

Environmental Management in Korea: an Emerging Role for Industry¹⁾

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I. Introduction

Two decades ago, environmental management was primarily a concern of public interest groups, public administrators, natural resources managers and lawyers. The corporation's environmental management program, if it existed, was a staff

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function, focusing on the politics, the legal, economic and technical requirements of regulatory law, and on governmental relations.

Environmental management now extends its reach into many functions of the business corporation, from the Executive Office on down. Today, environmental management is intertwined with international trade and marketing issues. Throughout the developed world, corporations are designing corporate environmental management programs to measure up to international standards following promulgation of ISO 14000 in 1996 of final standards by the International Organization for Standardization.

This paper briefly reviews some of the major environmental problems in Korea, and the significant, well-publicized initiatives recently taken by four major chaebols (conglomerates) in declaring new priorities and funding for environmental management throughout their companies. Finally, some conclusions are drawn and questions raised about how effective these corporate environmental management programs will be.

II. Economic Development and Environmental Management

South Korea is a prime example of a newly-developed nation, after rapid, unfettered economic growth, now trying to deal with environmental improvement on an accelerated basis. In the 1990s, environment has become major public policy issue only after some 30 years of successful industrial expansion. Why the sudden turn around? The answers are complex. Economically, Korea is a leading competitor in the global marketplace. Politically, Korea has moved from virtual dictatorship to democracy. Culturally, few Koreans are more than two generations away from the farm and rural villages. They still have the countryman's and countrywoman's love for nature.

Korea has many difficult environmental problems to address. There remains seriously high levels of air pollution in Seoul, caused by a 100-fold increase in automobiles in 10 years and by coal burning which is still common in low-income areas of the city.

The number of automobiles registered in Seoul reached 2,043,458 as of December, 1995. One of the serious problems with cars in Seoul is that the per-

vehicle mileage is very high compared with other major cities of the world: the average mileage in Seoul is about 25,000 km/vehicle-year, while the figure is 17,000 for the U.S., 13,000 for France and 10,000 for Japan (Kang, 1995).

Another problem is with diesel cars. Diesel cars account for 24.5% of the cars in Seoul, and consume 37% of the fuel used in transportation. The emission from diesel cars far exceed that from gasoline cars which are tightly regulated by stringent emission standards which are quite comparable to those in western countries (Seoul Development Institute, 1996).

Widespread water pollution remains a serious problem. Although in recent years, the Government has constructed many sewage treatment plants, sewer systems still are not adequate to collect and convey wastewater to the plants. Finally, the combined storm water and sanitary sewer system in Seoul does not function properly because of poor connections and leaks.

Solid wastes are currently conveyed from Seoul to Kimpo Landfill, an enormous modern state-of-the-art landfill near Kimpo International Airport. But, in a former suburb of Seoul, now part of the city, the now-closed Nanji-do Landfill leaves a mountain of garbage, along the River Han. The leachate from the landfill is not treated and contaminates groundwater and the river. Methane gas and odors escape from the landfill into the air. Government and private development interests are now interested in "reclaiming" Nanji-do because the landfill property, once of little value, is now potentially a valuable site for commercial development.

Large areas of Korea's ecologically valuable coastal areas, home to abundant fish and wildlife, aquatic life, important resting areas for migrating birds, have been destroyed due to industrial development. The current construction of a super-airport at Youngjong-do, 60 km west of Seoul, has been described by Korean environmentalists as an ecological disaster because of the biologically productive inter-tidal lands which will be lost to development, and the loss of the island, itself, estimated to be the resting area for hundreds of thousands of migratory birds each year.

The Shihwa Reclamation Project recently completed in the west coast became another controversy because of the serious pollution problem in Shihwa Lake, a freshwater lake formed as a result of the project. Yet the destruction of the coastal

ecosystem is still going with the development of the Saemangum Reclamation Project, the largest land reclamation project in the world.

Koreans are continuing to debate the value of preserving natural areas vs. ecotourism. One good example is the incursion into the national parks for intensive recreational development for golfing and alpine skiing, and associated development of hotels and resorts.

