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Environmental Sustainability and Poverty in Korea

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Converging Paths to Environmental Sustainability in Asia'

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1. Introduction

The Republic of Korea is often referred to be a model case of successful economic growth in the second half of the twentieth century. Some economic indicators confirm this assertion. For example, GDP per capita of Korea has risen from $272 in 1970 to $10,428 in 1997. The economic growth along with a fairly good income distribution system has remarkably reduced poverty incidence nationwide. However, the rapid economic growth accompanied by urbanization and industrialization has brought a number of formidable environmental problems. Urban air pollution, river pollution, and waste-induced land damage are among the main environmental concerns facing Korea.

Because industrialization is considered as the main culprit for causing environmental disorder in Korea, and because most of poor people are maintaining a modern style of life, the relationship between the environmental sustainability and the poverty incidence is relatively weak in Korea compared to other developing countries. This means that the environmental problem concerns not just a specific group but most people in Korea.

The Korean government with the Ministry of Environment established in 1994, is making strenuous efforts to preserve natural environment and to secure environmental sustainability. Many NGOs are also participating in these efforts to improve environmental sustainability in various areas of our socio-eco system.

2. The State of the Environment in Korea

The Republic of Korea is small in territory but huge in population. With its land area covering 9,873,000 ha and total population of 47,275,000, Korea's population density reached 478.8 per square kilometers in 2000 (KIHASA, 2000. P.60). A fairly high proportion of the population, 86.2%, is living in urban area while the remaining 13.8% of the population is living in rural area (Korea National Statistical Office, 2000. P.60). The population in agriculture, forestry and fishery occupies only 9.2% of the whole population. This means Korea is one of the highly industrialized and urbanized countries. Economic activities as shares of GDP as shown in Table 1 confirm the assertion.

Table 1. Economic Activities as Shares of GDP in 1999,

(Unit: %)

Agriculture	Industrial Activity		Services	Total
		Manufacturing		
5.0	43.6	31.8	51.4	100

Source: Korea National Statistical Office, International Statistics Yearbook 2000.

People living in crowded cities are concerned about the air pollution mostly caused by vehicle emissions. And they also concern about the safety of tap drinking water because it is very often reported that major rivers providing tap water are polluted by various wastes. Another ongoing environmental issue is land pollution induced by hazardous wastes. Because forest areas are protected by strict law, the deforestation and forest degradation are not environmental issues in Korea. In short, main environmental issues of Korea are urban air pollution, river pollution, and waste-induced land pollution. As many people have begun to become aware of the importance of environment in their quality of life, Korean government has implemented a series of environmental policies regarding air, water, and land.

1) Status and policies for clean air

Over last ten years, urban air quality concentrations of sulfur dioxide, total suspended particulates and lead have greatly improved to satisfy ambient air quality standards. Table 2. shows the improvement of air quality in terms of sulfur dioxide in major cities.

Table 2. Air Pollution, SO_2 in 8 Major Cities 1990~1999

Year	Seoul	Pusan	Taegu	Inchon	Kwangju	Taejon	Chunchon	Ulsan
1990	0.051	0.039	0.041	0.044	0.017	0.029	---	0.031
1991	0.043	0.038	0.041	0.041	0.017	0.028	0.046	0.038
1992	0.035	0.033	0.040	0.036	0.017	0.022	0.040	0.031
1993	0.023	0.028	0.035	0.021	0.014	0.020	0.024	0.032
1994	0.019	0.023	0.038	0.022	0.013	0.021	0.021	0.030
1995	0.017	0.023	0.031	0.023	0.010	0.017	0.015	0.028
1996	0.013	0.022	0.023	0.012	0.008	0.015	0.010	0.022
1997	0.011	0.018	0.016	0.013	0.009	0.011	0.008	0.019
1998	0.008	0.015	0.014	0.009	0.008	0.009	0.004	0.015
1999	0.007	0.014	0.011	0.008	0.007	0.009	0.005	0.017

Source: Ministry of Environment, *Environmental Statistics Yearbook*, each year.

However, the concentrations of particulate matter (PM-10), ozone, and nitrogen dioxide are gradually increasing. The number of ozone episode days has been continuously increasing, from 12 in 1997 to 16 in 1999. Consequently, the government's air quality policies focuses mainly on i) promotion of measures for combating vehicular pollution, ii) promotion of air quality around major industrial sites and large cities. The following measures are in the pipeline.

