1

The Global Environment and North-South Relations:

Considering the Future of the Earth

Shigeaki Fujisaki

1. INTRODUCTION — UP AND DOWN WITH ECOLOGY

There has been considerable debate about development and the environment. The expanding scale of human activity in recent years has caused local pollution problems to be compounded by environmental destruction on a global scale, and led people to realize that economic development aimed at making life more affluent can, if not properly handled, ultimately jeopardize humanity's very survival. Clearly the time has come to rethink the concept of development from an environmental perspective. But we must also recognize that human existence inevitably has some effect on the environment. Nature itself does not settle down in a fixed and permanent state but changes continually. However much importance we place on preservation, it would be meaningless to define the ideal situation as one in which human activity has absolutely no impact on the environment. The best we can do is to minimize the negative influence our actions have on environmental conditions now and in the future.

In his 1972 article, "Up and Down with Ecology – The 'Issue-Attention Cycle,'" Anthony Downs suggests that there is cyclical fluctuation in the focus and intensity of people's interest in many social issues, including environmental problems.[1] In the same year, the Club of Rome published *The Limits to Growth*, while in Stockholm the United Nations held its Conference on the Human Environment. This period marked a peak of individual and public interest in environmental issues, especially local pollution problems. As predicted by Downs, however, this peak of interest was unfortunately not sustained. In the following year the first oil shock pushed the world economy into stagflation, and the solution of this economic crisis became the first priority, especially in the advanced nations. Most environmental problems remained unresolved as the focus of public interest quickly shifted to more short-term issues, such as inflation and unemployment.

Generally speaking, environmental issues can be classified into problems occurring on different levels. First, there are extremely localized problems that cause acute harm, such as Minamata disease in Japan. Second, there are chronic problems that cause harm over wider

areas, such as urban air pollution caused by nitrogen oxides or acid rain damage spreading across national borders. Third, there are problems that require action on a global scale, such as ozone layer depletion or global warming.[2] During the first peak of interest in the early 1970s, attention focused on problems in the first category. In the case of Minamata disease, for example, the extreme horror of the situation sent shudders of alarm through senior government officials in many developing countries and prompted their governments to initiate environmental programs.

Global public interest in the environment and environmental problems again surged to extraordinary levels in the late 1980s and early 1990s. During this peak, attention suddenly shifted to the second and third categories of environmental problems. In the mid-1980s the media began to carry numerous reports about global warming and ozone layer depletion, and there was a rapid rise in concern about global environmental problems, especially in the advanced countries. This growth of interest was a key factor behind the staging of the United Nations Conference on Environment and Development (the Earth Summit). By the time of the Earth Summit in 1992, concern about environmental problems had turned into what Downs calls "euphoric enthusiasm." This situation resulted in the implementation of a range of specific countermeasures over an extremely short period of time. Achievements from this period include the Vienna Convention and the Montreal Protocol, which seek to protect the ozone layer, and the U.N. Framework Convention on Climate Change.

Since the Earth Summit, public interest in environmental problems has again gone into decline. One indicator of public interest in the environment is the number of environment-related newspaper articles. As shown in Table 1, the frequency of articles in major Japanese newspapers has generally declined since 1992. According to Downs, public concern about the environment begins to fade when people become aware of the cost of achieving significant progress, and when the enthusiastic interest of ordinary citizens starts to wane. In order to recognize environmental problems and develop specific countermeasures, people first need to view the issues from a broader, more long-range perspective. Yet people must also deal with the more short-range context of day-to-day living. This means that we will inevitably go through repeated peaks and troughs of interest in environmental issues, similar

Table 1 Trends in Environment-Related Coverage in Four Major Newspapers in Japan

	1987	*1988*	*1989*	*1990*	*1991*	*1992*	*1993*	*1994*	*1995*
(l) Environmental Problem									
NIKKEI	51	112	714	1,133	1,321	1,539	932	608	662
ASAHI	37	87	456	787	1,186	1,538	936	828	760
MAINICHI	4	17	95	124	229	298	280	519	637
YOMIURI	66	71	415	375	453	632	338	241	191
(2) Global Environment									
NIKKEI	O	24	985	1,195	1,040	1,321	673	509	615
ASAHI	14	24	364	606	829	1,217	589	429	455
MAINICHI	O	3	114	140	259	466	167	277	280
YOMIURI	35	40	524	376	427	697	244	211	158

Note: The figures represent numbers of ariticles written on each subject in four leading Japanese dailies. The data was compiled using the Nikkei Telecom database, with the assistance of Mr. Michikazu Kojima of the Institute of Developing Economies.

to fluctuations in economic conditions, because of what Downs calls the "issue-attention cycle."

Fortunately, as is also pointed out by Downs, achievements during one peak, such as the establishment of laws and enforcement systems, continue to function during the subsequent trough. The result is an upward trend in the cycle. Moreover, the troughs provide excellent opportunities for calm analysis of issues without the distraction of public enthusiasm.

This article consists of three more sections. The second section will trace the history of the North-South problem over the past three decades. This analysis will clearly show that global environmental problems have emerged as a new and surprising source of confrontation in relation to North-South issues. In the third section, first, environmental problems will be discussed as "issues of consciousness," the point being that the benefits of late development function first on the level of consciousness. The third section will also assert that the sole cause of environmental problems is human behavior, and that the most important task is to identify the social systems (incentive structures) that influence human behavior. The fourth section will be a consideration of the concept of a "stationary state" from the perspective of a brief history of related economic theory, followed by an attempt to predict the shape of the global community in the 21st century from a broad perspective.

2. Global Environmental Problems and the North-South Divide

2.1 The South's "Stagnation"

The Nihon Keizai Shimbun used to publish a quarterly journal called the *Kikan Gendai Keizai* that many students of economics regarded with a certain kind of affection. This was because it carried numerous penetrating analyses of real-world economic issues by the leading scholars of the day.

The December 1976 issue (no. 25) featured articles on the theme of viewing the North-South problem from a fresh perspective. The lead article, written by Professor Taro Watanabe, was titled "Nan-Boku mondai no kaiko to tenbo" (The North-South Problem Yesterday and Tomorrow). Watanabe began his analysis with the blunt statement that "To date there has been no success in the attempts to tackle the central task in the North-South problem, namely, rectifying the clear gap in wealth between the advanced countries and the developing countries."[3] His even-handed and thoroughgoing analysis included many comments that remain intriguing for people rereading it today. But the tenor of his presentation was gloomy. "If you were to present today even a somewhat optimistic outlook for the future resolution of the North-South problem, your intelligence would be called into question."[4]

The first U.N. 10-year development program, which was proposed by U.S. President John F. Kennedy in 1961, ended up becoming a 10-year failure. The pace of population growth in the Third World moved faster than increases in production, with the result that the North-South gap grew yet wider. Discontent intensified in the South, and whispers of "aid fatigue" began to circulate in the North. Then the first oil crisis struck in 1973, throwing the industrial economies into confusion. Encouraged by the "success" of the Organization of Petroleum Exporting Countries, developing countries drew closer together and, using the U.N. as a forum, demanded the establishment of the New International Economic Order. To be sure, OPEC's so-called success dealt a heavy blow not just to the

North but also to the South, especially to non-oil-producing countries. Such was the background to Watanabe's thesis. It was a time when the North-South confrontation was at its peak.

