in April 1999 and adding an amendment to replace city buses with natural gas buses. After consulting with the Ministry of Construction and Transportation, MOE revised a relevant statute in April 1999 to legalize the installation of refueling stations in the bus parking lots of residential, industrial, and development-restricted areas. MOE also revised the act relating to residential building construction standards to facilitate the installation of refueling stations in cities by abridging the safety distance from such protected buildings as public housing complexes.

Moreover, with cooperation of the Ministry of Planning and Budget and the Ministry of Finance and Economy, MOE extended tax support by securing necessary budget and exempting value-added tax.

In order to expand the supply of natural gas buses, MOE revised the Air Quality Preservation Act in December 2002 to obligate the purchase of natural gas vehicles through the enforcement ordinance in local governments beginning in July 2003. In June 2003, the legislation process of the Special Act on Air Quality Improvement in the capital region began, mandating producers to manufacture a set proportion of low- and zero-emissions vehicles. The Special Act also obligates certain public agencies to purchase natural gas vehicles to effectively mitigate air pollution in the capital region.

Natural Gas Refueling Station

For the optimal diffusion of natural gas buses, it is important to construct sound infrastructure for natural gas refueling stations.

Refueling Station Infrastructure Expansion

For the optimal promotion of natural gas buses, it is important to construct sound infrastructure for natural gas refueling stations. However, in order for bus industries to install fixed stations (1 station for 100 buses), 991.5m² of extra area is necessary, rendering the acquisition of appropriate tract of land difficult.

To cope with this scarcity of refueling stations, Korea introduced mobile stations in October 2001. Currently, 45 of these stations (96 vehicles) are fueling some 1,000 natural gas buses nationwide. In addition, our Government is reviewing the feasibility of conducting a demonstration project for small-scale fueling devices and LCNG fueling stations that are operated in developed countries to diversify the variety of fueling station.

Publicity Reinforcement

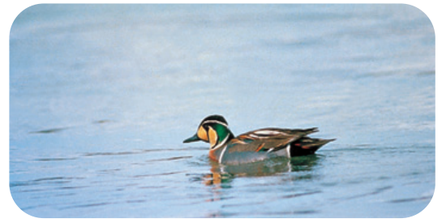
Despite the fact that the majority of people already use natural gas for heating and cooking in households, many people express concern over the safety of natural gas buses just because of its compressed use of fuel.

Against this backdrop, MOE secured evidence attesting to the safety of natural gas containers through a flame test in 700℃ and fall test from 30m up in the air. Also, as a result of publicity through TVs and subways, and distribution of various publicity materials on the safety of natural gas including of pamphlets (20,000 copies), people's awareness regarding the pleasantness and safety of natural gas changed as shown by the results of public polls.

Diversification of Natural Gas Vehicle Types

The types of natural gas vehicles range from large city buses that were first distributed in 2,000 to middle-sized buses and low floor buses (buses for handicap people). Especially in 2003, Korea supplied natural gas garbage trucks whose safety and economic efficiency were proven through demonstration projects. There are also plans to renovate commercial vehicles operated by some city gas companies into natural gas vehicles. Furthermore, in addition to developing and diffusing LNG vehicles, Korea also designs and produces diverse engines and small to mid-sized vehicles.

Water Quality Management



Ensure coexistence and prosperity for both upstream and downstream areas.

Comprehensive Water Improvement Measures for the Major Rivers

MOE completed the landmark project of establishing water management measures for four major rivers in the country, after holding 420 discussions with affected residents, local governments, and relevant experts during five years from 1998 to 2002. Enacted and enforced were special laws pertaining to the Han River watershed in August 1999, and the other three river watersheds in July 2002.

Through special measures and laws for the four rivers, MOE introduced strong precautionary policies focusing on total pollution load management system, designation of riparian buffer zones and land purchase of water source areas. Also, in order to ensure coexistence and prosperity for both upstream and downstream areas, we applied user-pays principle, and imposed water use charges to raise funds for watershed management, thereby supporting residents who are restricted in exercising their rights to use land and properties at water sources areas. This was called the Watershed Management System.

Reshaping of Watershed Management Organization

Local administrations governing upstream and downstream areas in the four river watersheds and major water sources established the Watershed Management Committees, a representative decision-making body aimed at efficiently managing each watershed. The Watershed Management Committees are established as public corporations at each watershed, and are chaired by the Minister of Environment and consist of relevant mayors, provincial governors, the president of Korea Water Resources Corporation, and heads of other water-related institutes.

Water Management Committees establish comprehensive plans for reducing pollutants and improving water quality. They also deal with matters related to imposing and collecting water use charges as well as operation and management of funds. They also handle the purchase of land, establish plans for resident support projects and support NGOs' monitoring of water quality. Also, the committees allow local residents and NGOs to participate in determining major policies on watershed management for optimal reflection of their opinions.

Establishing water management measures for four major rivers.

In addition, aimed at overseeing the task of managing watersheds, we operate the Watershed Policy Division at the Water Quality Management Bureau at MOE, as well as Watershed Management Bureau at regional environmental offices consisting of Watershed Planning Section, Water Source Management Section, and Local Cooperation Section. We also operate Total Water Pollution Quantity Section at the National Institute of Environmental Research to address technological matters such as water modelling.

Additionally, the River Environmental Research Laboratories have been established at each watershed to conduct basic environmental surveys, collect information, and conduct R&D.

Total Pollution Load Management System

Regarding the total pollution load system, MOE allows local administrations to determine on their own whether they should implement the system in keeping with local environmental circumstances, thus striking a balance between environmental conservation and development. Hence, local administrations including Gwang-ju City governing the Paldang Lake watershed plans to establish and implement a basic plan for the total pollution load system in collaboration with MOE.

Towards this end, in 2002, we formulated basic guidelines on total pollution load management including the documenting of key pollutants and target water quality. We are now preparing to establish the water quality target at downstream points at watersheds by dividing the three river watersheds into unit watersheds for total pollution load management.

Water Use Charges & Watershed Management Funds

MOE introduced the water use charges system to make up for losses incurred by upstream residents due to land use regulations, to facilitate the construction of basic environmental facilities, and to ensure water saving. This system is based on the user-pays principle, and the aforementioned Watershed Management Committees determine the water use charge per ton every two years.

The water use charge for 2003 is 100 won per ton for the Nakdong River watershed, and 120 won for the Han River, Geum River, and Yeongsan River watersheds. In 2003, Han River expects to collect 263.4 billion won, Nakdong River 165.1 billion won, Geum River 54.3 billion won, and Yeongsan River 48.5 billion won.

Using the collected water use charges, the Watershed Management Committees manage watershed management funds, and provide support for local administrations in upstream areas to construct and operate basic environmental facilities to improve the quality of water and protect water sources, as well as assist residents and purchase land in riparian buffer zones.

In case of the Han River watershed, MOE raised 743 billion won from 1999 to 2002 and invested 198.2 billion won in supporting residents, 71.6 billion in purchasing land, 187 billion won in constructing basic environmental facilities like sewage disposal and treatment plants, and 104.5 billion won in operating basic environ-

mental facilities.

Designation of Riparian Buffer Zones

Pollutants created in areas near rivers flow directly into rivers without undergoing purification process, thus degrading the quality of the water. Hence, MOE set certain areas around the rivers as riparian buffer zones to restrict the construction of restaurants, lodging facilities, bathhouses, factories, and livestock sheds.

Aiming to recover the ecosystem in riparian buffer zones and prevent water pollution by non-point sources, MOE plans to gradually purchase land in riparian buffer zones, and to create riparian buffer forests. For the Han River watershed, 191km² of land in the Namhan River, Bukhan River and Gyeongan River watersheds were designated as riparian buffer zones; for the Nakdong River watershed, 287km²; for the Geum River watershed, 373km²; and for the Yeongsan River watershed, 222km² were designated.

Purchase of Land

Under the land purchase system, in case a person who owns land and buildings in water source protection areas, riparian buffer zones, or areas vulnerable to water quality deterioration, wishes to sell them, the buyer is required to consult in advance with the Watershed Management Committee before buying them. This system helps to diffuse conflicts over infringement on private properties due to regulations, as well as the creation of rampant pollution sources.

In case the buyer wishes to resell the purchased land or change its use to other than a forest or a green belt, he is required to consult the Watershed Management Committees, thus strictly restricting pollution sources. MOE likewise pushes to create habitats for creatures, wetlands, bio-embankments and forestry, and restore vibrant ecosystems.

Management of Non-Point Sources

Non-point source is defined as a pollution source that emits pollutants during rainfall into unspecified wide areas such as cities, roads, agricultural land, and forests. Its concept contrasts with sewage from living and industrial wastes. Non-point sources, represented by sediments consisting of dust piled over the watershed, pollutants and chemical substances, are forced by storm water to flow into rivers, thus degrading water quality.

Actually, according to the results of a survey conducted on the pollution load of non-point sources in the four major rivers, non-point sources constitute 22-37% of pollution in terms of BOD level. If T-N and T-P are included in the analysis, the proportion of non-point sources is estimated to be higher.

The Ratio of Non-Point Source by Watershed (Unit : %)

Watershed	Living	Industry	Livestock	**Non-Point source**
Han River	41	11	20	**28**
Nakdong River	54	17	4	**25**
Geum River	44	6	28	**22**
Yeongsan River	38	5	20	**37**

MOE plans to gradually purchase land in riparian buffer zones, and creates riparian buffer forests.

Notably, in case of Paldang Lake, the water source for 20 million people in the capital region, the non-point source load represents 44.5% of total water pollution. However, MOE has thus far pursued water improvement measures focused on point sources such as sewage disposal and treatment plants and sewage pipeline renovation. MOE published and distributed a guidebook on Non-point Source Management, and took measures for non-point sources in the four rivers in special measures, only to end up with stopgap measures such as creating water plant belts near rivers.

Non-point sources concern all areas such as urban planning, road construction, and use of agricultural land, but have yet to be translated into action. Likewise, roads, water-drainage and agricultural roads, which consider only safety and convenience for cultivation, allow water to flow directly into rivers without filtering pollutants. Also, since roadsides, parking lots, residential areas and flowerbeds are higher than roads, they cannot be used as space to filter non-point source pollutants.

Thus, in cooperation with the Ministry of Construction and Transportation and the Ministry of Agriculture and Forestry, MOE is preparing comprehensive management measures for non-point sources, whereby the best management practices are employed, preventive measures are featured to counter the occurrence of non-point sources by type in agricultural land, cities, forestry, and roads. Likewise, under the project, MOE will present steps to prevent the flow of non-point sources into rivers and lakes, to decrease non-point sources, and also to reduce non-point sources after they flow into public watersheds.

Recovering Polluted Rivers to Natural-type Rivers

In the past, people perceived of streams merely as “waterways.” Consequently, they made streams

straight and created concrete embankments to ensure the smooth flow of water. Sometimes people practiced such environmentally unfriendly activities as the use of rivers as parking lots or reclamation into roads, leading to the destruction of freshwater ecosystems and water pollution.

MOE is endeavoring to convert these rivers into natural-type rivers to protect the habitat for aquatic animals and plants, and to create a pleasant river environment. MOE started this project in 1986, but 5 or 6 years ago, we slightly modified the project and have been carrying out natural-type river purification projects by creating natural rivers that can perform natural purification function, water-friendly function, and ecological function.

From 1987 to 2002, MOE invested 542.5 billion won in government budgets and converted 157 waterways into environment-friendly waterways. A typical example of these efforts is found in the An-yang Stream passing through the capital region. In the past, this stream was ecologically dead, with only sewage flowing. Now, fish are active in the stream, and children can play there.