First, the government is planning mid- and long- term comprehensive measures on air quality preservation. Target pollutants will be expanded from SO_2 and dust to include NO_2, volatile organic compounds (VOCs), and hazardous air pollutants, while environmental standards for air pollutants including SO_2, particulates (PM-10), and lead will be strengthened.

Second, to enhance the air quality in large cities and pollution-susceptible regions, a regulatory system for controlling air pollutant emissions will be introduced and implemented under market-based incentives. Regions where levels of ozone and nitrogen oxides fail to satisfy environmental standards will be designated and managed as air quality regulation zones.

To develop measures for the UN Framework Convention on Climate Change (UNFCCC), the government is creating plans to limit the emission of global warming substances and will actively promote the use of cleaner energy through reformed fuel-use policies.

Finally, measures for reducing vehicular pollution will be actively promoted before the World Cup 2002, and management measures will be strengthened for facilities that generate VOCs and other air pollutants.

2) Status and policies for clean water

The four main rivers—the Han, the Nakdong, the Youngsan and the Keum are the basis of life in Korea and the main sources of drinking water. The average precipitation in the four main river basins is between 1,100 and 1,400 ㎜ per year. However, as the rainfall concentrates in summer, extended dry periods result in a lack of sustained minimum flow, which worsens water quality. In particular, as life patterns change in small and medium cities, and as remote towns and fishing villages demand more water, water quality and supply management becomes even more difficult, given that 68% of the drinking water supply currently depends on rivers.

Korea's water quality management policy has therefore placed top priority on protecting water resources that provide people with safe drinking water. Beyond that, the policy involves the protection of river quality; in essence, all riverine ecosystems should be sustainably managed to maintain a high level of ecological health and aesthetic integrity. For this purpose, the government has developed water quality standards, detailed plans and laws, and has increased its investments in water quality

improvement measures.

To prevent water pollution household sewage is controlled by several acts. Urban districts develop basic plans for sewage system maintenance, and treat household sewage under the Sewage Act, raising the sewage treatment ratio up to 68%. In non-urban districts, each building must maintain its own sewage disposal facility according to the Sewage, Night Soil and Livestock Wastewater Treatment Act. In addition, there are standards for nitrogen and phosphorous in the sewage treatment facilities to prevent eutrophication, and stricter standards are being applied to the upper reaches of major rivers.

Effluents from factories are addressed by the Water Quality Preservation Act, which regulates allowed effluent amounts differentiated by volume (2,000 tons/day) and by region. In addition, the government created the pollutant load-based effluent control system in 1994, by introducing the basic effluent charge system. Effluent standards for wastewater from the livestock farming are regulated by the Sewage, Night Soil and Livestock Wastewater Treatment Act, which applies differentiated standards according to the size of stalls and the region. Particularly, the government has set up public treatment facilities to treat wastewater discharges from small livestock producers, and is constantly expanding its support in order to recycle livestock night soil for fertilizer and other resources.

3) Status and Policies for the Waste

As table 3 shows, the quantity of total waste has been increasing even though domestic waste has been reducing since 1991. The main cause of increase has been the industrial waste.

Table 3. Generation Quantity of Waste: 1991~1999

(Unit: ton/day)

Year	general Waste	Domestic Waste	Per capita (kg/day)	Industrial Waste	Specified Waste
1991	139,955	92,246	2.40	47,709	18,721
1992	123,154	75,096	1.80	48,058	21,381
1993	118,909	62,940	1.48	55,969	22,474
1994	143,347	58,118	1.33	85,229	3,702*
1995	143,597	47,774	1.07	95,823	4,405
1996	175,334	49,925	1.11	125,409	5,239
1997	189,200	47,895	1.05	141,305	6,075
1998	184,989	44,583	0.96	140,406	5,266
1999	219,217	45,614	0.97	166,114	7,489

* Since April 1st, 1994, some wastes including sludge moved from specific waste to industrial waste.

Source: Korea National Statistical Office, *Social Indicators in Korea*, 2000.

The goal of waste management policy is to conserve the natural environment and to allow all citizens to live in a pleasant environment by reducing the environmental burden caused by wastes. To do so, rather than simply treat generated waste, the government is inducing a fundamental shift toward a resource recirculating society based on the concept of Environmentally Sound and Sustainable Development.

It is a common opinion among environmental economists that in order to maximize profit, consumers pay the cost to compensate for natural and environmental damage. Therefore, based on "the polluter pays principle" the government is applying market principles to solve waste problems, placing priority on waste prevention.