Looking back at the circumstances of Asian countries in those days, we can see that China, for instance, was still caught in the turmoil of the Cultural Revolution. Similarly, the information disseminated on South Korea tended to feature criticism of President Park Chung Hee's "dictatorial regime," and reports on the major changes underway in the Korean economy were few and far between. In such a context, analyses of the North-South problem often centered on discussions of the South's "stagnation" and the background causes of it, especially the social and cultural factors involved, an example being the *Asian Drama*, the epic study by Gunnar Myrdal. Or else these studies would attempt historical analyses focused on the North-South relations dating from the age of colonialism. The saying that "The rich get richer, the poor poorer" had a ring of truth to many people in those days.

2.2 Asia's Growth and the Shift in the North-South Outlook

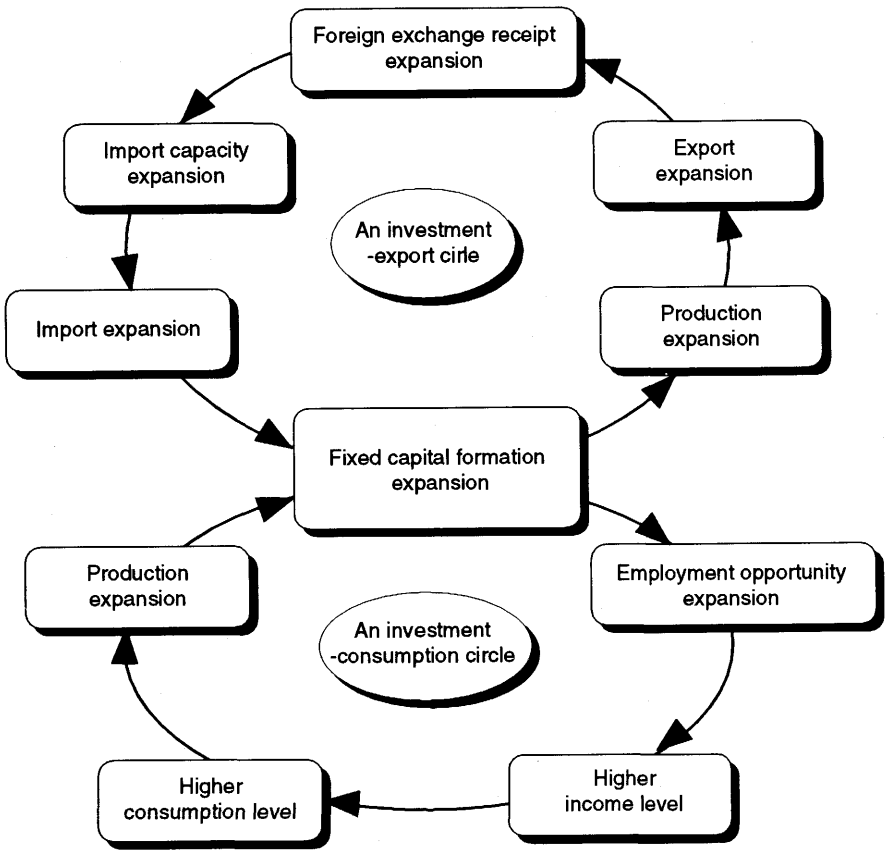
It was Asia's rapid industrialization, a process that moved into clear view during the 1980s, that forced a major reassessment of how the North-South relationship should be perceived. The one ray of light Watanabe had noted in his article was the start of a pattern of sustained industrialization in certain countries, which managed to attain an intermediate level of development. In 1979 the Organization for Economic Cooperation and Development attached the label NICs, or newly industrializing countries, to the Latin American and Asian nations involved. With the rise of the Asian NICs (Hong Kong, Singapore, South Korea, and Taiwan) in particular, the history of North-South relations reached a momentous turning point.[5]

In 1979, when the second oil crisis began with the collapse of the Iranian regime, the world economy fell into a recession more serious than any since the Great Depression. In the course of this downturn, instability in the international monetary system became serious when, in 1982, the Mexican debt crisis broke out. With this as a trigger, the Latin American NICs became caught in the grips of a long-lasting slump, one that turned the 1980s into the "lost decade" for them. By contrast, the Asian NICs quickly overcame their own problems and went on to register fast growth throughout the decade, and they also received a new designation: the NIEs, or newly industrializing economies. A period of exchange rate correction began in the autumn of 1985 with the Plaza agreement on coordinated intervention in currency markets, and this caused major changes in the flows of private capital around the world. Large volumes of foreign direct investment were concentrated in the members of the Association of Southeast Asian Nations (with the exception of the Philippines up to the early 1990), and these countries began to follow in the footsteps of the NIEs. This wave of Asian industrialization generated by the NIEs has now engulfed China and begun to roll into India and Vietnam.

Here let me briefly describe the growth mechanisms at work in Asia's countries and regions. A key factor in this economic development has been direct investment from the advanced countries (which now include the NIEs). One of the factors that hinders growth in developing economies is the low level of income, which is reflected in low savings and hence a shortage of capital. The Asian economies used foreign direct investment to relieve the development bottleneck caused by their lack of capital. They also aggressively absorbed technology, know-how, and management resources and used them to fuel high growth.

This region's success has also been attributed to its high dependence on external

Figure 1 Asian Growth Mechanisms—A Virtuous Circle of Investment-export and a Virtuous Circle of Investment-consumption



Note: The export-led growth concept—a "virtuous circle" of investment and exports—used so far to account for the rapid growth of East and Southeast Asian countries is insufficient as an explanation. We should instead view the growth as the product of two virtuous circles working in tandem, namely an investment-export circle and an investment-consumption circle.