With this case taken as a good model, Seoul City Government is ambitiously pushing to turn the Cheonggye Stream located at the very heart of the city into a natural waterway. The Cheong-gye Stream is currently covered and is used as a road and a commercial district. Seoul set aside 12 trillion won for executing the project.

Sewage Treatment Measures

Sewage generated in urban areas flows into central sewage treatment plants. However, if sewage generated in residential, agricultural, maritime and other remote areas flows to central sewage treatment plants, this is not cost-efficient. To address this problem, a system of designating ancillary sewage treatment-required areas was introduced in 1999.

After consultations with local residents, mayors and provincial governors, MOE designates areas where water needs to be protected (i.e., water resource protection zones, riparian buffer zones, and natural park zones) as ancillary sewage treatment-required zones. Likewise, under the system, restaurants, lodging establishments, and tourist lodging establishments that discharge a large quantity of sewage or highly concentrated sewage must install sewage treatment facilities.

Also, in these zones, existing pollution sources are required to install sewage treatment facilities. Subsidies of 50% of the cost will be provided, thus lessening the cost incurred by and enhancing the participation of local residents, who are the actual beneficiaries of the water resource conservation policy but regarding themselves as disadvantaged by the policy.

It is essential for residents to continue their active efforts to ensure the effective operation of installed sewage treatment facilities. Likewise, it is important for the government to offer technological and administrative support in order to optimally maintain and manage relevant facilities.

By the end of 2002, 43 cities and counties (1,221km^2) were designated as ancillary sewage treatment measures-required areas, and 30.3 billion won in national funds were granted to 2,807 establishments to install sewage treatment facilities. The year 2003 will see continuing expansion of sewage treatment measures-required areas and relevant support.

Management of Drinking Water

The MOE plans to supply safe and clean tap water by strengthening the management of overall tap water production and supply system.

Management of Drinking Water

All organisms consist of water. Water accounts for 70% of the human body, and we drink some 2 liters of water each day to circulate blood and maintain healthy functions within the body. The government implemented various measures, aimed at expanding the drinking water supply and ensuring its stability. However, in recent years, the need for cleaner, safer water has been increasing along with the improvement of people's living conditions and income levels.

Status of Facilities

As of the end of December 2001, 87.8% of the Korean population received drinking water from 905 water supply areas (82 cities, 204 eups and 619 myeons).

On the other hand, a growing number of people use water purifiers at home or drink mineral water. As of December 2001, 71 natural water firms sold 140 tons of water per year, and over 3 million water purifiers were supplied. Nearly 300,000 people use 1,800 public drinking water facilities daily, including natural springs operating in mountaineering trails, temples, resorts, and sports park facilities in areas near cities, as designated by mayors and provincial governors. The need for managing these facilities is becoming ever more pronounced.

Criteria for the Quality of Water

Korea enacted a law pertaining to waterworks in 1963, and formulated 29-point drinking water criteria. Based on results from various research projects, the water quality criteria was amended on nine occasions.

MOE likewise established drinking water quality criteria pertaining to some 55 substances in July 2002, and we continue to monitor it. In particular, on August 1, 2002, an advanced management system was established for the removal of viruses and pathogenic microorganisms to the safe level by reinforcing filtering and disinfection processes.

Comprehensive Measures for Improving the Quality of Tap Water

The Korean Government plans to servies safe and clean tap water by strengthening the management of overall water treatment production and water supply system, including raw water treatment plants and emergency supply networks. To this end, MOE is implementing the Joint Measures on the Reinforcement of Tap Water Quality that consist of 18 short- and long-term projects in collaboration with relevant ministries.

The Use Status of Drinking Water Supply Facilities
(as of the end of 2001)

Kinds of Facilities	Total	Waterworks	Temporary waterworks	Exclusive waterworks	Small-scale supply facilities	Others
Water-receiving population(1,000)	48,289	42,402	2,033	269	719	2,866
Use ratio(%)	100	87.8	4.2	0.6	1.5	5.9

Tap Water Quality Reinforcement Measures

Water Quality Monitoring

Management of raw water	Management of water treatment plants	Management of water supply system
<Short-term measures> • Obligatory construction of sewage and waste disposal and treatment facilities • Corrective measures including inspection and management of sewage treatment facilities	**<Short-term measures>** • Check on disinfection abilities with medium scale water treatment plants • Reinforce the responsibility of local administrations regarding the management of water treatment plants • Evaluation of the status of the operation of medium-scale water treatment plants • Provide technological assistance in precision check on vulnerable water treatment plants • Boost local administrations' ability to examine viruses • Reinforce standard for tap water quality	**<Short-term measures>** • Support for improving indoor tap water pipes
<Mid and long-term measures> • Pursue water improvement measures for the 4 major river watersheds • Diversify water source	**<Mid and long-term measures>** • Introduce authorized system of tap water safety management • Real-time disclosure of the information on water treatment plants and water quality (e-waterworks and sewerage system)	**<Mid and long-term measures>** • Renovate superannuated water treatment plants and water supply pipes nationwide

Management of Natural Mineral Water

Natural mineral water is defined as underground water or

eruptive water from rocks that is clean and is physically processed to preserve its natural state.

With the enactment of the Act on Drinking Water Management on January 5, 1995, domestic sales of natural mineral water was permitted. The Government requires natural mineral water suppliers to submit environmental impact investigation reports as well as mandate relevant manufacturers to conduct thorough checks on water. This aims to prevent underground water pollution and exhaustion due to unrestricted development, and at the same time ensure the quality of water.

Water Purifiers

The management of water purifiers had been left to manufacturers until August 1997 when the government amended the Act on Drinking Water Management, requiring the manufacturers undergo quality inspection on their water purifiers by designated inspection agencies. To this end, a strict quality inspection standard on water purifiers has been established.

Joint Drinking Water Facilities

In view of the lack of legal basis for the management of spring water sites, the Government administered only nominal inspections on the quality of water, twice a year. However, with the increase in the number of users, the Government legislated the Act on the Drinking Water Management and managed these sites since 1 May 1995.

Regarding public drinking water facilities, mayors and provincial governors are required to conduct water quality examination four times or more per year. Notably, the examination should be done every month in the summer, when the water quality is least likely to meet the requirements so as to ensure its safety.

In addition, each site is assigned with an identification number and effectively maintained by keeping a report card. For prompt and accurate water quality testing, inspection capabilities of local clinics have been boosted. Finally, a regular "Water Spring Cleaning Day" has been designated to induce voluntary participation of the residents.

Supply safe drinking water.

Extended Producer Responsibility (EPR) System

The EPR system seeks to encourage producers to conduct environment-friendly activities throughout the entire product lifecycle.

Introduction of Extended Producer Responsibility System

Under the current mass production and consumption system, the government and consumers alone cannot assume the full responsibility for establishing a resources-recycling society through reducing and recycling wastes. Thus, MOE reinforced the producers' responsibility to make them select reusable and recyclable materials and improve their design process and manufacturing structure. MOE likewise introduced the Extended Producer Responsibility (EPR) system in January 2003 and have been implementing it thereafter aiming at fundamentally reducing wastes as well as enhancing their reusability and recyclability.

The EPR system seeks to encourage producers to conduct environment-friendly activities throughout the entire product lifecycle, from design and manufacture to distribution, consumption and disposal of products. It establishes a resource-recycling economic and social system by promoting reduction, reuse, and recycling of wastes.

Procedures of the EPR System

Details of implementing the EPR system are divided into five categories as follows.

First, MOE establishes basic plans for recycling resources every five years, and sets the target recyclability rate, and mid- and long- term recycling objectives.

Second, in accordance with MOE's guidelines, each local administration announces the actual quantity of recyclable resources by target item and the quantity of wastes to be sorted out and collected. MOE thereby takes recycling circumstances into account, calculates the mandatory recycling quantity by product and packaging materials every year, and announces the results after consultations with relevant ministries.

Third, each producer bound by the EPR system must submit their recycling plans for approval from MOE. Likewise, individual producers must determine whether they form a cooperative association to fulfill their obligations or individually practice recycling by commissioning the work to relevant businesses.

Fourth, individual producers under the system perform their recycling obligations and submit reports on the results.

Lastly, MOE confirms and reviews their reports of recycling performance so as to ascertain whether or not their obligations have been appropriately fulfilled, and where inappropriate, imposes and collects corresponding charges on relevant producers.

Establishing a resource-recycling economic and social system.

Producers' Mandatory Recycling Items

The initial list of EPR target items will include the target items of the abrogated Waste Deposit System (enforced since 1993) as well as a few additional items, and MOE plans to gradually expand the list.

Mandatory EPR-target Items

Items under the existing charges deposit system	Products	• TV, air conditioners, washing machines, and other home appliances, tires, lubricants, fluorescent bulbs, batteries, etc.
	Packaging materials	• paper pack, metal cans, glass bottles, PET bottles (foods, liquors, cosmetics, detergents, some medicines, etc.)
Items newly listed	Products	• mobile devices, audio products, and computers plastic packaging materials (foods, medicines, liquors,
	Packaging materials	• detergents, cosmetics, and styrofoam buffer materials (electronics products)

• Fluorescent bulbs will be listed on the mandatory recycling category in 2004 and mobile devices and audio products in 2005.

Recycling-required Producers & Exemption of their Obligations

In the framework of the EPR system, producers include raw material producers, manufacturers of products & packaging materials as well as distributors and sellers. Because it is practically impossible to divide the responsibilities of producers in the market in an uniform manner, the Korean Government is executing the Major Responsible Party system. That is, those producers who have the de facto right of choice to design and layout of products and packaging materials in the market are the major responsible parties who bear the recycling obligation.

Under the EPR system by the major responsible party system, producers with recycling obligations comprise products manufacturers and importers in the case of general products (lubricants, tires, electronic goods, batteries, etc.), as well as manufacturers and importers of those products using packaging materials in the case of packaging materials (paper packs, metal cans, glass bottles, and plastic packaging materials), not their end users. However, in case

of supporting dishes, containers, etc. used for agricultural, fisheries and livestock products whose producers are unspecified and numerous, the manufactures of the vessels and packaging materials are obligated to recycle.

Mandatory Recycling Quantity & Recycling Charges

The EPR system requires producers to calculate and announce their yearly mandatory recycling quantity by item. In calculating the quantity, producers are allowed to comprehensively consider the roll-out quantity, the quantity to be sorted and collected, the recycling performance, and other recycling factors. Once the mandatory recycling quantity is calculated, individual producers' mandatory recycling quantity will automatically be determined in proportion to their market share.

On the other hand, if a recycling-required producer fails to achieve his mandatory recycling quantity, he will face recycling charges with the amount set at below 130% of actual recycling costs and varying according to their performance. The recycling costs are adjusted every year for inflation.

Also, if a producer outperforms his recycling quota, he can reserve and use the credit for the excess performance during the next two years. Hence, this system reduces the producers' risk arising from economic situations.

In addition, sales outlets are required to collect disused electronic appliances such as TVs, refrigerators, washing machines, computers, and mobile phones, aimed at establishing a cost-efficient collection system. Likewise, when a consumer requests, the seller must collect disused electronic goods and packaging materials of products.

To spur each household to sort out and discharge recyclable resources, and support recycling businesses, we have introduced a new marking system, namely, a separate discharge system.

Exhibition of recycling products.

Cooperation with and Support for Environmental NGOs

Status of Environmental NGOs

Along with the rise in public interest in the environment and the trend toward diversification, the number of non-governmental organizations is growing. Especially in view of the complex nature of environmental problems, and government efforts alone often prove insufficient, the role of NGOs in dealing with environmental problems is becoming increasingly important.