The government is formulating waste management policies under the following basic principles. First, the government should attempt to efficiently attain policy goals by assigning clear roles

and responsibilities to members of the community. For product waste in particular, manufacturers, consumers, the central government, and local governments should share responsibility for waste management.

Second, the order of waste management priorities should be maintained. That is, prevention should always come first, followed by reuse, recycling, energy recovery, incineration, and landfill. Third, waste management policies should meet criteria of both environmental performance and economic efficiency. In particular, rather than the government itself establishing and enforcing detailed regulatory standards, the government should assign goals to the private sector and allow autonomy. Fourth, the government should expand commercial opportunities for the private sector to engage in waste management, thereby accelerating efficiency gains, the development of viable treatment technologies, and the accumulation of knowledge. Fifth, the environmental information management system should be improved. This includes making environmental information public; opportunities for the general public to voice its opinions will be extended to ensure that major policy decisions are based on appropriate scientific information and community interests.

3. Poverty Incidence and its implication on environmental sustainability

1) Defining the Poverty

Conventionally, poverty has been defined in two different ways; *absolute* and *relative*. In the absolute view, poverty is simply defined as an inadequate command over resources relative to needs (Oster, et al., 1978. p.4). However, the practical definition of absolute poverty is contingent upon the meaning of needs. Two alternative techniques are used to calculate absolute poverty level. The first method is to survey actual expenditures of persons who are considered poor. The second method is to design a hypothetical market basket that is necessary for subsistence or for a decent standard of living.

In Korea, there is no official poverty line. However, most researchers adopt the Minimum Cost of Living (MCL) measured by government as a poverty line. A family is considered poor if its income or expenditure falls below MCL. Korean government measures MCL every five years, and adjusts MCL by consumer price index in the interval years. The MCL for 2001 is shown in the following table.

Table 4. Monthly Minimum Cost of Living by Household Size in 2001

(Unit: Won)

Household size	1	2	3	4	5	6
MCL	333,731	552,712	760,218	956,250	1,087,256	1,226,868

Source: Ministry of Health & Welfare, *Guide Book on the National Basic Livelihood Security Program*, 2001.

Kakwani and Prescott measured quarterly the poverty incidence including the percentage of poor, poverty gap ratio, and severity of poverty index from the first quarter of 1990 to the fourth quarter of 1998. They produced the consumption-based poverty rate as well as the income-based poverty rate. Because they did not estimate the income of non-worker, the income-based poverty rate was only for worker households in urban areas.

Table 5. Poverty Rates of Korea by Kakwani & Prescott

Time	Poverty Rate	
	Consumption- based(A)	Income-based (B)
1st quarter 1996	8.8	5.9
2nd quarter 1996	11.6	5.0
3rd quarter 1996	10.0	3.5
4th quarter 1996	8.0	4.6
1st Quarter 1997	7.0	2.9
2nd Quarter 1997	9.2	2.7
3rd Quarter 1997	8.9	2.1
4th Quarter 1997	9.5	2.6
1st Quarter 1998	17.0	6.1
2nd Quarter 1998	21.2	6.7
3rd Quarter 1998	23.9	8.5
4th Quarter 1998	14.7	7.4

Source: Kakwani & Prescott, table 19 & table 25, 1999.

Here is another example reporting the poverty incidence in Korea.

Table 6. Income-based Poverty Rate in Korea

Time		Receipts			Income			Current Income		
		Whole	Worker	Non-worker	Whole	Worker	Non-worker	Whole	Worker	Non-worker
1996	1st Quarter	2.6	0.8	5.5	8.2	4.1	14.9	10.3	5.2	19.1
	2nd Quarter	2.3	0.6	5.2	7.7	3.4	15.0	9.4	4.1	18.6
	3rd Quarter	2.3	0.6	5.2	7.2	2.8	14.4	8.6	3.8	16.9
	4th Quarter	2.1	0.4	4.9	6.6	2.8	12.8	9.6	3.7	19.8
1997	1st Quarter	2.9	0.5	7.0	8.1	3.4	15.9	10.4	4.5	20.1
	2nd Quarter	2.6	0.5	6.1	7.0	2.8	13.7	8.9	3.5	18.1
	3rd Quarter	2.5	0.4	6.0	7.2	2.3	14.9	8.7	3.0	18.2
	4th Quarter	2.6	0.5	6.0	8.5	3.0	17.2	10.2	3.5	21.2
1998	1st Quarter	3.8	0.9	8.2	13.8	5.7	25.9	14.7	6.5	27.5
	2nd Quarter	4.7	1.3	9.5	15.2	6.2	28.0	15.5	6.8	28.4
	3rd Quarter	4.5	1.5	8.8	15.4	6.7	27.5	15.9	7.3	28.1
	4th Quarter	4.0	1.2	7.8	12.7	5.7	22.3	15.2	6.5	27.5
1999	1st Quarter	4.8	1.6	8.8	17.1	7.8	28.9	19.5	9.0	33.6
	2nd Quarter	4.9	1.8	9.1	14.9	7.3	24.7	18.0	8.3	31.3
	3rd Quarter	4.4	1.4	8.4	14.2	6.2	24.7	16.3	7.0	29.5