Table 2 GNP, Population, GNP per Capita, and Growth of GNP per Capita

Country group	*1990 GNP (billions of dollars)*	*1990 population (millions)*	*1990 GNP per capita (dollars)*	*Average annual growth of GNP per capita (%)*		
				1965-73	*1973-80*	*1980-90*
Low- and middle-income	3,479	4,146	840	4.3	2.6	1.5
Low-income	1,070	3,058	350	2.4	2.7	4.0
Middle-income	2,409	1,088	2,220	5.3	2.4	0.4
Severely indebted	972	455	2,140	5.2	2.6	–0.3
Sub-Saharan Africa	166	495	340	1.6	0.6	–1.1
East Asia and the Pacific	939	1,577	600	5.1	4.8	6.3
South Asia	383	1,148	330	1.2	1.8	2.9
Europe	480	200	2,400	—	—	1.0
Middle East and North Africa	458	256	1,790	6.8	1.0	–1.5
Latin America and the Caribbean	946	433	2,180	4.6	2.3	0.5
Other economies	—	321	—	—	—	—
High-income	15,998	816	19,590	3.7	2.1	2.4
OECD members	15,672	777	21,170	3.7	2.1	2.5
World	22,173	5,284	4,200	2.8	1.3	1.4

Source: The World Bank, *World Development Report 1992* (New York: Oxford University Press, 1992) p. 196.

demand. There is an export-led growth mechanism driven by a virtuous circle of investment and exports in which increased investment creates more export capacity, thereby increasing each country's ability to earn foreign currency and hence its capacity to import, leading to more investment. While high dependence on exports is indeed a characteristic of growth in this region, there is also a second virtuous circle in which sustained growth raises income levels in the region, thereby accelerating the expansion of domestic demand (Figure 1). This other virtuous circle, the investment-consumption circle, also begins with increased investment, which leads to the expansion of employment opportunities, higher income levels, higher consumer spending, the expansion of production (in response to increased domestic demand), and thus to increased investment. The mechanism is the same as the virtuous circle that formed in Japan during its high growth era.

Now that large volumes of domestic demand are being generated across this region, the tendency for "economies to become sick whenever the United States or Japan sneezes" has become a thing of the past. Proof of this can be found in the growth rates registered moving into the 1990s. Even while Japan was stuck in a slump of virtually zero growth and the United States was doing better with 2% to 3% growth, Asian economies in general were growing at rates at or above 7%. The driving force for this growth has become the strong desire and determined efforts of great numbers of people to achieve affluence.

In his 1985 book *Seicho no Ajia, teitai no Ajia* (Growing Asia, Stagnating Asia), Professor Toshio Watanabe addresses the increasing need to reconceptualize the North-South relationship: "Many people used to discount the possibility that a process in which industrialism spreads from forerunners to latecomers could be generated between the North and the South. A dichotomous world view, one of continuing poverty in the South and affluence in the North, was long firmly implanted in our minds. But the "challenge of the Asian NICs" has undeniably become an epoch-making development that is exploding this myth of a North-South dichotomy."[6] Today, 10 years later, it has become possible to replace the

phrase "challenge of the Asian NICs" with the "challenge of East Asia," including the ASEAN members and China.

To be sure, we cannot close our eyes to the existence of broad areas where absolute poverty prevails even now. But at the very least, we should be able to amend the opinion offered by Taro Watanabe in the thesis I introduced above. Where he asserted that "To date there has been no success in the attempts to tackle the central task in the North-South problem, namely, rectifying the clear gap in wealth between the advanced countries and the developing countries," we should instead say that some success is finally being achieved. In specific, the wealth gap between East Asia and the advanced countries is on the way to rectification (Table 2).

2.3 Global Environmental Issues: A New Source of North-South Conflict

The 1980s, while seeing widespread recognition of Asia's unmistakable progress toward industrialization, were also a decade of heightened interest worldwide in environmental issues. At the seminal U.N. Conference on the Human Environment, held in Stockholm in 1972, representatives of the Third World asserted that poverty was their greatest environmental problem and emphasized their need for development. As one Third-World delegate bluntly put it, "We want pollution." In the 20 years since that time, efforts to achieve economic growth have not always been successful, and some regions have experienced stagnation. Meanwhile, continuing environmental deterioration in developing nations, such as deforestation and desertification, has led to the realization that further economic growth may become an impossibility if the resource base of the third world suffers additional damage. And a constant stream of new scientific information on the worsening global environment (mainly on the destruction of the ozone layer and global warming) has aroused interest among not only scientists but also among the general populations and policy-makers of the advanced nations. This has led to the widespread acceptance in both the North and the South of the term "sustainable development," the key word of the 1987 report *Our Common Future* published by the World Commission on Environment and Development (the Brundtland Commission). With this broad interest in environmental issues as its impetus the United Nations Conference on Environment and Development (the Earth Summit) was held in 1992.

One of the most conspicuous features of the Earth Summit and the developments leading to its staging was the emergence of a sharp confrontation between North and South of a sort not seen in many years, more precisely, since the demands for a New International Economic Order in the 1970s. The North-South confrontation was this time triggered primarily by the issue of global warming and approaches to overcoming this problem. Although both sides shared the recognition — and felt the pressing nature — of the universality of the problem and the need to overcome it, there were yawning gaps between their opinions on what concrete measures should be taken. Emissions of greenhouse gases in developing countries are low at present, but there is a strong possibility that future development will bring a sharp rise in emission levels. While the advanced countries are concerned about the impact of development in the developing countries, the developing countries are worried about how their development may be limited by global warming and efforts to counter this problem.[7] Even during the Earth Summit itself, there was profound disagreement between North and South over the concept of the "right to development."

At a gathering in Beijing in June 1991, representatives of developing countries adopted a declaration insisting that the industrial countries accept responsibility for the problems.

Ever since the industrial revolution, delegates for the South pointed out, deterioration of the environment has been caused primarily by the activities of the industrial world. Even today countries outside the "developing nation" category, mostly industrial countries, account for about 70% of all carbon dioxide emissions, and they are also using large quantities of the chlorofluorocarbons that are destroying the ozone layer. To make matters worse, claimed the developing nations, the countries suffering damage from problems caused by the North are mainly located in the Third World. While the North is in no position to demand that the developing countries take action to deal with these problems, they continued, if it insists nonetheless that the developing countries implement countermeasures, it must provide them with the necessary funds and give them — not sell them — the requisite technology.