Environmental NGOs play a great role in enhancing public awareness of environmental issues and organizing environmental conservation movements. They also reduce conflicts among relevant parties in implementing environmental policies through persuasion and dialogue for securing political rationality in policies. Also, the NGOs play an important role as a mediator, as they help people understand the government's policies and take the initiative in voluntarily practicing policies, as well as providing feedback to the government regarding public concerns.

As of the end of 2002, environmental NGOs are 552 bodies included 227 bodies as approved by the Korea Environmental Preservation Association and the Government, 258 non-approved bodies, and 67 non-exclusive environmental bodies.

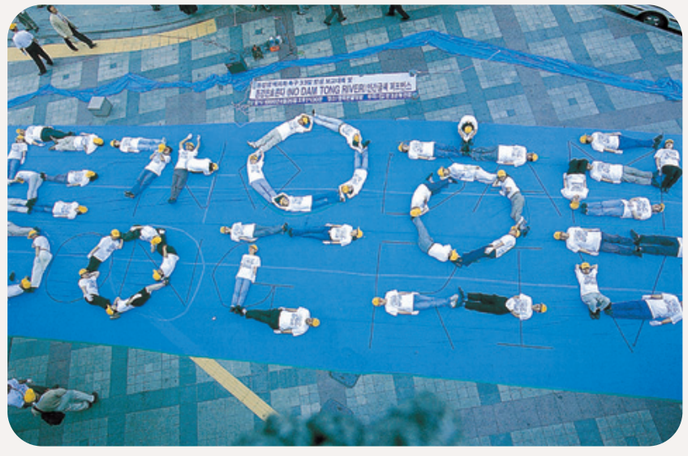
Strengthening Cooperation with Environmental NGOs

In line with the ever-increasing activities of NGOs, the Government enacted a law to support non-profit NGOs which went into effect on 12 April 2000. This paved the way for NGOs to launch voluntary activities and contribute to public activities. MOE allows greater participation by NGOs and reflects their opinions when formulating major policies.

In addition, MOE holds various environment theme-inspired events through Water Day, Earth Day and Environment Day jointly with environmental NGOs, aimed to raise public awareness and participation in practicing environmental conservation activities.

Financial Support for Environmental NGOs

Regarding the Government's financial support for NGOs, the Ministry of Government Administration and Home Affairs (MOGAHA) oversees the matter in accordance with the law pertaining to supporting non-profit NGOs, and MOE offers financial support to individual projects through governmental subsidies.



Performence of NGOs to stop the Dong River Dam constuction.

International Environmental Cooperation

The Tripartite Environment Ministers' Meeting has been held for a regular discussion of major environmental issues in Northeast Asia.

Environmental Cooperation in Northeast Asia

Northeast Asia, in which Korea, China, Japan, Mongolia and Russia are located, is a geographically close region that falls under the same environmental influence. Due to rapid economic growth of the countries in the region, environmental problems became exacerbated and such transboundary threats like acid rain and marine contamination substantially increased.

These problems have highlighted the need for joint countermeasures, and environmental cooperation in the region has expanded considerably since the 1990s. Many multilateral agreements were concluded and regional bodies like the Northeast Asia Conference on Environmental Cooperation (NEAC) and the Northeast Asian Subregional Programme of Environmental Cooperation (NEASPEC) were formed. In particular, based on the cooperative experience of the 1990s, Korea spearheaded the institution of the Tripartite Environment Ministers' Meeting Among Korea, China, and Japan (TEMM) for a regular discussion of major environmental issues in Northeast Asia.

Additionally, since the first Environment Ministers' Meeting between Korea and Vietnam in 2000, cooperation with Southeast Asian countries has been steadily increasing through environmental preservation programs, environmental industry exchange, and the Knowledge Partnership program.

Participation in the UN Commission on Sustainable Development.

Tripartite Environment Ministers' Meeting (TEMM)

First held in January 1999 and annually thereafter, TEMM has been organized as the only ministerial environment meeting in Northeast Asia held on a regular basis, and identifies long-term visions for regional environmental cooperation and carries out concrete cooperative projects.

The initial focus of TEMM projects was on strengthening the sense of environmental community among the three countries through joint education of environmental officials, tripartite networking of environmental educational organizations, and maintenance of the TEMM website (www.temm.org). In line with these activities, Korea, China and Japan organized environmental industry roundtables to boost environmental industry cooperation, launched a freshwater pollution prevention project, and executed the "Ecological Environment Restoration Project in Inner Mongolia" with emphasis on capacity-building.

Based on the experience of these activities, the three countries agreed to join hands in combating dust storms (or yellow sand), which have surfaced as the biggest environmental problem in the region, at TEMM4 held in Seoul in April 2002. Considering that dust storms originate from China and Mongolia and take time to reach Korea and Japan, the Ministers also agreed to establish a tripartite dust storm monitoring network to have China report the monitoring results to Korea and Japan and to organize seminars, joint research, and other capacity-building projects to boost the capability of government officials and residents to effectively deal with dust storms and desertification.

Furthermore, the Ministers requested UNEP (United Nations Environment Programme), UN ESCAP (Economic and Social Commission for Asia and the Pacific) and other international bodies to participate in the dust storm mitigation project. Fruitfully, a project on the "Prevention and Control of Dust and Sandstorms in Northeast Asia" was launched in January 2003 by Korea, China, Japan and Mongolia in conjunction with UNEP, ESCAP, ADB (Asian Development Bank), and the secretariat of UNCCD (UN Convention to Combat Desertification). Slated to end in June 2004, this Project will put forth tools for the establishment of an institutional groundwork, demonstration project on desertification prevention, and dust storm monitoring and early warning system networks.

Tumen River Basin Environmental Preservation Project

The Tumen River Basin Environmental Preservation Project (TumenNET) was implemented as a subproject in the environmental segment of the Tumen River Area Development Project (TRADP), which began in 1995 by UNDP (United Nations Development Programme) and the River's neighboring countries. The Environmental Preservation Project was carried out from August 2000 to December 2002 by North and South Korea, China, Russia, and Mongolia to analyze the factors that threaten bio-diversity and marine resources as well as to establish mid- to long-term Strategic Action Plan.

The Korean government oversaw the development of the Strategic Action Plan, which was the final outcome of this project, based on the results of project components performed by each country: Environmental Information System by China, Awareness Raising Program by Mongolia, Transboundary Diagnostic Analysis by Russia, and Regional Water Survey by North Korea.

The Strategic Action Program consists of 46 projects, including new and expanded designation of ecosystem protection areas, wetlands conservation, monitoring and information sharing for water quality protection, ecotourism and promotion of environmental consciousness, standardization of environmental impact assessment techniques, and sharing of environmental information among the participating countries. (www.tumennet.org).

This project engaged not only the Korean Government but also our leading research institutes, local governments and the civil society. The civil society fittingly made use of the project to awaken people to the importance of preserving the environment in Tumen River basin.

Bilateral Cooperation with Northeast Asian Countries

Environmental cooperation with China began in full force with the establishment of the Korea-China Environmental Cooperation Agreement in October 1993. On the basis of this agreement, the Joint Committee on Korea-China Environmental Cooperation was held annually in alternate turns starting in 1994. At the 8th meeting held in November in Hainan, China, the Joint Committee authorized 16 bilateral cooperation projects and discussed the state of Northeast Asian environmental cooperation as well as their major domestic environmental policies.

In July 2002, the "Korea-China Environmental Industry Investment Forum" was organized in China to introduce our environmental industries and technologies. The forum served as an opportune venue for the industries of the two countries to forge a partnership.

Environmental cooperation with Japan began in earnest with the conclusion of the Korea-Japan Environmental Cooperation Agreement, which followed the bilateral summit of January 1992. Since 1994, the Joint Committee on Korea-Japan Environmental Cooperation has been taking place annually on an alternate basis to introduce environmental policies of each country and discuss ways to cooperate on global environmental issues. The Joint Committee also reviews the implementation progress of cooperation projects and adopts new projects.

At the 7th meeting held in Tokyo, Japan, the Joint Committee authorized 27 cooperation projects and agreed to strengthen cooperation for the World Summit on Sustainable Development (WSSD), the Climate Change Convention, and the Stockholm Convention on Persistent Organic Pollutants. It also laid the groundwork for close partnership in the ASEM Environment Ministers Meeting and multilateral cooperation bodies of Northeast Asia.

In addition to China and Japan, Korea established an environmental cooperation agreement with Russia in 1994 for collaboration in select research areas like the protection of transboundary migratory birds.

With Mongolia, we organized the Korea-Mongolia Environment Ministers" Meeting in Tokyo, Japan, in September 2000 and established an environmental agreement for major areas of interest. Currently, discussions on dust storm survey and research and the development of Mongolia's water resources are underway.

Support for the environmental capacity-building of developing countries.

Korea maintains close cooperation with many international environmental organizations.

Global Environmental Conservation Efforts

There are about 220 international environmental conventions in the areas of air, water quality, waste and the natural environment. Korea has joined 45 of these conventions, including the Convention on Climate Change, Convention on Biological Diversity, Montreal Protocol on Substances that Deplete the Ozone Layer, Convention on International Trade in Endangered Species of Wild Fauna and Flora, and the Convention to Combat Desertification etc., as a means to contribute to the global environmental conservation effort.

In particular, we ratified the Kyoto Protocol of the Climate Change Convention in November 2002 to fight against climate change, which gives rise to unusual climactic events and global warming.

Additionally, since the establishment of the Global Environment Facility (GEF), Korea has been making contributions to financially support global environmental preservation projects of the developing countries. By extending considerable financial aid to the projects of Northeast Asia, including dust storm prevention project, GEF has proven to achieve not only global environmental preservation but also regional preservation.

In terms of sustainable development, Korea participated in the World Summit on Sustainable Development in Johannesburg, South Africa from August to September 2002, and helped to widen the scope of discussion on this critical issue. In addition to the Government delegation, various members of the National Assembly, Local Agenda 21, and NGOs attended the WSSD.

At the Summit, Korea's efforts to implement Agenda 21 in the areas of poverty eradication and sanitation, which constitute the crux of sustainable development, were highly evaluated in the Agenda 21 Implementation Report announced by the United Nations.

Cooperation with International Organizations

Korea maintains close cooperation with many international environmental organizations to exchange information and to play our part in the global environmental preservation. Notably, we promote various forms of cooperation with UNEP, that range from the secondment of MOE officials to the trust fund contribution. Among others, we hosted the main event of the 1997 World Environment Day in Seoul and collaborated with the UNEP missions to help prevent dust storms in Northeast Asia.

Korea also seeks to forge a strong partnership with UN regional bodies and international financial organizations with special expertise in environmental management like ESCAP and the World Bank. Our Government has been working with the World Bank since 2001 to implement the Knowledge Partnership project, which aims to share our experience in environmental management to East Asian countries with similar development patterns.

As a priority, Korea and the World Bank will work for environmental management of small and medium enterprises and industrial complexes in China, integrated watershed management of Lake Laguna in the Philippines, and environmental management of a traditional village in Vietnam.

Environmental Policies in 2003

MOE will also establish sound criteria for sustainable land use and prevention of future reckless development.

With the goal of constructing a "Life-respecting, Sustainable Green Nation," MOE is striving to realize sustainable development through the partnership with the public and implementation of precautionary policies. We will also execute the Eco-2 Project to harmonize environmental preservation and economic development, while faithfully carrying out our responsibilities as a member of the international community.

Major Environmental Policies

National Land Conservation Measures

MOE plans to effectively address environmental problems that arose in the course of rapid economic expansion and reckless development. We will also establish sound criteria for sustainable land use and prevention of future reckless development. To this end, we will devise land environment performance assessment techniques and standards, design land environment performance assessment map, and introduce the strategic environmental impact assessment.

