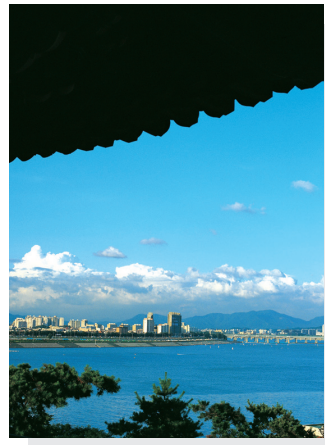


As the eaves in silhouette  
whisper our traditional beauty,  
the imagery opens a view of  
modern Korea where the past  
meets the future in harmony  
with nature.



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**

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# 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 21<sup>st</sup> 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 8<sup>th</sup> 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 21<sup>st</sup> 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

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



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."

### 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  $\mu\text{g}/\text{m}^3$  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 21<sup>st</sup> 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.



# Special Reports

## UNEP 8<sup>th</sup> Special Session of the Governing Council in Korea



*The venue for the 8<sup>th</sup> UNEP GCSS to be held in March, 2004.*

The 8<sup>th</sup> UNEP **Special Session of the Governing Council (GCSS)** and the 5<sup>th</sup> 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

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



UNESCO in December 2002. At the Special Session next year, participants will be able to experience the mysteries of Jeju Island.

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 8<sup>th</sup> GCSS*



*High-level meeting in Korea for preparation of the 8<sup>th</sup> GCSS*

# Development and Promotion of Environmental Technology

The Korean Government has invested approximately 0.5 trillion 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

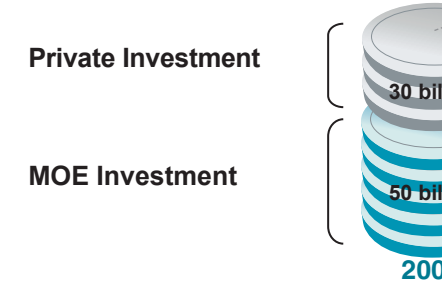
master plan for systematic and efficient implementation of the Eco-Technopia 21 Project.

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, the project has achieved a 100% completion rate.

Strategic Outline of Eco-Technopia 21		
	Basic Goal	Government Investment
FIRST STAGE (2001-2003)	<ul style="list-style-type: none"><li>Develop sophisticated treatment technology for environmental pollution</li><li>Develop technological infrastructure for the manufacturing of cutting-edge environmental products</li><li>Secure the basis for environmental hazard assessment</li><li>Develop technology for environmental pollution monitoring</li></ul>	195 billion won
SECOND STAGE (2004-2007)	<ul style="list-style-type: none"><li>Develop mid-term strategic environmental technology</li><li>Develop technology for environmental hazard assessment</li><li>Develop integrated environmental monitoring component and systems technology</li></ul>	440 billion won
THIRD STAGE (2008-2010)	<ul style="list-style-type: none"><li>Develop key future environmental technology</li><li>Develop advanced technology for pollution prevention</li><li>Develop original environmental hazard assessment technology</li><li>Develop nano-environmental pollutant monitoring technology</li></ul>	365 billion won

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



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