That the developing countries adopted this stance is hardly surprising. Global warming, to take one example, is largely the result of environmental destruction caused by industrial countries that produce, consume, and discard products in massive quantities. Their per capita commercial energy consumption amounted to an oil equivalent of 5,245 kilograms in 1995, 6.9 times that of the Third World, which used just 760 kilograms.[8]

To the people in the South, environmental destruction has created a two-pronged crisis. On the one hand, there is the fear shared by the people of the North that it poses a threat to the future of the human race. On the other, there is concern that the need for a cleaner environment will form a new barrier to the South's economic growth. The developing countries are profoundly afraid that their opportunity to achieve affluence will be lost forever and they will be condemned to perpetual poverty. The people of the North are in a much more comfortable position. Having already attained affluence, they need merely concern themselves with refashioning their lifestyles in an effort to be kinder to the environment. This is far from the case in the South, where people are being forced to grapple with issues to which industrial countries never gave a thought during their own days of development. Small wonder, then, that these people have banded together to assert their "right to development" and compel the North to accept responsibility.

2.4 Moving Beyond Unproductive Confrontation

To reflect the position of the developing countries, those framing the Rio Declaration ultimately agreed on the following wording for Principle 3: "The right to development must be fulfilled so as to equitably meet developmental and environmental needs of present and future generations." However, while the concept of "development rights" was based on awareness of the limitations imposed by the global environment, it is extremely surprising that the issue was discussed at all.

About 20 years ago the merits of economic growth became the subject of a major debate involving not only economists but also natural scientists. Serious environmental pollution — particularly industrial pollution — resulting from rapid economic growth in the postwar period called into doubt the entire concept of economic growth. Among the leading economists who took an anti-growth stance in this debate were K. E. Boulding, H. Daly, and E. J. Mishan. However, it is important to remember that not even these scholars advocated the limitation of growth in the developing countries. Their anti-growth arguments were targeted at the advanced economies: they did not oppose growth in their developing counterparts. For example, Mishan recognized the importance of economic growth in poor societies and overpopulated countries with vast numbers of people struggling for survival.[9] In Asia, industrial development can be said to be somewhat successfully ameliorating those conditions, but the continued existence of a distinct wealth gap between North and South is as

Table 3 Average Annual Growth of Population

	Average annual growth (%)				
Country group	*1965-73*	*1973-80*	*1980-90*	*1990-2000[a]*	*2000-2030[a]*
Low- and middle-income	2.5	2.1	2.0	1.9	1.4
Low-income	2.5	2.0	2.0	1.8	1.3
Middle-income	2.3	2.3	2.0	1.9	1.4
Severely indebted	2.5	2.3	2.1	1.8	1.3
Sub-Saharan Africa	2.7	2.8	3.1	3.0	2.4
East Asia and the Pacific	2.6	1.7	1.6	1.4	0.9
South Asia	2.4	2.4	2.2	1.8	1.1
Europe	1.1	1.2	1.0	0.8	0.6
Middle East and North Africa	2.7	3.0	3.1	2.9	2.3
Latin America and the Caribbean	2.6	2.4	2.1	1.8	1.2
Other economies	1.1	1.0	0.9	0.7	—
High-income	1.0	0.8	0.6	0.5	0.2
OECD members	0.9	0.7	0.6	0.5	0.2
World	2.1	1.8	1.7	1.6	1.2

Note: a. Projections.
Source: The World Bank, *World Development Report 1992* (New York: Oxford University Press, 1992) p. 196.

unmistakable as ever. Grinding poverty still afflicts many people living in developing nations. There are two points which need to be recognized. First, the entrenchment of poverty in developing nations is certainly far from good for the global environment. There is concern about the adverse environmental impact of rapid population growth in the developing countries, but here again poverty is a factor. Table 3 traces trends in population growth rates. A comparison with the economic growth figures in Table 2 shows that there has been a rapid decline in the population growth rates of the East Asian and Pacific countries, which have registered the highest growth in per capita GNP, and that population growth rates have actually risen in the countries of sub-Saharan Africa, the Middle East, and North Africa, which have experienced serious economic stagnation, including negative GNP growth, since the early 1980s. From the economist's viewpoint, population growth is the result of rational behavior under conditions of poverty. This is because the benefit (utility) of having many children usually outweighs the cost (disutility) for a husband and wife living in poverty. If large families are the result of rational behavior, then the best population control measures will be those which lift people out of their poverty: these will, indeed, prove to be valuable components of solutions to global environmental problems.

Second is the point that it is none other than private investment from the North that plays the main role in the industrialization of the South, especially Asia. As previously stated, direct investment on the part of private enterprises from the advanced countries provided much of the force behind the expanded supply capacity of the nations and regions of Asia. Asian companies have also been actively raising funds on the international money and capital markets, one example being the listing of China's Shandong Huaneng Power on the New York Stock Exchange in August 1994. Private firms and investors from the advanced nations are finding profitable investment opportunities in the developing world, Asia in particular.

Automakers, for instance, see more potential in the markets of Asia, which has further growth to look forward to, than in the mature markets of the developed nations. This has led

industrialists to invest heavily in Asia and provided one of the driving forces behind Asian growth. But the governments of the advanced nations that are the source of this investment are questioning the development of these nations from the standpoint of the global environment, and the governments of the countries receiving investment are reacting angrily. This is indeed a peculiar North-South confrontation over how to protect the Earth's environment. Such an environmental debate cannot deal adequately with the rapid rise of a borderless global economy. It can only be described as unproductive. In the waves of industrialization washing across Asia can also be seen what the late Yasusuke Murakami called "spreading waves of mass demand."[10] These are whipped up by the vast numbers of people hoping for an affluent life: they can be stopped by no one. As Murakami pointed out, it is undeniably possible to "avoid stagnation of the world economy in a situation where a demand satiated in the advanced nations is passed, like a relay baton, to the less-developed countries."[11] The problem is the consequences in terms of resources and the environment. "We must consider what would happen if the world's six billion people all reached, say, an income of at least of $5,000. It is doubtful that anyone can keep from shuddering when considering the tremendous effect this would have on energy consumption or environmental pollution."[12]

In this way, as became clear at the Earth Summit, the advanced nations have come to fear the impact on the global environment of the developing countries' industrialization. This in turn has led them to question the developing nations' right to development. But it is quite self-serving for the advanced countries, who have thus far enjoyed the twentieth-century American style of affluence characterized by mass production, consumption, and waste, to deny the developing nations this right — however necessary this may be for the Earth's environmental health. It is clearly the lifestyle in the advanced economies that will prove unsustainable. Throughout Japan can be heard this sort of denunciation: "The developing nations are advancing environmental destruction in order to increase their economic strength. . . . Why do they close their eyes to this damage in their rush to develop?"[13] Unless we have straightened up our own act, such statements will lack all substance.