Development of Environmental Technologies & Industries

A supplementary budget for handling new environmental demands will be allocated. In 2001, 76 billion won was offered in conducting 24 projects including 50 billion won for developing next-generation core environmental technologies by boosting R&D investment in the environmental division.

To fully execute the Eco-2 Project, which aims to link environmental preservation and industrial development, Korea will continuously implement the Eco-Technopia 21 for the development of the latest environmental technologies; and keeping with the trend toward decentralization, we will expand our support for the 16 regional environmental technology centers to boost regional environmental management capabilities.

Towards this end, an internship program linking industries, schools and research institutes will reinforce incentives promoting the dissemination of superior new environmental technologies. An environmental industries development consultative committee comprised of environmental firms and experts is also planned.

Co-existence between human beings and nature.

To promote an environmentally-friendly industry, MOE will expand environmentally marked products, and encourage public agencies to purchase and use more of these products.

Partnerships aimed at a Sustainable Society

To prepare a basic framework for implementing sustainable environmental policies, a study on establishing comprehensive national environmental plans (2003-2004) has been commissioned. To encourage local administrations to implement environment-friendly policies and boost public participation in environmental activities, a Local Action campaign was launched. Reinforcing partnerships with industries, the campaign will encourage them to voluntarily comply with environmental management regulations.

To enhance awareness on environmental conservation, support will be provided for model environmental conservation schools, as well as for flatland ecological exploration, nature environmental surveys, and other experiential environmental education programs.

Nature Conservation

MOE will systematically develop a Land Environmental Performance Assessment Map and divide the nation into either a preservation zone or a development-permitted zone. For development projects, we will positively consider the introduction of the Strategic Environmental Assessment system to review the environmental performance of these projects at their planning stages. This system helps to establish a precautionary land environment preservation scheme. Additionally, areas with outstanding scenic beauty will be designated and protected as a "natural scene preservation zone."

Structuring of Environmental Conservation Base

In line with the nationwide environmental survey, MOE is developing a nationwide ecosystem network involving three core axes, namely: ① Baek-du Mt. range (the country's backbone mountain ridge), ② coastal regions and islands, and ③ transboundary areas, to conserve and management the whole land in a systematic manner.

Conservation of Special Nature Environmental Areas

MOE has been managing ecologically outstanding areas like transboundary areas, demilitarized zones, and the Baekdu mountain range as special purpose zones that range from ecosystem preservation zones, unique islands, and national parks.

A system is being developed to conserve special ecological zones, conserve and efficiently manage national parks in line with ever increasing demands for leisure activities, and reinforce measures for conserving and managing scenic beauty. Government policy will give priority to conservation over development, and establish a system of sustainable conservation and land use.

Promoting South-North Cooperation for Biosphere Reserves

With Je-ju Island designated as a biosphere reserve, MOE is planning to: ① have the DMZ designated as a UNESCO transboundary biosphere reserve, ②

reinforce cooperation in conserving the South-North natural environment, ③ protect migratory birds, and ④ step up international cooperation efforts in conserving the natural environment, thus positively coping with ever shifting global circumstances.

Structuring a Scientific System for the Natural Environment

As part of our efforts to consolidate the natural environmental preservation activities on a scientific basis, MOE plans to establish a comprehensive natural environment GIS database and utilization system, and develop ecosystem preservation and restoration technologies while fostering relevant industries. We will also launch long-term national ecological research studies and improve the cooperation fund for ecosystem preservation.

Designating Natural Parks

Natural parks are designated as zones to protect and responsibly use natural ecosystems, excellent scenic beauty and cultural legacies, thus conserving the natural environment and improving people's leisure and recreation activities. They are grouped into National Parks, Provincial Parks, and County Parks.

As of April 2003, our natural parks numbered at 73 (total acreage of 7,664km^2), representing 4.8% of the country's total land, consisting of land acreage covering 4,786km^2 and marine acreage 2,858km^2. Of these, national parks numbered 20, provincial parks 22, and county parks 31.

Conserving Soil Environment

Soil, together with water and air, is a fundamental factor for all organisms, including humans.

With rapid industrialization since the 1960s, the country has seen soil polluted by many kinds of hazardous substances through air, water and waste. However, given its latency and invisibility, soil pollution has received less attention, compared with other environmental problems such as water and air pollution.

In this regard, since 1987, the Korean Government has been operating about 1,500 (number of local administrations: 2,000) soil measurement networks across the nation, and recovering polluted soil in affected areas.

Also, agreements have been signed with five oil refineries (covering over 90% of the total oil being distributed in the country) to encourage them to play a leading role in this matter.

Establishment of the special protection areas for nature preservation.

Conservation of Atmosphere

Enacting a Special Law for Air Quality Improvement in the Capital Region

The Korean Government proposes legislation to improve the quality of air in the densely populated Seoul metropolitan area. The aim is to improve the quality of air to that of advanced nations within ten years. This law will include total pollution load management in industries, gradual emissions reduction, public agencies' mandatory use of low-pollution cars, attachment of pollution-reduction device to cars, and other measures to reduce car pollution.

The Local Action campaign will encourage them to voluntarily comply with environmental management regulations.

Providing Natural Gas-Powered Cars

To improve the quality of air in large cities, the government has been promoting the use of natural gas-powered buses by replacing the existing light diesel buses with gas-powered vehicles since 2000.

Government initiatives have seen: ① the condition of charging stations being improved, ② increased number of mobile fueling stations, and ③ subsidies on the difference in fuel prices.

Thus, as of April 2003, a fleet of 3,073 CNG-powered buses existed. The budget increased to 65.5 billion won in 2003, up 20 billion won from 45.5 billion won in 2002. Together with these measures, there has been an additional 2.4 billion won earmarked (for 80 units) to replace diesel cleaning trucks with natural gas trucks starting in 2003.

Improving the Quality of Air in Underground Living Space

In December 1996, a law on improving the quality of air in underground living space was passed. Furthermore, work treatment guidelines on underground living space were established in March 1998. The exact methods of testing the quality of air in underground space were finalized in May 1998, thus laying the basis for managing the quality of air in underground living space.

The law obligates the managers of subway stations and underground shopping centers to establish an autonomous inspection system on the state of ventilation devices and the operation of air purification facilities. These managers are also mandated to comply with underground air quality standards.

For sites with poor management records, the Government administers frequent inspections. With people increasing their concern for the quality of air in underground space and indoor space alike, MOE is lobbying to expand and amend the current law into a comprehensive law on management of indoor air quality.

Reducing Offensive Odors

Offensive odor emanates from diverse and mixed sources and has the characteristics of appearing and disappearing locally, in an instant manner. In order to prevent offensive odor, MOE is legislating an Act on Odor Prevention that aims to designate special odor management zones. MOE also closely manages and maintains a database of odor-generating facilities, fuel and raw materials for processing, as well as specific areas affected by odor generation. As for small-scale businsses, MOE implements a policy to reduce odor sources through technology support.

Reducing Dust

Dust may combine with sulfurous acid gases in air to cause respiratory diseases and reduced visibility. Starting in 1984, total suspended particles (TSP) levels were measured in major cities in Korea. However, from 1995, TSP measurement devices were gradually replaced with PM10 measurement devices. Fine dust particles (PM10) are said to have more adverse effects on human health. This change was completed in January 2001, paving the

way for a system of managing fine dust particles.

In the case of Seoul, PM_{10} posted 78㎍/m³ in 1995, 68㎍/m³ in 1997, 66㎍/m³ in 1999, 71㎍/m³ in 2001, and 76㎍/m³ in 2002, not showing any improvement. This is attributable to a growing number of cars.

Also, the dust pollution level in major cities peaks in dry winter and spring, and seasons in 2001, and the overall pollution level posted a higher than usual figure in the spring due to dust storms.

Special Measures for the Four Major Rivers

MOE established special precautionary measures for water quality protection in the four major domestic river systems after 420 discussions and negotiations with local residents, environmental organizations and experts. These measures mandate the enforcement of the total pollution load system, designation of riparian buffer zones for development restrictions in upstream regions, and the imposition of water use fees in lower stream regions. In particular, we plan to firmly ground the total pollution load system and devise strategies for non-point sources, which constitute the major cause of water quality deterioration.

Safe & Sanitary Water Supply

Demand-Side Water Management

In commemoration of the UN International Year of Freshwater, water saving devices, facilities for using rain water, and reusing tap water were promoted. Various public media such as TV ads and publicity booklets aimed to disseminate the importance of water and the necessity of saving water. A water saving community homepage was established, where ordinary people interested in water conservation could participate.

Improvement of waterworks facilities in vulnerable areas, required investment of 71.9 billion won in developing 43 water resources in islands, 112 billion won in installing 78 waterworks facilities in rural areas, and 126.4 billion won in adding 16 waterworks facilities in medium and small cities, thus expanding the supply of waterworks from 87.8% in 2002 to 88.5% in 2003.

Management of Drinking Water Quality

The government is pushing ahead with comprehensive reinforcement measures for tap water quality management (established in May 2001) aimed at ensuring the supply of clean, safe water. These include 18 short and long-term projects such as: ① original water management reinforcement, ② construction of water purification facilities ③ operation management system, and ④ supply system improvement.

August 2002 saw the introduction of a water purification treatment criteria designed to reinforce filtering and disinfection of water purification treatment processes and remove viruses and pathogenic microorganisms. This action is the second of its kind after the United States. The drinking water management criteria expanded check items from 47 to 55. This measure has been in place since July 2002.

Also, in case faults occur in water purification processes or the quality of tap water fails to comply with the drinking water criteria, relevant waterworks firms are required to immediately notify the affected residents, thus increasing people's confidence in tap water.

Mid and long-term measures such as improving the quality of water at source and replacing old water pipes, will boost people's confidence in water management.

Mid and long-term measures such as replacing old water pipes, will boost people's confidence in water management.

Expansion of Sewerage Facilities

This year, an investment of 1.667 trillion won (for 420 plants) has been earmarked for installing sewage treatment facilities; thus building 56 sewage treatment plants, and 1.107 trillion won in the project for renovating sewerage pipes, thus adding and renovating 4,992km² of sewerage pipes, consequently increasing the sewerage spread rate to 76% and sewerage pipes spread rate to 72%.

201 sewage treatment plants were installed with a daily capacity of 19,595 tons by 2002, increasing the sewerage spread rate to 75%. 1996. The year 2002 saw the ad-dition of 21,103km of sewerage pipes, and renovation or repair of 5,512km-long pipes thus increasing the spread rate to 68%.

MOE plans to invest 5.2969 trillion won in adding 291 sewage treatment plants by 2005, thus increasing the sewerage spread rate to 80%. 3.0212 trillion won has been allocated for constructing and renovating 12,279km of sewerage pipes by 2005 thus increasing the spread rate to 80%.

World cup fountain in the Han River.

Structuring of Resources-Recycling Society

Reinforcement of Wastes Recycling System

The policies focus on reducing the generation of wastes fundamentally and drastically. The Extended Producer Responsibility (EPR) system means recycling is considered from the outset of the

basic planning stage, necessitating improvement of product design and manufacturing processes.

Reduction of Food Waste

Given the nature of Korea's food culture, food waste contains much liquid, thus making it difficult to incinerate, and causing water pollution when buried. Hence, steps must be taken to reduce the generation of food waste. plans to develop and disseminate food waste reduction programs aimed at fundamentally reducing them.

The Korean Government will promote an environment-friendly food culture (for example, table setting with appropriate amount of foods) by expanding voluntary-based agreements with local governments, food businesses, and NGOs. By providing relevant programs suitable for various groups in cooperation with women, religious and civic bodies the practice of food waste reduction can be promoted.