III. National Concern for the Enviroment

While Korea has many significant environmental problems, there is a strong national concern for environmental improvement evidenced by:

1. National environmental goals for environmental improvement, comparable to those in western countries, were first adopted by the Korean Government in 1991, and updated regularly since. Moreover, the Ministry of Environment has been elevated to full ministry status, and has developed a growing capacity to provide the needed government leadership.
2. The Korean Government recognizes the transboundary nature of environmental problems, and has given priority to promoting cooperation with China and Japan on addressing acid rain and the contamination of the Yellow Sea.
3. Korea has a significant and growing number of trained environmental professionals, and an expanding number of environmental interest groups.

But serious problems remain. There is a reluctance among new graduates of environmental management programs to work for industry. They prefer to seek positions in government, at universities and at research institute. A much larger number will have to be hired by industry to tackle environmental problems firsthand. Despite the improvements being made in Korean environmental protection, and a growing number of environmental regulations, development interests still have the upper hand on public works projects. Rigorous environmental impact analysis, and meaningful input from the public and from environmental organizations on environmental impacts has yet to be realized.

IV. Recent Industrial Initiatives in Environmental Management

Korean industry is dominated by large global industrial conglomerates or chaebols. Corporate management of a number of the leading chaebols have promulgated major new environmental policies, backed up with action programs and monetary commitments. Recently, major chaebols (conglomerates) including Samsung, Hyundai, Daewoo and LG have proclaimed "environmental declarations," to adopt environmental management systems with every effort to improve their processes and production to make them environmentally friendly, and to cooperate with local communities to improve the local environment.

These four major chaebols announced they would spend to spend more than 2 trillion won⁴⁾ (\$2.34 billion dollars) on environment by 2000. The action by the chaebols in major efforts to improve the environment is rapidly spreading into initiatives by smaller corporations. Some specifics on the actions taken by each of these chaebols follow.

The Samsung Group

In 1993, The Samsung Group established the Samsung Global Environmental Research Institute, and in 1995, Samsung stopped using CFCs.

On May 15, 1996, Samsung declared a new policy of Green Management in order to "...actively cooperate in seeking prosperous living for human beings and in conserving the global environment..." There are five objectives of "Green Management":

1. Management: To contribute to national advancement through research and development in environmental policy and technology; and to acquire certificates of "Environmentally-Friendly Business" from the Ministry of Environment and ISO 14001 certification.
2. Process: To achieve zero discharge of wastewater by 2000, 30% reduction in carbon dioxide, 20% upgrading of energy efficiency between 1995 and 2000, and introduction of denitrification facilities in 1998.

4) 900 won = approximately \$US 1

3. *Product*: Carry out life cycle assessments (LCAs) on all products beginning in 1996, develop recycling systems for all products and packaging by 1998, and achieve production of environmentally-friendly goods by 2000.
4. *Working Environment*: Implement a "3-Zero Policy," of no pollution, no accidents, no disease, establish a "Wellness Clinic" by 1997, and monitor and improve the working environment by 2000.
5. *Local Community*: Establish "Green Partnerships" with local communities, develop restoration campaigns for local rivers by 1996, develop restoration program for local ecosystems by 1998.

To carry out this extensive program of environmental improvement, the Samsung Group has established a "Green Management Committee," and has pledged to spend a total of 2.131 trillion won by 2000 including:

1. 582 billion won for process improvement
2. 290 billion won for improving working environment
3. 338 billion won for local community
4. 921 billion won for research and development for Green Management

The Hyundai Group

In May, 1994, the Hyundai Group issued an Environmental Declaration, which includes:

1. Establishment of strict environmental standards
2. Assignment of first priority in all production systems to environment
3. Commitment to regular evaluation of environmental aspects
4. Commitment to research and development for environmental conservation
5. Commitment to minimizing energy use and maximizing recycling

Environmental management in Hyundai is characterized by "Eco-21," based on three principles:

1. Improvement of environment under the principle of "Environment is competitiveness" (LCA principle)
2. Development of environmental technology and environmental business (Eco-balance principle)
3. Launching of social environmental movement (Cooperate citizen principle)

Hyundai has developed the following strategies to implement its program of environmental improvement:

1. Investment of 350 billion won for environment during 1994-96.
2. Establishment of a Group Environmental Committee to be in charge of environmental management
3. Commitment to stop using CFCs by 1996.
4. Use of clean energy to reduce air pollution and waste production
5. Operation of incinerators to treat plant wastes
6. Development of low-pollution products like electric cars
7. Support for collaborating industries in environmental improvement

The organizational structure developed to guide these programs consists of:

1. A Group Environmental Committee was established with the Hyundai Group Head as the chairman. The committee reviews the environmental management strategies of the group and makes decisions affecting the entire group.
2. The Hyundai Environmental Research Institute was established to carry out environmental research and development activities for the entire group.
3. Each company within the group was directed to form an organizational unit to be responsible for environment and safety in coordination with the Group Environmental committee

Some positive results of the Hyundai Group Environmental Declaration include:

1. 200 billion won were invested in environment in 1995, which account for 0.5% of total sales or 2.4% of total investment. By 2001, 2 to 4% of total sales are expected to be invested in environment.
2. Three companies have acquired ISO 14001 certificates and 12 companies are in the process.
3. Two companies acquired "Environmentally-Friendly Business" certificates from the Ministry of Environment and 2 companies are in the process.

The Daewoo Group

The Daewoo Group Environmental Declaration was made in September, 1995, and the campaign is entitled "ECO-DAEWOO 21," which symbolizes "Daewoo as an

Ecologically and Economically Consonant Organization in the 21st Century.” The slogan of the campaign is “A Green Dream with Daewoo.”

Although Daewoo claims that it, among all Korean business groups, made the first environmental declaration, documentation from Doosan and Hyundai does indicate that these companies initiated sweeping environmental programs earlier. Probably, Daewoo declared it publicly while the others did it internally.

Daewoo’s Environmental Charter incorporates efforts:

1. To create a new paradigm of co-existence and co-prosperity to seek harmony between nature and human beings.
2. To seek balanced development between environmental conservation and business growth.
3. To achieve a first-class business group to contribute to the well-being of the people of the world and the nation.
4. To carry out in its environmental management:
 - A. “Environmentally-friendly management system” to maximize the efficiency of energy and material use
 - B. Environmental goals for each company and to practice preventive management
 - C. Environmental diagnosis and impact assessment system
 - D. Development of new environmental products and contribution to local communities

An environmental agenda was established requiring:

1. Practicing the principles of harmony, recycling and sustainability with nature.
2. Each company and each person to set up 5 items to do for environmental improvement, such as save energy and resources, minimize the use of packaging, separate wastes, use recycled products, share environmental information, etc.
3. A Group-wide agenda of:
 - A. Preventive management
 - B. Daily maintenance of facilities
 - C. Minimization of packaging
 - D. Saving of energy and resources

E. One company takes care of one mountain and one river

The Strategies of ECO-DAEWOO 21 define an eco-efficiency campaign from environmental control to environmental management to activate environmental businesses and create added values, to minimize pollution, and to economize production. More specifically Daewoo plans to:

1. Maximize energy efficiency through building environmentally-friendly production system.
2. Identify problems and develop technologies through environmental diagnosis.
3. Diversify environmental business through developing no-pollution processes, control technologies and alternative materials.
4. Create favorable group image through leadership in coping with environmental regulations.
5. Satisfy consumers through providing good products.

The LG Group

In March, 1997, the LG Group made an Environmental Declaration proclaiming:

1. Environment, safety and health should come first in all business activities of LG.
2. LG will set high standards for environment, safety and health, meet them and upgrade them.
3. LG will monitor the outcomes of efforts for environment, safety and health and publicize the results.
4. LG will actively participate in environmental conservation in local communities.

To back up its environmental declaration, LG committed 2 trillion won to be invested in environment by 2000 including:

- A. 1.3 trillion won for improving processes
- B. 500 million won for treating wastes
- C. 200 million won for developing environmentally friendly products and clean technology

LG plans to acquire certificates of "Environmentally-Friendly Business" from the

Ministry of Environment and ISO 14001 Certification for all branch companies. In addition, by 1999, for LG Chemical, LG plans to accomplish zero wastewater discharge, as well as a 50% reduction in air emissions.