3. Development and the Environment: The Experiences of Japan and Industrializing Asia

3.1 "Get Dirty, Then Clean Up" Strategy of Development

The major failure of the industrialized countries, especially Japan, in the field of environmental management, is closely related to their development strategy of "Let development go first, later on the environment will catch up." Let us call it the "Get dirty, then clean up" strategy of development.[14] For instance, throughout Japan's "catching up" process, overriding priority was placed on industrialization and export promotion, and the environmental fallout was largely ignored as an insignificant side effect. The governments of the industrialized countries never acted until they faced severe environmental hazards and environmental problems became a political issue. This often resulted in tragedies, Minamata Disease being one of the most serious. Once such disasters occur, the cost of compensation for the damage is very high and complete recovery from the damage is almost impossible. The irreversibility of the problem should be considered.

Unfortunately, the traditional approach to development seems to be still popular. Asia's newly industrializing economies (NIEs), especially Korea and Taiwan, have already

been following in Japan's footsteps, and China and members of the Association of Southeast Asian Nations (ASEAN) appear to be heading in the same direction. The economies of the East Asian countries (Asian NIEs, China and the ASEAN countries) have maintained an outstanding growth performance in the recent past and are reputed as the "growth center" of the world economy. These countries, however, are encountering severe environmental disruption and natural resource depletion as a result of their economic success. Special attention, therefore, should be paid not just to the benefits of economic growth but also to the costs. Environmental damage will be one of the most important.

To alleviate poverty and to improve the living standards of the people, the East Asian countries still need to attain substantial economic growth. We should recognize that poverty itself is one of the main causes of environmental degradation in developing countries, and the countries eagerly seek industrialization to solve this kind of unique problem. Industrialization, however, in turn causes another type of environmental problem as mentioned above. It is just this dilemma that developing countries face.

Let us briefly review the development process of Japan and Asian NIEs (Korea and Taiwan) with emphasis placed on the relationship between industrialization and the environment. What happened to those countries? What are the lessons from their experiences?

3.2 Industrialization and Environmental Disruption: The Costs

3.2.1 "Get Dirty, Then Clean Up Strategy: The Case of Japan

In the "catching up" process, Japan went through a number of economic phases. It is widely recognized that Japan entered a light industrialization phase in the 1880s and a heavy industrialization phase in the 1930s. Following the rehabilitation and reindustrialization phase early in the postwar era, in the mid-1960s Japan by and large reached the final stage of the "catching up" process. Thereafter, the country has been shifting to "technology-intensive" or "knowledge-intensive" industries gradually.

Looking at Japan's industrialization process, we find a number of environmental challenges, especially in metropolitan areas such as Osaka and in mining sites like the Ashio copper mine even early in the prewar era. There were also some reactions to such challenges. "Regulations concerning the Establishment of Manufacturing Plants" of Osaka Prefecture (1877) and the anti-mining-pollution movement in Ashio are the typical cases. The main priority, however, was given to industrialization and export promotion throughout Japan's "catching up" process; and the environmental fallout was largely ignored as an insignificant side effect. And this in turn resulted in a number of tragedies: the methyl-mercury poisoning cases in the Minamata area and the Agano River (Minamata Disease), the cadmium poisoning cases along the Jintsu River (Itai-Itai Disease), and Yokkaichi asthma. It was only after the mid-1960s that comprehensive sets of ministerial, legal, and planning measures for environmental protection were enacted in Japan. Let us review briefly the process leading to the enactment of these measures.[15]

(1) In 1967, the Basic Law for Environmental Pollution Control was promulgated. Regarding the basic law, however, there was heated debate on a paragraph of it implying that the need for pollution control was not absolute but, in certain cases, should take into consideration the importance of promoting economic activities (the problem of the "harmony" paragraph).

(2) In 1969, the Tokyo metropolitan government promulgated the Pollution Prevention Act. This act recognized the environmental right as a basic right of citizens in Tokyo and rejected the "harmonization principle," which the basic law implied.
(3) In 1970, at a special session of the Diet, the so- called "environmental pollution parliament" (*kogai kokkai* in Japanese), the Basic Law for Environmental Pollution Control was amended to abandon the "harmonization principle" and to bring it closer to the principles adopted by the Tokyo metropolitan government's Pollution Prevention Act. It also allowed the local governments to seek more stringent regulations independently. Altogether fourteen new regulatory statutes were established under the new principle.
(4) In 1971, the Environment Agency was established. The agency is entrusted with the task of formulating and promoting basic principles for the conservation of the environment and of coordinating the activities of other administrative agencies in this field.

In sum, it was only after the amendment of the basic law that the Japanese government took significant action against industrial and urban pollution.

As suggested, it is obvious that Japan adopted the "Get dirty, then clean up" strategy; and, in the 1970s, the country entered the clean-up phase of development. Japanese success with pollution control in the 1970s has been noted internationally, especially in Western Europe. It is, however, worthwhile paying a closer attention to the fact that the price the Japanese paid for the "Get dirty, then clean up" strategy for development was extraordinarily high. As Table 4 shows, more than one thousand people died of pollution-caused diseases.

3.2.2 "Get Dirty, Then Clean Up" Strategies Again: Korea and Taiwan

Korea and Taiwan went through their light industrialization phase in the 1960s and their heavy industrialization phase in the 1970s. And in the 1980s both experienced severe industrial pollution. In the late 1980s Taiwan became recognized as one of the most polluted countries in the world, while steel, petrochemical and plastic industries grew rapidly, partly due to the economy's high tolerance for pollution. In Korea, where pollution-intensive industries had grown rapidly, partly due to the high tolerance for pollution again, another tragedy occurred. Let us briefly review the tragedy: "Onsan Disease."[16]

Table 4 Pollution-Caused Disease in Japan (December 1987)

Disease	*Victims*	
	Alive	*Dead*
1st Minamata Disease	1,352	829
2nd Minamata Disease	489	201
Itai-itai Disease	18	105
Arsenic poisoning	100	58
Air pollution related diseases	101,778	–

Note: These are Environment Agency certified victims.

Ulsan City is located on the southeastern coast of the Korean Peninsula, about 400 km southeast of Seoul and about 40 km north of Pusan. Onsan Myoeon is located south of Ulsan City. The Ulsan/Onsan industrial complexes are the largest industrial zone in Korea in terms of production as well as in terms of area. There were 147 firms in operation in the complexes as of December 1985. Among them thirty-one firms were established with foreign capital, namely transnational corporations (TNCs). The industries stationed in the complexes are largely pollution-intensive: chemical/petrochemical industries, machinery equipment, and primary metal smelters. The Ulsan/Onsan area indeed is the area where pollution damage has been the most frequently publicized in the country.