Also, by designating and observing the "No Food Garbage Day" every month, society's awareness of reducing foods wastes is increased, and local administrations, restaurants, and ordinary people are encouraged to join the campaign.

Expansion of the Recycling of Construction Waste

To promote the reduction and recycling of construction waste, MOE carries out a demonstration project for using renewable aggregates in road construction and installation of sewage treatment facilities. MOE is also reviewing the feasibility of introducing the renewable aggregates quality certification system. Moreover, MOE plans to develop a renewable aggregate production network program and build a large-scale production and distribution complex for renewable aggregates.

Establishment of resource recycling society.

Management of Chemical Substances

Introduction of Chemicals Risk Assessment System

With toxicity of chemical substances and their exposure to humans and the environment in view, a risk evaluation system needs to be designed. Such a system must evaluate the effect of chemical substances on the human body and the environment and establish appropriate management measures. Towards this end, R&D projects to select target substances and develop evaluation methods are being developed.

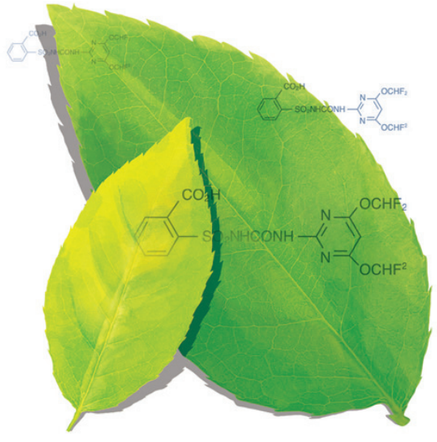
In order to identify overall toxicity of chemical substances, and secure data necessary for evaluating the risk, additional items such as toxicity on fishes and stimulus nature will be added to data submitted for testing the risk of new chemical substances, and reinforce data for physical and chemical properties.

With toxicity of chemical substances and their exposure to humans and the environment in view, a risk evaluation system needs to be designed.

Management of Dioxin & Endocrine Disruptors

MOE has been carrying out a dioxin measurement project on the industrial sector since 2001. In 2003, MOE plans to apply the dioxin measurement project on iron and steel, nonferrous metals, and nonmetal minerals manufacturing industries and develop a dioxin emissions inventory. MOE will also launch the development of emissions calculation methods for non-point sources.

In order to assess the harm of dioxin and endocrine disruptors, research projects will be pursued such as surveying their status in the environment, their impact on human and the environment, and developing test methods.



Establishment of a Chemicals Accident Response System

MOE will designate chemical substances that have the potential to cause accidents or result in extensive damage when accidents occur as accident-caution substances. MOE will identify their properties, risks, treatment facilities and site-specific response scenarios and establish a comprehensive information system for the safe handling of accident-caution substances. The identified information will be provided to police stations, fire stations, and other emergency response institutes.

Furthermore, exclusive teams at local environmental administrations will investigate the effects of substances leaked during accidents on neighboring residents and environment and taking follow-up measures to reinforce secondary response functions.

Fulfilling Chemicals-related International Agreements

The Korean Government will continuously seek to lay the groundwork for fulfilling international agreements and reinforcing internal cooperation system aimed at ensuring safe management of chemicals. Regarding the Prior Informed Consent (PIC) agreement on import and export control of hazardous substances, detailed provisions on export and import procedures will be formulated. This will mean the actual implementation of the system, offering

education and launching publicity activities for businesses in chemicals exports and imports.

Also, basic data will be secured, to fulfill the Stockholm Convention on Persistent Organic Pollutants (POPs), and investigate the emission quantity of dioxin and the status of products and wastes containing PCB, etc. Based on the results, we plan to draft reports on national obligations including the reduction of dioxin emission in accord with the Stockholm convention.

2003 Expenditures on Environmental Projects

The ministry has earmarked 1.3816 trillion won in budgets for 2003. This compares with 1.4336 trillion won for 2002, down 3.6% or 52 billion won.

If this budget is added to the budget transferred to local governments by the Ministry of Home Affairs and Government Administration for the construction of sewage treatment facilities, renovation of sewage pipelines, contaminated streams purification, and other water quality improvement projects, the total 2003 budget stands at 2.9653 trillion won, up 3.6% or 102.4 billion won from 2.8629 trillion won in 2002.

The Ministry Budget for the year 2003 has been supplemented to supply clean water, improve the quality of air in big cities, and augment infrastructure. This is achieved by recycling wastes and treating them safely, advancing environmental technologies, conserving and managing bio resources systematically, and preventing unrestricted development of land. To cope positively with new environmental demands, and provide support for international environmental cooperation such as in global environmental problems are the overall objectives.

First of all, we markedly expanded the investment to resolve

MOE's Budget for 2002 ~ 2003 (Unit: million won)

Description	2002 Budget	%	2003 Budget	%
Total	1,433,576	100.0	1,381,650	100.0
Waterworks management	329,591	23.0	243,284	17.6
Water conservation and Sewerage management	332,228	23.2	314,645	22.8
Wastes management	288,907	20.1	308,557	22.3
Environmental research and technology development	192,853	13.4	181,323	13.1
Nature conservation	86,088	6.0	91,347	6.6
Atmosphere conservation	63,932	4.5	85,593	6.2
Management and others	139,977	9.8	156,901	11.4

The concept of sustainable development was often thought of in relation only to the environment.

drinking water problems in agricultural areas and islands, in which most households rely on underground water, wells, and simplified waterworks due to their limited access to tap water supply system.

Second, we will continue to support the project for supplying clean water, including measures for improving the quality of water in the four large rivers. Funding will be provided for expanding basic water environmental facilities such as sewage treatment plants, excretions treatment plants, and livestock wastes treatment plants. The renovation of sewage pipes and purification of polluted rivers will also continue.

Status of Funding Support for Rural Areas and Islands (Unit: 100 million won)

Description	1998	1999	2000	2001	2002	2003
Total	334	379	425	621	838	1,063
Rural areas	213	226	238	332	480	560
Islands	121	153	187	289	358	503

In 2003, 31.46 million won was allocated to environmental improvement special budgets, and 1.5837 trillion won in grants for local administrations totaling 1.8983 trillion won in improving the quality of water. This figure is up 7.8% from 1.7615 trillion won in 2002.

Third, MOE will increase investments in recycling wastes. In 2003, MOE plans to: ① continuously expand hygienic wastes treatment facilities, ② augment budgets in promoting the recycling of food waste and disposable plastic items, ③ structure the system of recycling plastic items and used fluorescent bulbs, ④ establish recycling centers of electronic products, and require public agencies to prioritize the buying of recycled products, thus augmenting the recycling infrastructure.

Finally, MOE will bring up our investment for the distribution of natural gas buses for the improvement of urban air quality. The amount of government investment on this project increased from 45.5 billion won in 2002 to 65.6 billion in 2003. In tandem with this measure, MOE allocated additional 2.4 billion won to replace diesel cleaning trucks with natural gas counterparts.

World Cup Park, the Transformation of Nanji Island

The Nanji island revives from the dark side of rapid growth in the 1970s into the environment-friendly park.

Nanji Island in the Past

Nanji Island is a delta created by the Nanji tributary, which converges with its main stream, Han River, near Haengju Mountain Fortress. Before being singled out as a repository of waste in 1978, Nanji Island was a low-lying flatland producing peanuts and millets.

Just a few decades ago, it was a treasure trove of natural ecosystems, covered in a panoply of various flowers. With its thickly-grown reeds and abundant aquatic animals and plants for bird feed, Nanji Island also served as an excellent wintering place for flocks of swans and spotbill ducks.

The Shadow of Seoul in Nanji Island

Seoul is a megalopolis of more than 10 million people. Starting in March 1978, Nanji Island was gradually filled with the dregs of development and material prosperity, which accompanied Seoul's rapid expansion from urbanization and industrialization. In 15 years, 92 million m3 of waste was landfilled in 72 million m3 of land in Nanji Island, forming two 90 meter-high waste mountains of stench and contamination.

Waste landfill in Nanji Island was conducted in an unsanitary manner, heaping all forms of waste- from household waste to construction and industrial waste- upon each other. Consequently, the level of contamination in Nanji Island was significantly higher than the newly constructed Sudokwon Landfill Site and landfill sites of advanced countries, which employ sanitary methods.

Reviving Nanji Island

The revival of Nanji Island from the dark side of rapid growth in the 1970s into the environment-friendly park is significant in many ways. It provided green space for the pubic and stabilized the land. Located near the Sangam World Cup Stadium, it also symbolized Korea's commitment to host an environmentally friendly sporting event. The revival of Nanji island and the creation of the World Cup went through the following processes:

Transformation from a landfill site to a pleasant public space park.

Gas Extraction & Treatment

As waste decays, poisonous gases such as methane and carbonic acid are generated, not only polluting the air but also causing fire or explosion. In order to prevent those incidents from occurring, 106 landfill gas extraction wells have been inserted and the extracted gas is transported through the gas collection pipe. After the treatment process at the LFG utilization facility, the methane gas from the landfill is utilized as the energy source for heating and cooling purposes at the nearby apartment complexes and the World Cup Stadium.

Leachate Treatment

A 6,017km-long vertical leach-ate barrier was installed to prevent the leachate from leaking out and contaminating the Han River, and nearby ground water and soil. The leachate is collected through 31 leachate collection wells in-stalled within the barrier at an interval of 200m. After the pri-mary treatment at the leachate treatment site and the secondary treatment at the Nanji sewage treatment plant, the purified leachate is discharged into Han River with no more condition of contamination. A daily amount of treated leachate reaches 1,860 tons. In order to examine the ground water condition, the water quality is checked every month by two monitoring wells.

Slope Stabilization

To prevent the landslide of the landfill slope, the inclination was readjusted and geo cells were installed. Cherry trees, paulownias, silk trees, peach trees, winter jasmines, apple trees, which transferred with soil when the slope was covered with soil, began to grow. However, they could not grow well because of the environmental condition of the landfill. Thus, grass and trees were planted to make the slope less steep and to prevent landslide.

Top-soil Leveling & Soil-Recovering

Top-soil recovering, or covering soil on top of the waste mountain, was done to block the penetration of rain water into the landfill, to control the landfill gas emission, and to make an appropriate environment for plant growth. A 50cm-thick-soil was placed on top of the landfill, and waterproof cover was installed on the top. The drainage layer, the layers of base soil, and top soil were placed in 30cm depth respectively. Then lawn grass and small trees were planted.

World Cup Park

The World Cup Park consists of four parks- Peace, Sky, Sunset, and Nanji Stream Parks.

Pyeonghwa Park (Peace Park)

As the representative park of the World Cup Park, Pyeonghwa Park was installed at the flat land of 446,000m^2 between World Cup Stadium and Gangbuk Riverside Driveway. To commemorate the first World Cup Games in the 21st century, Pyeonghwa park was designed to symbolize the harmony and peace of the world. It will be used as the Eco-education, rest and exercise facilities for the residents.

In the park, there is a Hope Forest, which was made in part of the "Planting 10 Million Trees of Life" project. With a vision in landscaping World Cup Stadium, many citizens participated in planting trees in springs of 1999

and 2000. While keeping this area of commemoration, rest facilities were installed. Instead of benches, 40 straw mats were placed for picnicking families.

Haneul Park (Sky Park)

Haneul Park, the highest elevation in the World Cup Park, was made into a grassland on the 2nd Landfill. Located close to the upstream of the Han-River, Haneul Park of 192,000m² has the poorest soil among other parks. It was artificially built as a result of the Landfill Recovery Project with no appropriate natural succession. Accordingly this park can show how nature starts its life in the deserted field.