Organizationally, LG plans to:

1. Strengthen the activities of its Committee on Environmental Affairs and form subcommittees for Environmental Technology, Environmental Assessment, ISO 14000, and Safety and Health.
2. Establish an Environmental Research Center within the LG Economic Research Institute.
3. Establish an Environmental Technology Institute within the LG Technical Research Institute.

LG would also develop stronger environmental services for local communities including:

1. A "Green Mountain, Clean Water" campaign for each branch company.
2. Environmental awareness building campaigns through such diverse activities as seminars and environmental sketch contests.
3. Publication of environmental reports involving international cooperation.

The Doosan Group

Doosan seems to be the most environmentally-active group in Korea since 1991, when it was responsible for a phenol spill in the Nakdong River, the drinking water source for Kyungsang Province. This spill was one of the worst environmental accidents in Korea. Citizens immediately campaigned to boycott Doosan products.

In the meantime Doosan organized an Environmental Management Committee headed by the President of the Group to cope with the worst crisis since the founding of the business. And each company in the Group formed environmental organizations for planning and implementation of environmental policies. They adopted stricter standards and set up telemetering systems to monitor environment and developed environmental evaluation programs.

In 1992, Doosan adopted an Environmental Agenda, and environmental education was offered to employees. As a result, 19 companies in the Group have

been designated as "Environmentally-Friendly Business" by the Ministry of Environment. This accounts for 70.4% of the companies in the Group, which is the largest among conglomerates in Korea. Doosan's Environmental Agenda is expressed as follows:

1. Our nature: We restore to nature, minimizing use and emissions, and actively participating in a nature conservation campaign.
2. Our products: We guarantee the environmental quality for customers and society. We will develop no-pollution, and low-pollution materials, and produce environmentally-friendly products.
3. Our attitude: To be first in environmental improvement by practicing orderly arrangement and cleaning in everyday life. We systemize 5R (reformation, redesign, reuse, reduce, recycle).
4. Our efforts: Our goal is to reduce pollution loads to 1/2 of legally allowable limits, to set up our goals and achieve them, and to promote the advancement of environmental control and metering technology.

V. CONCLUSIONS

1. There has always been close cooperation between the chaebols and the national government in Korea. Some critics have said the relationship is too close, often involving bribery and favoritism (Clifford, 1994). But, it is natural that the chaebols should provide leadership and funding for environmental improvement. How much of the incentive for their actions can be considered national, and how much is global is difficult to ascertain.

2. Korean chaebols are very keen about international movements which can affect their business activities. So they try very hard to observe international trade rules including environmental ones, and carry out research to better understand the trends in environmental regulation worldwide. The World Trade Organization system exerts a good stimulus for chaebols in Korea to adopt environmental management. It is a kind of external pressure. One of the problems with Korean chaebols is they lack internal pressure as hard as that from abroad. The Government has tried to set up environmental goals comparable to those in countries, but still, in Korea, the chaebols enjoy rather loose environmental

regulatory standards. With little pressure from within, the chaebols are not urged to fulfill their pledges in due time. They have the ability to develop technologies and money to support, but the question remains as to whether they will really will do it.

3. While the chaebols have made these significant environmental declarations, a remaining, serious problem is with their subcontractors. They don't have money and manpower to upgrade their environmental standards to the levels of the chaebols. Chaebols put on cosmetic masks and let the subcontractors play the villain. Sound environmental management by the chaebols should be extended to their collaborating subcontractors.

4. There are significant remaining questions:

- A. Will the chaebols provide the large monetary expenditures over time as promised?
- B. Will the Korean government take a harder line in environmental regulation, and insure that the chaebols follow through on their environmental declarations?
- C. Will there be an increasing share of trained environmental professionals willing to enter industry to carry out these environmental improvement programs?
- D. What is the long-term impact of these environmental declarations by the chaebols? Will Korea's environment be improved, say 3 years, 5 years and 10 years after these declarations have been made?
- E. Since significant environmental degradation is caused by unwillingness to consider environment in the planning stage, will objective environmental impact analysis be applied to new projects to avoid causing future environmental damage? Will life cycle assessment be applied to new products is a good start in this direction?
- F. What effect would reunification of the two Koreas have on environmental improvement efforts in South Korea? Would the emphasis be away from the South toward addressing much more serious environmental problems in the North?

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