Recently environmental problems in this area have attracted the attention of the public as some of the inhabitants around the Onsan Industrial Complex were found to be affected with a certain disease of the nervous system. The symptoms are very similar to those of Itai-Itai Disease (heavy metal contamination). It was named "Onsan Disease." The companies frequently accused of being responsible for these incidents were mainly TNCs, even though the exact cause-effect relationship has not been proven scientifically.

To solve the ever-increasing complaints about pollution damage in the area, the government finally decided to evacuate over 30,000 inhabitants from the industrial zone. The estimated cost of the evacuation amounted to more than 120 billion won.

In Korea and Taiwan, the governments had already implemented legal, ministerial, and planning measures for environmental protection in the 1970s. Such measures, however, were not effective in practice. And in the late 1980s a number of bills on environmental protection were enacted by the legislatures of both Taiwan and Korea. Behind this kind of development, there were some political factors: the heightening of public environmental awareness and increasing public interest group pressure. These facts suggest that it was in the late 1980s that the "Get dirty" phase was over both in Taiwan and Korea. Again it should be emphasized that the price people had to pay for the "Get dirty, then clean up" strategy were huge, as the case of Onsan Disease shows.

Compared with China and the ASEAN countries, Japan, Korea and Taiwan were early industrializers. So far they have, on the whole, followed the same "Get dirty, then clean up" strategy of development. The process, unfortunately, was accompanied by a number of disastrous incidents, including Minamata Disease and Onsan Disease. If there are "latecomers' advantages" (or more formally, advantages of relative backwardness),[17] then late industrializers like China and the ASEAN countries should adopt a safer policy so as at least never to repeat such tragedies. Since several tragic cases, however, have already been reported in China and the ASEAN countries, for example in the Jakarta Bay area in Indonesia, it appears that these countries have already entered their "Get dirty" phase of industrialization. Is it, however, really necessary for them to pass through the entire process?

3.3 Environmental Awareness and Advantages of Backwardness

Environmental problems are problems of perception or awareness. The physical existence of some phenomenon (such as environmental destruction) does not necessarily mean that the phenomenon will become a problem for humanity (such as environmental problems). Only when its existence is widely recognized by society as something harmful will such a physical

phenomenon be regarded as a problem, and only then will countermeasures be considered and implemented. Take the phenomenon of global warming. As far back as the end of the nineteenth century, some scientists warned that this could occur. But not until the late 1980s was it perceived as a problem that needed to be addressed at the government level. History, especially the history of the industrialized countries, teaches that it generally takes a considerable time before environmental problems achieve social recognition, and even longer before countermeasures are implemented. This time lag has been the cause of a great many tragedies. Just recall the history of Minamata Disease in Japan. Because of the debate over causal relationships, no countermeasures were taken for a long time, with the result that a second outbreak of the disease claimed many more victims.

Prof. Ken'ichi Miyamoto identifies four aspects of environmental policy.[18] These are:

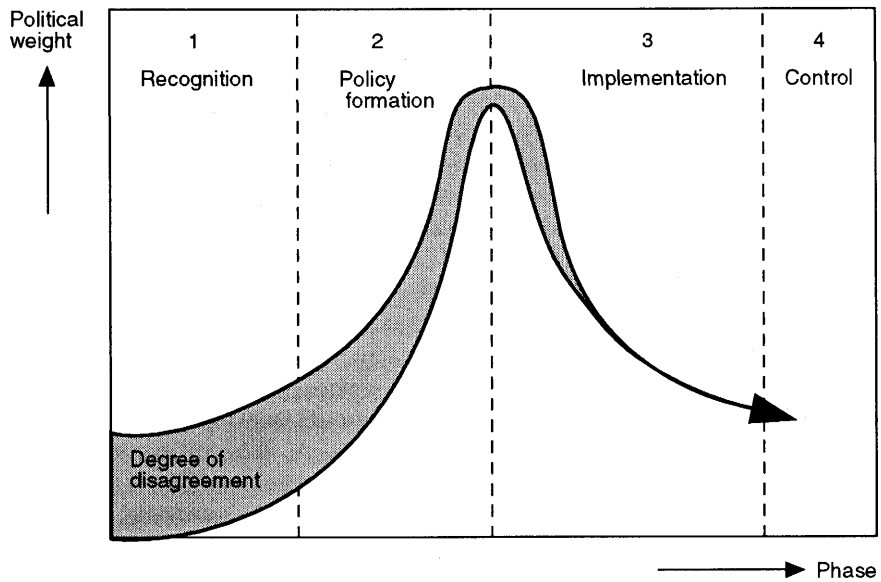
(1) assessing environmental damage and investigating its causes (including locating the seat of responsibility for the damage);
(2) providing compensation for damage suffered and repairing damage, along with measures to restore the environment to its original state and to promote the recovery of those affected;
(3) establishing regulations to prevent pollution and utilizing social capital and land-use plans to reduce pollution while maintaining amenities; and
(4) preventing future environmental damage (through cost-benefit analyses, environmental-impact assessments, land-use policies, and so on).

He also writes that "polluting countries and regions like Japan should elaborate environmental policies in this order, but developing countries must take the opposite approach when developing an administrative framework for the environment."[19] Prof. Miyamoto is here pointing out the potential for developing countries to benefit from the advantage of backwardness in designing and implementing environmental policy. Such potential certainly exists, and developing countries have in fact been enjoying the advantages of backwardness, although by no means to the fullest possible extent.

Developing countries are in a position that gives them full access to the experience of the industrialized countries regarding the harmful effects of industrialization and urbanization. They can also learn about the social cost that results from ignoring these problems over long periods of time. This means that they can avoid the loss of time that occurs during the recognition phase due to unnecessary political disunity. It is also possible to reduce the cost of policy formation and implementation in terms of both time and money by utilizing technology, know-how, and systems acquired by the industrialized countries through trial and error. Indeed, it is above all at the phases of the recognition of problems and of the formulation of countermeasures that developing countries enjoy a significant potential advantage of backwardness (Figure 2).

This "learning effect" was clearly manifested in the aftermath of the 1972 United Nations Conference on the Human Environment, which led many Asian countries to recognize environmental protection as a policy objective and to begin establishing a regulatory apparatus. Similarly, the 1992 Earth Summit encouraged governments to adopt measures to better enforce existing legislation or even to enact more stringent laws. Most of the Asian countries have passed laws requiring environmental-impact assessments, which are still not mandatory under Japanese law, and some are also enthusiastically moving to adopt economic instruments.[20]

Figure 2 The Policy Life Cycle and "Advantages of Backwardness"



Note: It is possible for developing countries, which are in a position to learn from experiences of the industrialized countries, to greatly lessen the degree of disagreement and debate in recognizing environmental problems and formulating environmental policy, thereby avoiding the loss of time; this may be referred to as the "advantages of backwardness in terms of awareness." There is also, of course the advantage of being able to adopt technology from the industrialized countries when implementing environmental policies, or what may be called the "advantages of backwardness in terms of technology."