From the highest point of Haneul Park, you can have a magnificent view of Seoul: Mt. Bukhan in the north, Mt. Namsan and the 63 Building in the east, the Han-River in the south and the Haengju mountain fortress in the west.

Located at 98m sea level, Haneul Park has a good condition for wind power generation, for there are no obstacles around, and the wind speed from the Han-River reaches an average of 3-4 m/sec. Clean energy generated by the five wind power generators is used for the street lamps and the visitor center in the park.

Noeul Park (Sunset Park)

For many reasons, a golf course emerged as the most practical and realistic choice for developing the 1st Landfill Site of 340,000m². No flat land is required, rather the rough terrain of the landfill and its subsidence are better for the golf course. While the subsidence of the ground continues, the golf course helps the stabilization process. It usually requires lots of agricultural chemicals in order to maintain the golf course.

However, at the golf course of Noeul Park, a minimum amount of chemicals and fertilizers are used for a long-term soil improvement. Instead of fertilizers, microbes are mixed with water when sprinkling, and the sturdy grass that survives the draught was chosen to minimize sprinkling. With the golf course taking up to 57% of the park area, the rest will be developed into the amenities for citizens such as exercise facilities. Ecology observation park and the Wild Flower Garden will also raise the stability of the soil and will be the nest for wild animals.

Nanjicheon Park (Nanji Stream Park)

Flowing into the Han River via the north of Nanji Island, Nanji stream was severely polluted because of the waste and leachate from the landfill. By covering good-quality soil and sand onto the dead Nanji stream, and daily supplying 5,000 tons of water from the Nanji Lake at Pyeonghwa Park, the river has revived: with reeds and willow trees growing along the river, its ecosystem has been recovered without dark traces of the past.

Along the naturally restored river, you can enjoy in-line skating and cycling. Furthermore, ponds and stepping stones were installed along the riverside promenade. About 2,000 tall trees like pine trees and meatasequoias and 50,000 small trees like the junipers were planted around. Another pride of Nanjicheon Park is nature observation facility of 2,314m² that shows the ecosystem of Nanji Island including the wild flowers.

Han Riverside Park

777,000m² area of Nanji island waterside where Nanji Island adjoins the Han River is Han Riverside Park (Nanji Area). While preserving the nature of the riverside, the park provides wide space for leisure and efficiently supported the facilities for 2002 FIFA World Cup. The second largest of 13 Hangang Parks, Han Riverside Park (Nanji Area) consists of natural environment preservation areas including the ecological swamp, and the facilities for activities such as sightseeing boat wharf, archery range, yacht basin camping site and playgrounds.

The World Cup Park consists of four parks-Peace, Sky, Sunset, and Nanji Stream Parks.

The wind power generators at Haneul Park.

Transformation from a landfill site to the environment-friendly parks.

Environmental Management of Yuhan-Kimberly

Yuhan-Kimberly, established in 1970, is a leading domestic company that produces and supplies articles of daily necessity such as toilet papers, tissues, diapers and sanitary napkins, as well as environmental protection products like oil absorbents and non-woven fabric.

Environmental Management System

The Yuhan-Kimberly Environmental Management Structure is supported by four pillars- "Quality Management System," "High Performance Organization," "Vision Sharing Management" and "Environmental Management System." Successfully operating the Environmental Management Structure outlined below, the chief executive of Yuhan-Kimberly, who also serves as its chief environmental administrator, led all production plants to receive ISO 14001 certification and to become designated as an environmental friendly company.

Environmental Partnership

Yuhan-Kimberly has been conducting a campaign on "Keeping Korea Clean and Green" since 1984 to plant trees and nurture forests.

Forest Cultivation Fund

Until April 2003, Yuhan-Kimberly contributed a total of 4.43 billion won over 83 times to the Forest Cultivation Fund and planted 20.09 million trees in approximately 81 million square meters in state-owned lands. It has also cultivated natural forests and carried out blight prevention projects.

Cultivation of Nature Friendly Educational Environment

Yunhan-Kimberly has been making efforts to grow forests in schools for a nature-friendly educational environment. In 1998, it began designating demonstration schools in conjunction with the civil organization called "Forest of Life," providing consulting services for school forest development, donating trees and assisting in the development of educational programs on forests. Presently, the Forest of Life has designated 189 demonstration schools nationwide, and it plans to continually expand the forest-growing project.

Starting in 1988, Yuhan-Kimberly has been running an annual "Green Camp" for high school students nationwide during summer breaks. So far, this Camp has produced 2,165 students from 380 schools over 20 sessions.

Tree Planting Experience for Newlyweds

Yuhan-Kimberly has been planting trees with newlywed couples since 1985 with the recognition that planting trees is tantamount to providing future generations with a better, more resourceful life. By 2002, 106 thousand saplings were planted in state-owned lands by some 6,500 couples.

Environmental technology of Samsung Engineering

Established in January 1970, Samsung Engineering has successfully undertaken over 2,000 plant-building projects as the first engineering company in Korea. Notably, since late 1980's, it has expanded fields of business beyond a traditional stronghold of petrochemicals, refining, gas plants. It has developed leading industrial facilities, seeking to serve electronics, textile, and food productions as well as administerial and sports activities; and it also developed energy/railway sectors such as power generation, gas production facilities, pipelines, railway/high-speed train base. The company further expanded its territory towards the environmental sectors such as sewerage/waste water treatment, raw/pure water treatment, air pollution control/waste disposal treatment. To that end, Samsung Engineering has become a driving force of the Korean industry underpinned by profound experiences.

Environmental Facilities

Samsung Engineering values the environment as a fundamental component for a balanced human life; thereby it aims to make every possible effort in environmental protection, as an in-house environmental specialist within the Samsung group.In the water treatment area, Samsung Engineering successfully developed advanced treatment processes for industrial waste water (semiconductor, dying, paper, petrochemical etc.), raw/pure water, and nitrogen and phosphorus suitable for domestic sewage. The company is also actively participating in a privatization of the environmental sector as well, by undertaking Social Overhead Capital Operation and Maintenance (SOC O&M) projects jointly with advanced foreign players. In waste treatment and air pollution prevention facilities, Samsung Engineering retains a wide range of technologies such as Municipal Solid Waste (MSW) and industrial waste incineration, waste water sludge incineration, landfill, dioxin, denitrification, desulfurization, and Volatile Organic Compound (VOC) etc. In collaboration, the company has become a comprehensive environmental solution provider, catering to any demands of clients through outstanding technological expertise and extensive experiences.

Proprietary Technologies

- **SM Process**
  Biofilm Reactor System for Nutrient Removal
- **BIOFILL Process**
  High Rate Biological System for Organics Nutrient Removal
- **PADDO Process**
  5-Stage BNR Process using Step Feed System and dPAO

National Institute of Environmental Research

The NIER was established in 1978 to resolve complex and ever diversifying environmental problems.

The National Institute of Environmental Research (NIER) was established in 1978 to resolve complex and ever progressing environmental problems. NIER began with 6 teams in one department, but now includes 6 departments, 23 divisions, 5 laboratories and 4 centers, employing 250 staff members.

NIER's major functions include survey, research and technology development for environmental policy support, formulation and revision of environmental pollution standards and fair testing methods, joint research on the global environment, environmental research information management, and administration of environmental education and training.

Environment Risk Research Department

- Risk assessment and generation of scientific data for sound management of hazardous chemicals (POPs, EDCs, PBTs, Biocides, etc.)
- Research of environmental epidemiology which is related with the adverse effects of environmental pollutants on human health
- Standardizes measurement and analysis technoloy, internalizes quality control of measurement and analysis and certifies analysis
- Operates the Center for Chemicals Safety Management which is collection, analysis and distribution of integrated information related to anti-chemical terrorism and chemical accidents

Biodiversity Research Department

The Biodiversity Research Department develops means of restoring endangered species as well as wild animals and plants; investigates the distribution and ecological characteristics of endangered wild animals and plants under protection; establishes of Living Modified Organisms (LMOs) environmental risk assessment system; and conducts natural environment survey in inland wetlands, natural caves and uninhabited islands

Air Quality Research Department

- Operates the National Atmospheric Environment Data Center; establish a database on air pollution emission sources; develop air pollution management programs and predict the level of air pollution; support the formulation of scientific air policies like the creation of a geographic information system
- Examines photochemical pollution phenomenon and high concentration ozone generation; compute atmospheric environmental capacity; and conduct research on Volatile Organic Compounds (VOCs) generated from vehicles

A view of the National Institute of Environmental Research.

Water Environment Research Department

- Policy support for waterquality consevation by promoting research on integrated water quality assessment, water environment information system and evaluation methods for the combined sewage and wastewater treatment system of environmental facilities
- Arrange foundation of safe drinking water supply in terms continuous drinking water monitoring, standard analysis method of protozoan oocysts and its control in water treatment system, and QA/QC management program on bacteria category of drinking water
- Establishment of target water quality of watershed, guidelines for the total load management and water system boundary by watershed

Waste Research Department

- Innovates recycling policy on waste plastics; provide technical support for food waste reduction and reuse; carry out research studies on the efficient use of waste such as recycling of waste batteries.
- Proposes concrete means of improving the environment and enhancing the performance of waste treatment facilities like incinerators and landfill facilities.
- Provides support for policies and develop effective treatment technology on the proper management of hazardous wastes.

Environmental Training Department

The Environmental Training Department offers educational courses for officials and citizens. The Department also executes the joint environmental education program among Korea, China and Japan, and offers training to participants from various developing countries in Asia with a view toward facilitating cross-national environmental information exchange and technology cooperation.

Motor Vehicle Emission Research Laboratory

- Conducts research on ways to mitigate emissions from mobile pollution sources.
- Performs tasks relating to environmental certification on emission gases and noise and assess the quality of domestically produced and imported fuel.

Environment Research Laboratory for Major Rivers

- Carries out research studies on the characteristics of water pollutants and assessment of respective self-purification capacity of four major river watersheds.
- Investigates the properties and control substances that cause abnormal odor and taste; develop biological index and conduct research on water polluting microorganisms.

Under the coordination of the NIER, the Northeast Asian Centre for Environmental Data and Training (NEACEDT), a cooperative institution among six countries in Northeast Asia- North and South Korea, China, Japan, Mongolia and Russia- surveys the state of environmental monitoring in each country to help improve the regional environment.

The Korea-China Environmental Science and Technology Exchange Center promotes the exchange of environmental experts between China and Korea and the Environmental Technology Venture Incubator provides support for the growth of environmental

industries and practical deployment of new technologies.

International Environmental Research Cooperation

NIER has been promoting international environmental research cooperation and educational training since its establishment in order to strengthen global research partnerships, especially in the Northeast Asian region. As a follow-up to the TEMM Among Korea, China and Japan, we carried out 3 projects in the areas of long-range transboundary air pollution, lake water quality control, and homepage mainte-nance, etc.

NIER also worked with neighboring countries to protect the environment of Northeast Asia by launching cooperation projects, including the Korea-Japan symposium on the joint research project on endocrine disruptors, the expert meeting on air quality of the six countries in the NEACEDT, and collection and comparison of air quality materials in each country.

Furthermore, NIER participated in various projects involving international environmental organizations. NIER played a substantial role in the UNDP-GEF environmental protection project for Tumen River and Northeast Asia and the UNEP-GEF environmental assessment project on persistent toxic chemicals in Central and Northeast Asia.

"The Train-ing Workshop Project on Quality Assurance and Quality Control (QA/QC) in Water Analysis for the Tumen Member Countries" is a part of the joint ROK Government and the United Nations Development Programme (UNDP) ongoing efforts to support Northeast Asian (NEA) cooperation, the Ministry of Science and Technology (MOST) and the ROK Office of the UNDP signed a new regional cooperation project in March, 2003.