Source: Korea Institute for Health & Social Affairs. The Change of Poverty and Income Inequality Level during Economic Crisis and Counter Policies in Korea, 1999.

No matter how individual researcher argues on poverty incidence, there are 1.5 million people, 3.4% of total population, who are eligible for public assistance program as of 2001. Any poor families may apply for the public assistance benefit. However, they should pass a means test to become eligible. The main criteria for eligibility is that family income should be less than MCL and family asset should be less than a certain amount. So it is reasonable to argue that the recipients of public assistance program would be the poorest people in Korea.

2) Anti-Poverty Policy

In order to secure the minimum standard of living for the poor, the Government has made a new social assistance policy and enacted the "National Basic Livelihood Security Act" in September 1999. It has been enforced since October 2000 after one year of preparation. The Livelihood Protection Act that has been enforced during the last 40 years simply served as a beneficial protection measure. However, a major paradigm shift has been undertaken to strengthen government responsibility. Some of the changes include full coverage of the social safety net to secure the basic livelihood protection for the low-income class, a comprehensive poverty countermeasure to enhance recipients' ability to self-support, and strengthening of the rights of the recipients and social responsibility regarding poverty.

In order to secure the basic livelihood for the low-income class earning less than the minimum cost of living, living expenses are provided for these households regardless of their age and ability to work. The number of recipients for living expenses has increase from 540,000 persons in 1999 to 1,540,000 persons in 2001. As a measure to stabilize housing for the low-income class, house maintenance, house maintenance benefits are provided.

As measures to provide self-support aid to those having the ability to work, a self-support aid plan for each household depending upon the recipient's ability to work, desire for self-support and living condition is provided. The direction and the kind of services necessary for self-support are firstly determined, and services such as providing job search information, and vocational training, participating in joint projects for self-support, and financing for self-reliance fund are provided. The social welfare services such as day care services and home-based services are systematically linked and provided. Systematic

measures are undertaken to motivate those with working ability. Living expenses are provided on the condition that the recipients voluntarily participate in the joint project for self-support, job search activities and job training. Income generated by labor activities is partly deducted during income assessment procedures.

3) Relationship between the poor people and environmental sustainability

Approximately 60% of the recipients of National Basic Livelihood Security Program are living in urban areas, while the remaining 40% are in rural areas. Wherever they live, most of poor people maintain a modern style of life; electricity, tap-water, fossil fuels, vehicle transporter, and modernized medical care. It became possible because the government should provide the basic livelihood for every people in Korea. This means that the poor people who are usually economically inactive due to bad health do not damage environment. Rather, the upper and middle class people are apt to damage environment because they produce a lot of domestic waste and drive more cars. In addition, small-sized factories usually owned by middle class are often blamed for illegal disposal of waste. To make it short, the relationship between the environmental sustainability and the poverty incidence is relatively weak in Korea compared to other developing countries. This implies that the environmental problem concerns not just a specific group but most people in Korea.

4. Recommendation for the future

An array of highly recommendable action plans to preserve the sustainability of environment were introduced in Seoul Declaration on Environmental Ethics in 1997. The declaration provides action guidelines for all community members including governments, citizens, NGOs, and international organizations. And it is still directing the environmental policies of Korea to improve environmental sustainability. Followings are from the declaration.

1) Governments

(1) Policy Coordination. Sectoral, economic and other policies must contribute to preserving the sustainability of the Whole-Life-System. To that end, governments at all levels must ensure that their policies are the result of well-coordinated strategies among all relevant government agencies.

(2) Precautionary Approach. Development projects must be subject to Environmental Impact Assessments (EIAs). Any project that is expected to have significant adverse environmental effects must be accompanied by appropriate precautionary mitigation measures and/or action plans to counter all such impacts. As

declared in Rio, where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.

(3) Accessibility. Policies and programs concerning development and environmental preservation must reflect the interests and informed judgement of all stakeholders. To achieve full participation, information pertaining to these policies must not only be made available to the public, but done so in an accommodating manner to allow sufficient time for public comment to be introduced and incorporated into such policies.