Source: Jim MacNeil et al., *Beyond Interdependence–the Meshing of the World's Economy and the Earth's Ecology* (New York: Oxford University Press, 1991) p. 67.

3.4 Institutional Factors Underlying Environmental Problems

Environmental problems are brought about by human hands. Their causes are human activities, and the phenomena of environmental destruction and pollution that we observe are the result of these activities. The damage caused by an earthquake or a volcanic eruption, however great it may be, is a natural disaster, not an environmental problem. If we accept that human activities are the source of environmental problems, then it follows that what we should call into question are those activities and the social systems (institutions) that encourage such activities. That is not, of course, to deny the importance of work based on the natural sciences aimed at measuring the extent of the damage and at developing technological countermeasures. But we should recognize that the question of whether a particular technology (for example, one that can help solve a particular environmental problem) exists and the question of whether it will be widely used by society belong to completely separate dimensions. Which technologies a society widely adopts will depend on what sort of "problem-consciousness" that society has and what sort of incentives and rules it provides for its members. A scientifically observed level of environmental degradation that one society recognizes as a problem will not necessarily be recognized as a problem by another society. And even when

two societies share the same problem-consciousness, the rules and incentives that they provide for their members are likely to be different. Hence the need for analyses of environmental awareness and human activities from the perspectives of social science.

Now let me cite some points that show just a small part of how institutions act as factors behind problems of environmental degradation in Asia and outline some possible approaches to these problems.

The first point to be noted is that many governments are under heavy pressure to give priority to development policies, which are vital to the elimination of poverty and the stimulation of depressed economies, and they have little leeway to think about the environment. In this respect, it is instructive to recall the case of Japan during its high-growth era. In those days people saw smoke rising from factories as a symbol of prosperity. They were so caught up in the struggle to survive and achieve prosperity that in most cases they remained indifferent even when atmospheric pollution caused health problems. Even the word "environmental pollution (*kogai* in Japanese)" had not yet come into general use in Japanese society, and citizens who complained about the harm caused by pollution were treated coldly by business and the government. The country was urged to give priority to business and production, and pollution tended to be regarded as the cost of prosperity or as an insignificant by-product. Even well-known major corporations discharged toxic waste without any compunction.

Like the Japan of its high-growth era, the Asian economies are full of people who are eager to achieve affluence. This explosion of expectation is the real source of rapid growth in Asian economies. There has been a dramatic increase in private-sector investment in activities that lead directly to affluence, but investment in the public sector has been comparatively slow, resulting in a relative lack of social overhead capital. Even in the private sector, priority is given to production-related investment, while investment in environmental countermeasures, which lead to increased costs, is deferred. Similarly, industrial infrastructure, such as port facilities, roads and power plants, is the first priority for investment in social overhead capital. This situation is reflected in the imbalance between the abundance of manufactured goods that overflow in the marketplaces of these countries and the dirty and dilapidated state of their cities. The investment imbalance between or within sectors during the accelerating growth phase is a major reason for poor environmental conditions in Asian economies.

The second factor that must be taken into account is the shortcomings in and the biases of legal and economic systems. Asian countries have already made considerable progress in creating legal frameworks to deal with environmental issues. But cases can be observed in which the laws adopted have been used to legitimize activities that cause environmental pollution. Even though pollution is causing actual damage to people's health, the claim that "emission levels are in strict compliance with [statutory] environmental standards" is used as grounds for not implementing countermeasures. What, then, is the purpose of setting regulatory standards in the first place? Of course they are set with the aim of preventing harm to human health. But perhaps because the laws are borrowed or copied from industrialized country models, their spirit fails to be observed. Many Chinese enterprises are allegedly continuing to release pollutants while paying the fines set by law. One problem may be that the fines are low, but another factor may well be that, particularly at state-owned enterprises, the "iron rice bowl" (the guarantee of government support) undermines the incentive to control costs. This is a bias of the traditional socialist system arising from its dependence on "soft" budgetary constraints.[21]

The problem of small and medium-size local enterprises (in China's case *xiangzhen giye*, or village enterprises) is also a serious one. Adopting environmentally sound practices

represents a far greater burden for these enterprises, which lack technology, capital, and human resources, than for large domestic or foreign firms. An incident that took place when the Institute of Developing Economies and the Thai government were jointly conducting a survey of establishments on their environmental awareness and practices in 1992 sheds light on the attitude toward the environment taken by these local producers, who are often hard pressed simply to make both ends meet. One Thai government official seeking interviews at a certain cluster of small factories was actually chased away at gunpoint by the owner of a small enterprise. The joint study concluded that whereas many large companies have displayed a positive attitude toward implementing measures to protect the environment, the majority of small- and medium-sized enterprises still do not acknowledge the need for such measures and feel, furthermore, that it is inherently more difficult for them to take such steps than it is for their larger counterparts.[22]

Finally, some environmental implications of the foreign direct investment boom in Asia should be taken into consideration. One of the largest factors underlying the rapid economic expansion manifest across Asia in recent years, and especially the dizzying growth of the ASEAN countries and China, has been the explosion in direct investment in these countries not only by the United States, West European countries, and Japan but also by South Korea, Taiwan, Hong Kong, and Singapore. China provides a striking example of this phenomenon. According to a United Nations Conference on Trade and Development report, foreign direct investment in China jumped from $11.1 billion in 1992 to $25.8 billion just one year later, making China the second largest recipient of foreign direct investment after the United States.

The swelling stream of foreign direct investment and the growing presence of multinational corporations in Asian countries are undoubtedly helping the these countries attain their short-term macroeconomic goals. Unfortunately, however, in certain cases this activity has resulted in environmental damage to recipient countries, provoking the criticism that foreign direct investment amounts to "exporting pollution." In the past, Japanese, American, and European multinationals were most often accused of exporting pollution, but in recent years overseas investment by Taiwanese corporations has also become the target of such criticism. Differences in nationality seem to have little bearing on the firms' foreign direct investment practices.