This 4th project, which is fully funded by the ROK, under its commitment to the Tumen River Area Development Project, includes the following Northeast Asian countries: China, DPRK, Mongolia, the ROK, and the Russian Federation. This project aims to assist Tumen Area countries to move away from different methods of data collection and analysis for watershed management and establish harmonized analytical methods in regards to water quality for enhanced water management efficiency.

In a specialized workshop to be conducted on October 13th to the 24th, 2003 in Incheon, by the NIER, in collaboration with the Ministry of Environment (MOE), both organizations will share Korean experiences and know-how and technology in QA/ QC in water analysis.

NIER also contributed to the UNEP-GEF development project for national biosafety framework and the forest ecosystem restoration project in the Southeast Asia tropical regions initiated by the Korea-ASEAN Fund.

In the area of environmental education training, NIER offers 55 training programs, including environmental administrative management courses, and it develops programs like a cyber English conversation course that can enhance the quality of education. We regularly invite environmental officials from Korea, China and Japan for capacity-building, provide environmental training to officials from 9 Asian countries, and offer human resource development course for officials from 12 countries as per the Korea-Japan environmental cooperation project agreement.

NIER will also establish the basis for advanced environmental research.

NIER aims to improve the felt environment and realize a harmonious community of living organisms by researches based on science and technology.

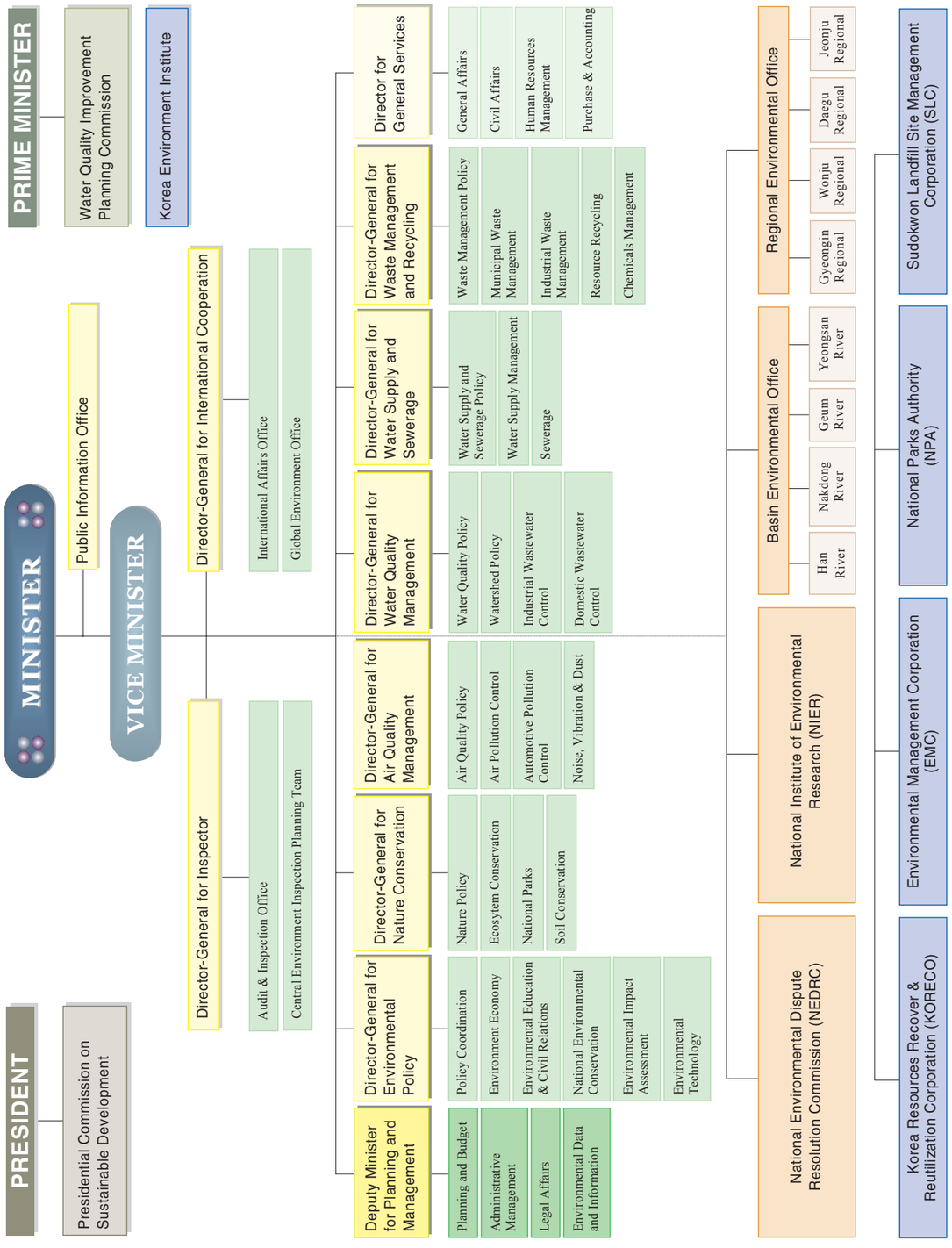
Programme of Work

There are currently 31 investigative research projects underway in 2003. 7 projects in the area of air, including the development of hazardous air pollutant emissions reduction system; 11 projects in the area of water environment, including the development of diagnostic program for linkage treatment among basic environmental facilities; 5 projects in the area of biodiversity, including research on value appraisal and management techniques for biological genetic resources; 4 projects in the area of waste, including landfill environmental pollution assessment technique and the development of soil purification technology; and 4 projects in the area of environmental risk, including studies on environmental risk assessment technique for endocrine disruptors using biomarkers.

Future Plans

NIER aims to improve the felt environment and realize a harmonious community of living organisms by conducting environmental improvement research based on science and technology. Some of the tools to this end include scientific assessment of actual conditions, application of environmental technology, prediction and monitoring of future pollution, and systematic use and management of environmental information. As underpinning strategies, we will carry out investigative research on each environmental field, as well as research on the improvement of the felt environment and sustainable land development. NIER will also establish the basis for advanced environmental research and take an initiative in environmental improvement research in Northeast Asia, while enhancing the expertise and practicality of environmental education.

Organization of the MOE



Major Functions of the MOE(Central Offices)

Organizations	Major Functions
Planning and Management Office	· Budget planning & managing the organization and the staffs · Examining and assessing major tasks · Establishing information networks for legal and the environmental affairs and improving the data processing system
Environmental Policy Bureau	· Establishing mid and long-term plans for environmental conservation · Supporting environmental education and environmental groups · Developing environmental technology including pollution prevention technology · Conducting environmental impact assessments
Nature Conservation Bureau	· Ecosystem conservation · Managing National Parks · Preventing land degradation
Air Quality Management Bureau	· Establishing air quality improvement plans · Reducing and preventing vehicular pollution · Encouraging the use of low-pollution fuel · Reducing noise pollution, vibration and dust
Water Quality Management Bureau	· Establishing basic water preservation plans · Managing wastewater · Planning and managing environmental facilities
Water Supply and Sewage Treatment Bureau	· Developing basic policy on water supply and sewage · Establishing basic water conservation plans · Maintaining and managing water supply and sewage treatment facilities · Managing drinking water
Waste Management and Recycling Bureau	· Establishing basic and comprehensive plans for waste reduction, recyling and treatment · Supporting waste reduction and the recycling industry · Managing waste treatment facilities and hazardous chemical substances
Public Information Office	· Conducting public campaigns
Office of the Inspector-General	· Auditing environmental activities
International Cooperation Office	· International environmental cooperation · Collaborative efforts for the global environmental Issues

Personnel of MOE(1,349)

MOE	Affiliated Organizations (948)									
	NEDRC	NIER	River Basin Environmental Office(406)				Regional Environmental Office(265)			
			Han	Nakdong	Geum	Yeongsan	Gyeongin	Wonju	Daegu	Jeonju
401	21	256	71	128	96	111	87	62	78	38

Personnel of related Institues (2,787)

KORECO	EMC	NPA	SLC
1,165	746	662	214

Major Functions of the MOE (Subsidiary Organizations)

Organizations	Major Functions
National Environmental Disputes Resolution Commission (NEDRC)	· Resolving environmental disputes · Investigating/evaluating environmental damage and identifying causal relationships
National Institute of Environmental Research (NIER)	· Establishing environmental research plans and collecting and managing information · Studying environmental impacts and ecosystem conservation · Developing and studying technologies for preventing air pollution, noise and vibration · Developing and studying water pollution prevention technology · Developing and studying waste management technology · Educating and training environmental officials, engineers and managers working in the private sector
Han(Geum, Nakdong, Yeongsan) River Basin Environmental Office	· Establishing, implementing and managing major water policies for Han River Watershed · Collecting water-use charges and conducting projects to support residents · Monitoring activities that pollute Han River Watershed · Guiding and supervising pollution emitting industries
Gyeongin(Wonju, Daegu, jeonju) Regional Environmental Office	· Establishing and implementing measures for environmental conservation by affected area · Guiding and supervising pollution emitting industries · Consulting on environmental impact assessments and end-of-pipe management · Managing and recycling specified waste · Measuring, examining and analysing on pollutants
Korea Resources Recovery and Reutilization Corporation (KORECO)	· Collecting and purchasing recyclables · Establishing and operating waste recycling facilities · Securing technologies to reduce waste generation and expand recycling
Environmental Management Corporation (EMC)	· Implementing diverse projects for preventing pollution · Supporting and examining basic environmental facilities with technology · Commissioning for operating national and municipal environmental facilities
National Parks Authority (NPA)	· Protecting natural resources in Nation Parks · Maintaining and managing facilities in Nation Parks · Implementing projects regarding Nation Parks
Sudokwon Landfill Site Management Corporation (SLC)	· Managing waste from the Seoul metropolitan area · Waste recycling · Promoting the reuse of landfills

Environmental Activities of other Central Governmental Bodies

Governmental Bodies	Environmental Activities
Ministry of Science & Technology	· Coordination of nuclear safety controls · Establishment and implementation of preventive measures for radioactivity
Ministry of Agriculture & Forestry	· Developing Measures to reduce agricultural and forestry pollution · Planning and technical guidance on the development of agricultural water
Ministry of Commerce, Industry & Energy	· Import/export of toxic substances and implementation of import restrictions on industrial waste · Allocation and management of industrial sites · Supply of low sulfur oil · Research & Development of new and alternative energy resources · Management of nuclear power generators and disposal/treatment of nuclear waste
Ministry of Construction & Transportation	· Formulation and coordination of comprehensive plans for national land use · Designation of areas subject to the National Land Use and Management Act · Establishment and coordination of a comprehensive plan for water resource development · Management of rivers, reclamations and use of rivers and lakes · Type approval and performance tests of motor vehicles
Ministry of Labor	· Developing Countermeasures against occupational diseases and improvement of working conditions
Ministry of Culture and Tourism	· Designation, protection and management of national monuments, which include rare plants and animals
Ministry of Maritime Affairs and Fisheries	· Protection of marine resources · Reclamation and ocean management · Developing countermeasures on coastal water pollution · Supervision and prevention of marine pollution
The Office of Forestry	· Formulation of basic forestry plan · Protection and oversight of forests
Agriculture Promotion Administration	· Improvement of agricultural land and guidance on soil improvement