(4) Support for Environmentally-Sound Technology. Governments must support the development of environmentally-sound technologies for all sectors of the economy and encourage their application. To this end, all governments must endeavor to make the necessary financial commitments to subsidize research, development, and use of the technologies where appropriate. Governments should create enabling conditions and incentives for the development and application of such technologies, as well as for the exchange of the scientific and technical information, which result from such development.

(5) Equity. Benefits and burdens from development and environmental policies must be distributed fairly among members of society in order to promote social and economic equity. In particular, such policies must help ensure that women, children, the elderly, the poor and the disadvantaged, indigenous groups, and the physically challenged, are empowered to share in the benefits resulting from environmental and development policies. Governments must also promote suitable conditions for active participation in the decision-making process by all stakeholders.

(6) Environmental Education. Education, especially from an early age, has a significant effect on how people form attitudes toward the environment, and is thus crucial. Educational programs designed to enhance awareness of environmental issues and ethics must be developed and applied at all levels of society through all available practical means. Governments should make special efforts to financially support such educational programs.

(7) International Cooperation. Nations share common responsibilities for preserving Earth's environment. This requires active involvement in regional and international cooperative efforts and collaborative implementation of environmentally-sound policies, while complying with established multilateral agreements. Moreover, in order to further international cooperation, newly developed scientific information as well as experience in environmental and development policy-making should be exchanged worldwide to facilitate efforts for global environmental protection and improvement and to provide early warning of impending problems.

2) Citizens

(1) Environmentally-Sound Lifestyles. All members of society must cultivate lifestyles that avoid waste and excess. Bearing in mind that the earth's resources are limited, each person must avoid a culture of extravagant material consumption and pursue ways to preserve the planet by means of environmentally-sound consumption patterns. Each individual can make a difference in his or her consumption patterns, and when accumulated collectively, the positive effect can be tremendous.

(2) Active Involvement. Individuals are encouraged to participate both morally and politically in all levels in the decision-making processes which affect the environment in order to improve the quality of decision-making, avoid corruption, and ensure that their interests are properly represented. Broad-based participation will accordingly guide government policies to be equitable and well-balanced in both direction and purpose.

(3) Caring and Compassion. Every person is encouraged to assist those who are environmentally, economically, and socially disadvantaged and extend the boundary of community to include all living beings.

3) Religious and Faith Communities

(1) Spiritual View. The scale and magnitude of environmental problems are such that they must be recognized as having a religious as well as scientific dimension. Efforts to safeguard the environment need to be infused with a vision of the sacred. Religious and spiritual leaders must accept a responsibility to make known the full dimensions of this challenge. The cause of environmental integrity and justice must occupy a position of utmost priority for people of faith.

4) NGOs

(1) Public Awareness. An important role of NGOs is to heighten public awareness by organizing and maintaining environmental instruction and guidance. NGOs must amplify their efforts to educate and train individuals, organizations, and public officials so that the message of conserving the

Whole-Life-System can be spread through multiple channels. In addition, NGOs must take initiatives by way of projects and clean-up activities to protect and improve the environment.

(2) Role of "Watchdog" and Liaison. NGOs must serve the role of "watchdog", be prepared to assess and evaluate policies, programs, and projects, and where appropriate, propose alternatives. Furthermore, in order to serve the role of liaison between and among governments, industrial sectors, and civil society, NGOs must promote active dialogue between the stakeholders.

(3) Specialization and Coordination. Given the increasing complexities of the environmental issues, NGOs could benefit from further specialization within their field of expertise. They are also encouraged to build coalitions with NGOs from other disciplines to enhance their effectiveness. Forming cooperative networks will further promote the exchange of information, knowledge, and expertise.

(4) Regional Environmental Activism. The increasingly effective role of regional environmental activism initiated by local citizens and communities is critical to the protection of the environment and ecosystems. With this in mind, regional NGOs should make an effort to form coordinated and interactive alliances with citizens and communities.

5) Industry and Business Sectors

(1) Environmentally-Friendly Business Practices. The industrial sector must actively apply eco-efficiency principles in order to use less energy and materials for the same amount of

output and to reduce emissions and waste. This invites, inter alia, a widespread adoption of environmentally-friendly production technologies, efficient use of materials and energy, an increased use of recycled materials and renewable energy, minimization of harmful emissions, and the productive use of wastes. The financial and insurance sectors must also increasingly foster environmentally-sound investment.

(2) Extended Responsibilities. In developing and manufacturing their products, all industrial sectors must recognize that their responsibilities do not stop at the end of the production line, but extend to all phases of a product's lifecycle, including its disposal.

(3) Environmental Management System. Industries must examine the undue pressures they may be exerting on the environment by means of regularly timed audits of their business practices. Accordingly, industries must make a determined effort to minimize such pressures on the environment by preventing and abating pollution. Industries must take measures to incorporate the costs of pollution-prevention and mitigation technologies as part of their normal production activities.

6) International Organizations

(1) Monitoring. International organizations must monitor the global ecosystem and major changes therein on a regular basis including, but not limited to, global climate change, ozone depletion, and the extinction of species. Trans-boundary movements of hazardous wastes and trans-boundary conflicts over freshwater rights and use should likewise be monitored.

(2) Developing Policy Alternatives. International organizations

must address global and trans-boundary environmental problems by analyzing and developing policy alternatives, as well as by facilitating cooperation and agreement among nations, to resolve such problems.

(3) Conflict Resolution. International organizations should facilitate the prevention and resolution of environmental disputes and promote cooperative environmental policies. Furthermore, international organizations must promote recognition of differing national environmental standards, policies, and institutions among nations in order to reduce international disputes and to promote international cooperation in trade and investment.

(4) Strengthening Ties. International organizations must play a key role in strengthening international and regional cooperation, as well as in fostering information exchange through which the benefits of experience and technological expertise of developed countries can be shared with developing countries.

(5) Cooperative Development. International organizations must work together with developed countries in providing both financial and technical assistance to developing countries, and in particular, to the least developed countries, to assist in breaking the cycle of poverty and environmental deterioration.

7) Academic and Research Institutions

(1) Research and Development. Academic and research institutions must fulfill their role of advancing scientific knowledge of the environment and developing mitigative, pollution-preventive, and less resource-consumptive technologies. In so doing, scientists and engineers must exercise high moral discipline

and maximum precaution in their research, bearing in mind the potentially adverse effects their research may exert on the environment.

(2) Interdisciplinary Approach. Science and technology alone cannot resolve the impending environmental crisis. An interdisciplinary approach, which includes other branches of academic endeavors such as the humanities and social sciences, is needed to develop programs for a better understanding of the increasingly complex environmental problems.

8) Communications and Mass Media

(1) Publicizing Environmental Issues. The media must fulfill their responsibility to convey and report with accuracy the state of the environment and related environmental policies. With their ability to heighten public awareness of such issues, mass media and the entertainment industry should make additional efforts to publicize environmental success stories and issues of interest that may inspire others to action.

(2) Utilizing Electronic Media. The new electronic media open a new dimension of unprecedented interactive and fast-paced exchange of information. Therefore, efforts should be made to utilize these new forms of media to facilitate communication of environmental information and active participation of people throughout the world, in pursuit of preserving the Whole-Life-System.

5. Conclusion

Uses of natural resources in the past were largely growth-oriented, without due consideration to the value of natural environment. As peoples' living standards improve, however, the demand for an ecologically sound environment, as well as for pleasant living conditions including clean air and water, increases in Korea. In order to enhance the ecological soundness of Korea, the idea of sustainable management of nature must be introduced to all sectors of the community.

Fortunately, Korean people began to recognize that the human and the natural environment are interdependent. And the concept of sustainable management of nature was widespread, which resulted in Seoul Declaration on Environmental Ethics of 1997. It is expected that more effective action plans will be implemented to improve environmental sustainability in the future.

References

Kakwani, Nanak & Nicholas Prescott, *Impact of Economic Crisis on Poverty and Inequality in Korea*, 1999.

Korea Institute for Health & Social Affairs. *Health and Welfare Indicators in Korea*, 2000.

Korea Institute for Health & Social Affairs. *The Change of Poverty and Income Inequality Level during Economic Crisis and Counter Policies in Korea*, 1999.

Korea Ministry of Environment, *Environmental Statistics Yearbook*, each year.

Korea Ministry of Health & Welfare, *Guide Book on the National Basic Livelihood Security Program*, 2001.

Korea National Statistical Office. *International Statistics Yearbook*, 2000.

Korea National Statistical Office. *Social Indicators in Korea*, 2000

Oster, M. Sharon, Elizabeth E. Lake, and Conchita Gene Oksman, *The Definition and Measurement of Poverty: Volume 1: A Review*. Boulder, Colorado: Westview Press, Inc. 1978.