Environmental Laws

1960 (7 laws)	1970s～1980s (10 laws)	1990s - 2002(35 laws)	Date of Enactment
Water Supply Act			1961.12.31
Sewerage System Act			1966.08.03
Act relating to Protection of Birds, Mammals and Hunting (1967.3.30)			1983.12.30
Waste Clean Act (1961.12.30)		Waste Management Act (1986.12.31)	1991.03.08
Act relating to Toxic and Hazardous Substance (1963.12.13)		Toxic Chemicals Control Act	1996.08.01
Natural Park Act			1968.01.04
	Compound Waste Treatment Corporation Act		1979.12.28
		Korea Resource Recovery and Reutilization Corporation Act	1993.12.27
	Environmental Pollution Prevention Corporation Act		1983.05.21
		Environmental Management Corporation Act	1993.12.27
Social Pollution Prevention Act (1963.11.5)	Environment Preservation Act (1977.12.31)	Basic Environmental Policy Act	1990.08.01
		Air Quality Preservation Act	1990.08.01
		Water Quality Preservation Act	1990.08.01
		Act relating to Water Resources in Han River and Community Support	1999.02.08
		Special Act on Nakdong River's Watershed Management	2000.01.14
		Special Act on Geum River's Watershed Management	2002.01.14
		Special Act on Yeongsan and Seomjin River's Watershed Management	2002.01.14
		Act relating to Air Qualities in Underground Space	1996.12.30
		Noise and Vibration Control Act	1990.08.01
		Environmental Dispute and Settlement Act	1990.08.01
		Acts relating to Punishment for Environmental Crime	1991.05.31
		Natural Environment Preservation Act	1991.12.31
		Act relating to the Special Accounting for Environmental Improvement	1994.01.05
		Act relating to Environmental Technology Support and Development	1994.12.22
		Drinking Water Management Act	1995.01.05
		Special Act on the Ecosystem Preservation of Islands such as Dokdo Islands	1997.12.13
		Wetland Preservation Act	1999.02.08
		Act relating to Environmental Improvement Charges	1991.12.31
		Environmental Impact Assessment Act on Environment, Transportation and Natural Disaster	1999.12.31
		Soil Environment Preservation Act	1995.01.05
		Act relating to the Treatment of Sewage, Night Soil and Livestock Wastewater	1991.03.08
		Act relating to Promotion of Resources Saving and Reutilization	1992.12.08
		Act on the Control of Transboundary Movements of Hazardous Wastes and their Disposal	1992.12.08
		Act Promotion of Waste Treatment Facilities and Local Community	1992.01.05
		Act relating to the Establishment and Operation of Sudokwon Landfill Site Management Corporation	2000.01.21

Environment-related Laws under the Authority of other Ministries

Fields	Laws	
Air	Nuclear Damage Compensation Act, Act on the Promotion of the Development and Use of Alternative Energy, Act on the Control, etc. of Manufacture of Specific Substances for the Protection of the Ozone Layer	Road Traffic Act, Atomic Energy Act, Energy Use Rationalization Act, Integrated Energy Supply Act, Petroleum Business Act,
Water	Prevention of Marine Pollution Act, River Act, Public Waters Reclamation Act, Small River Maintenance Act, Public Waters Management Act,	Groundwater Act, Specific Multi-Purpose Dams Act, Public Waters Reclamationt Act, Aggregate Picking Act, Local Grant Act
Noise	Road Traffic Act	School Health Act
General Laws	Framework Act on the National Land, National Land Planning and Utilization Act, Act on the Promotion of a New Airport Construction in Seoul Metropolitan Area, Housing Site Development Promotion Act, New Harbor Construction Promotion Act, Industrial Sites and Development Act, Special Act on Jeju-Do Development, Act on the Acquisition of Land, etc, for Public Works and the Compensation Therefor	Building Act, Urban park Act, Urban Development Act, Industrial Placement and Factory Construction Act, International Conference Industry Promotion Act, Seoul Metropolitan Area Readjustment Planning Act.
Agriculture	Act on the Special Measures for Development of Agricultural and fishing Villages, Act on the Prevention of and Countermeasures against Agricultural and Fishery Disasters	Agrochemicals Control Act, Farmland Act, Plant Protection Act, Rearrangement of Agricultural and Fishing Villages Act.
Livestock	Dairy Promotion Act, Grassland Act	Livestock Industry Act
Fisheries · Harbors	Fisheries Act, Harbor Act	Fishery Harbors Act
Forestries	Work against Land Erosion or Collapse Act	Forestry Act
Others	Act on Special Measures for the Deregulation of Corporate-Activities, Protection of Cultural Properties Act, Act on the Promotion of the Conversion into Environment-Friendly Management, Science and Technology Promotion Act, Punishiment of Minor Offenses Act	Foreign Trade Act, Miniing Safety Act, Tourism Promotion Act, Mining Industry Act, Inland-Water Fisheries Development Promotion Act

Designation of National Parks (Apr. 2003)

Order of Designation	Name	Province	Area(㎢)	Date of Designation	Remarks
Total		20 Locations	6,473		Land 3,825km², Sea 2,649km² (6.5% of Total National Territory)
1	Mt. Jiri	Jeollanam-do, Jeollabuk-do, Gyeongsangnam-do	440	1967.12.29	
2	Gyeongju	Gyeongsangbuk-do	138	1968.12.31	Entrusted to Gyeongsangbuk-do
3	Mt.Gyeryong	Chungcheongnam-do	61	1968.12.31	
4	Hanryehaesang	Jeollanam-do, Gyeongsangnam-do	510	1968.12.31	344km² (Entrusted to Odong Island and Jeollanam-do)
5	Mt. Seorak	Gangwon-do	373	1970. 03.24	
6	Mt. Songni	Chungcheongbuk-do, Gyeongsangbuk-do	283	1970. 03.24	
7	Mt. Halla	Jeju-do	149	1970. 03.24	Entrusted to Jeju-do
8	Mt. Naejang	Jeollanam-do, Jeollabuk-do	76	1971.10.13	
9	Mt. Gaya	Gyeongsangnam-do, Gyeongsangbuk-do	80	1972.10.13	
10	Mt. Deogyu	Jeollabuk-do, Gyeongsangnam-do	219	1975. 02. 01	
11	Mt. Odae	Gangwon-do	299	1975. 02. 01	
12	Mt. Juwang	Gyeongsangbuk-do	106	1976. 03.30	
13	Taean Seaside	Chungcheongnam-do	329	1978.10.20	290km² is sea
14	Dadohae Marine	Jeollanam-do	2,345	1981.12.23	2,002km² is sea
15	Mt. Bukhan	Seoul, Gyeonggi-do	78	1983.04.02	
16	Mt. Chiak	Gangwon-do	182	1984.12.31	
17	Mt. Worak	Chungcheongbuk-do, Gyeongsangbuk-do	285	1984.12.31	
18	Mt. Sobaek	Chungcheongbuk-do, Gyeongsangbuk-do	321	1987.12.14	
19	Mt. Wolchul	Jeollanam-do	41	1988. 06.11	
20	Byeonsan Peninsula	Jeollabuk-do	157	1988. 06.11	9km² is sea

Environmental Standards

General Area	Specific Area	Relevant Legislation
Water Quality	Water quality standard (river, lake, underground water, marine water), Drinking water standard, Treated water standard, Discharged wastewater standard	Basic Environmental Policy Act, Water Quality Preservation Act, Act Relating to the Treatment of Sewage, Nightsoil, and Livestock Wastewater
Air Quality	Air quality standard, Allowed emission standard, Emission standards for newly manufactured automobiles and for those in operation	Basic Environment Policy Act Air Quality Preservation Act
Noise & Vibration	Allowed noise & vibration standard from factories, Noise standard for automobiles (new and used automobiles), Domestic noise & vibration regulation standard, Noise & vibration limit on transportation (roads and railways)	Basic Environment Policy Act Noise & Vibration Control Act
Soil and Toxic Chemicals	Warning standard and countermeasure standard on soil pollution, Pollution standard on limiting harvest of agricultural and forestry products, Standards on toxic chemicals	Soil Environment Preservation Act, Toxic Chemical Control Act

Major Environment Related Companies (2002)

Type of companies	Number	Type of companies	Number
Total	**12,301**	Environmental inspection	13
Environmental pollution prevention facilities	988	Nightsoil collection and transportation	768
Pollution measurement	153	Nightsoil sanitation and cleaning	1,093
Wastewater treatment	60	Nightsoil treatment facility construction and sewage / livestock treatment facility construction	1,897
Waste treatment (collection, transportation)	2,655	Purifier manufacturing	68
Waste treatment (primary, secondary)	677	Waste disposal at sea	17
Waste recycling / treatment (licensing, reporting)	2,941	Vehicle inspection	838
Environmental impact assessment	139	Inspection of measurement equipment	4

Protection of National Ecosystems (2002)

Region	Reason for Designation	Location	Surface Area(㎢)	Date for Designation
Nakdong Estuary	Habitats for migratory birds	Busan-si, Saha-gu	34.20	1989.03.10
Mt.Jiri	Virgin forest	Jeollanam-do Gurye-gun, (Simwon and Pia Valley)	20.20	1989.12.29
Mt.Daeam	Mountainous wetland	Gangwon-do, Inje-gun (Yong swamp)	1.06	1989.12.29
Woopo swamp	Largest natrual wetland	Gyeongsangnam-do, Changnyeong-gun	8.54	1997.07.26
Moojechi swamp	Mountainous wetland	Ulsan-si, Uliju-gun	0.18	1998.12.31
Seomjin River	Habitats for the otter	Gurye-gun Jeollanam-do	1.83	2001.12.01
Gosan peak	Habitats for the orange whiskered bat, the otter	Hampyeong-gun Gangwon-do	8.78	2002.05.01
Dong River	Splendid scenery	Yeongwol-gun Gangwon-do	64.97	2002.08.09
Sinduri sand dune	Unique topography	Taean-gun Chungcheongnam-do	0.64	2002.10.09
Sea area nearby is. Mun	Stock of Coral, seaweeds	Seogwipo-si Jeju-do	13.68	2002.11.05

Soil Pollution Levels (2002 / 2001 / 2000)

Unit : mg /kg

	Annual Yearly Average			Natural Composition Standard	Warning Level for agricultural areas
	2002	2001	2000		
Cd	0.086	0.147	0.181	0.135	1.500
Cu	3.792	5.300	4.839	3.995	50.000
As	0.152	0.256	0.300	0.560	6.000
Hg	0.051	0.071	0.044	0.085	4.000
Pb	5.989	6.503	5.932	5.375	100.000
Ct^{+6}	0.011	0.028	0.019	-	4.000
PCB	N.D	N.D	N.D	-	-
CN	0.010	0.020	0.025	-	2.000
Organic Phosphorous	N.D	N.D	N.D	-	10.000
Phenol	N.D	N.D	N.D	-	4.000
Oil	0.002	1.008	1.298	-	-

N.D = Not Detected

Key environmental performance indicators for the Government of the People (1998-2002)

	1997	2001
Air Quality		
• Level of SO_2 (ppm, Seoul)	0.017	0.005
• Level of NO_2 (ppm, Seoul)	0.032	0.036*
• Concentration of PM ($\mu g/m^2$, Seoul)	78	76*
Water Quality		
• Water Quality (% of Level II quality and better)	86%	91%
• Han River Water Quality (BOD, ppm)	1.5	1.4*
Water Supply and Sanitation		
• Water Supply Connection Rate	84.7%	87.8%
• Sanitation Connection Rate	60.9%	73.2%
• Water Conservation (milion ton)	-	412*
Waste Management		
• Per capita generation	1.05kg	1.01kg
• Household Waste Management		
- Landfill	63.8%	43.3%
- Recycling	29.1%	43.1%
- Incineration	7.1%	13.6%
• Indusrial Waste Management		
- Recycling	63.8%	74.8%
- Incineration, landfill and others	36.2%	25.2%

∗ 2002 data used