The crux of the problem is that existing environmental policies are inadequate to cope with the rapid globalization of economic activities. Although the evolution of a borderless economy has emasculated or rendered obsolete national schemes for environmental regulation, the international community has made no progress in articulating rules to fill this void. The controversy surrounding the disposal of industrial waste is illustrative of the dilemma. Whereas it is relatively easy to achieve social recognition of highly visible forms of pollution (air and water pollution) as problems, which in turn facilitates the early adoption of countermeasures, even industrialized countries are still struggling to build a consensus on policies covering the disposal (especially the final disposal) of industrial sludge and industrial waste because of the issue's low profile. Furthermore, affiliates of multinational corporations active in Asia are accustomed to the rules (in this case the regulations covering the disposal of industrial waste) applicable in the country of their parent corporation. This state of affairs naturally complicates any attempt to address the issue of waste disposal. To make matters worse, Asia continues to bear the brunt of policy loopholes in industrialized countries (for example, Western firms charged with the domestic disposal of waste ship it off to Asia).

3.5 Bottom-up Approach vs. Top-down Approach: Experiences of Japan and Industrializing Asia Reconsidered

At the beginning of his book, Institutions, *Institutional Change and Economic Performance,* Prof. Douglass C. North defines the concept of institution as follows:[23]

> Institutions are the rules of the game in a society or, more formally, are the humanly devised constraints that shape human interaction. In consequence they structure incentives in human exchange, whether political, social, or economic. Institutional change shapes the way societies evolve through time and hence is the key to understanding historical change.

Furthermore, according to Prof. North, the rules of the game or the humanly devised constraints are the total of:[24]

(1) formal written rules, such as constitutions and laws;
(2) informal rules, or unwritten codes of conduct including conventions and norms of behavior; and
(3) types and effectiveness of enforcement.

Applying this line of reasoning, we can state a crucial facet of environmental analysis from the social scientific perspective: In addition to considering the broadly defined legal system (written rules) and the manner in which it is enforced, we have to investigate the unwritten codes of conduct that underpin the legal system and serve to complement it, taking into account even the consciousness of people and society. Institutions and institutional change are also the keys to understanding environmental problems. Now let me make this point clear, reviewing again the experiences of Japan and industrializing Asia.

First of all, please recall the fact that there were no rules at all against environmental disruption and pollution, whether written or unwritten, until the middle of the 1960s in Japan.

As mentioned earlier, in Japan's high-growth era people saw smoke rising from factories as a symbol of prosperity. And this perception reflected the unwritten codes of conduct in Japanese society during that era. It was only in 1967 that a formal written rule, the Basic Law for Environmental Pollution Control in this case, was enacted. The consequences of this lack of rules, or "lawlessness," against environmental disruption were, simply stated, many tragic situations. Typical of these was the Minamata Disease. The experiences of the tragic consequences of pollution brought a drastic change in Japanese perceptions of and attitudes to the environment, especially toward pollution. Local authorities were to the first to be forced into action by public campaigns against pollution. Eventually these campaigns also brought a shift in the stance of the central government. The government first began to take significant action against industrial and urban pollution after the amendment of the Basic Law for Environmental Pollution Control in 1970.

As the case of Japan shows, first, people's perception and attitudes changed. In other words, changes in the informal rules came first. Then, the establishment of formal written rules came about. Finally, the formal rules were enforced. Therefore, we may say that Japan had grappled with environmental problems in a bottom-up fashion. So let me call it the bottom-up approach to environmental protection. What should be recalled here is that the roles of unwritten codes of conduct are to underlie and supplement formal rules and that informal

Table 5 First Establishment of Environment-Related Laws in Asian Countries

China:	1979	Environmental Protection Law of the People's Republic of China
Korea:	1977	Environmental Preservation Law
Taiwan:	1974	Water Pollution Control Law
	1974	Waste Disposal Law
	1975	Air Pollution Control Law
The Philippines:	1977	Presidential Decree 1151, Philippine Environmental Policy
	1977	Presidential Decree 1152, Philippine Environmental Code
Thailand:	1975	Improvement and Conservation of National Environmental Quality Act
Malaysia:	1974	Environmental Quality Act
Indonesia:	1982	Environmental Management Act

rules in fact strongly supported the enforcement of formal rules in the case of Japan, as far as the period after the "environmental pollution parliament" was concerned.

In contrast to the cases of industrialized countries including Japan, the establishment of formal rules has come first in most of Asian countries. As mentioned earlier, the experiences of industrialized countries are being applied, albeit inadequately. One of the obvious evidences of it is the fact that the Asian countries actually began to establish environment-related laws relatively early, as Table 5 shows. Since, unlike the case of Japan, the establishment of formal written rule by, mostly, the central government comes first, let me call it the top-down approach to environmental protection. And obviously in the top-down approach the problem is not the lack of rules, or "lawlessness," as far as formal written rules are concerned. Then, what is really the problem of the top-down approach? Simply stated, the formal rules are not sufficiently supported by the informal rules, and, consequently, the formal rules are not effectively enforced. To tackle environmental issues in Asian countries in detail, therefore, we have to raise the following questions:

(1) Is the enforcement of the formal rules effective?; and
(2) How do the informal rules change?

3.6 Conclusion: Social and Institutional Factors Matter

Agreements reached at the Earth Summit require the industrialized countries to provide financial and technological support to enable the developing countries to balance developmental and environmental concerns. Japan made the biggest funding pledge of any country, announcing that it would spend between ¥900 billion and ¥1 trillion on official development assistance in environmental fields over five years (its donations in fiscal 1992 amounted to ¥280.3 billion: and ¥228.0, ¥195.8 in fiscal 1993 and 1994, respectively). It may seem nat-

ural for Japan to be so generous. Having overcome serious industrial pollution at home, it has acquired considerable expertise, and with the biggest trade surplus in the world it is not short of funds. The question, though, is whether the aid it provides will be of much help.

An undertaking by the North to support environmental programs in the South, donate funds and antipollution devices, and transfer technology will not of itself guarantee that developing countries attain the goal of curbing the release of pollutants and preserving the environment. The installation of pollution control equipment in a developing country's factory, for example, can fail to produce the results expected. The supply of electricity may be inadequate, as it often is in developing countries. The factory will be unlikely to operate pollution control equipment if that means cutting down on production by turning off other machines. Again, the equipment will not be used unless plant managers are provided with sufficient funds to keep it running, and without proper maintenance it will soon cease to function as it should. In such cases the equipment will be unable to fulfill its purpose of protecting the environment.

Obviously, technology developed in industrialized countries will play an important role in environmental protection in the growth economies of East Asia, especially with regard to industrial and urban pollution. The question is whether social, economic, and political conditions in the countries concerned will permit this technology to be utilized appropriately. Environmental protection at the national or regional level must in practice be implemented by local communities and people. Unfortunately, many factors in Asia and the Third World in general make it difficult to deal even with localized environmental problems.

In conclusion, I would like to emphasize that a variety of social and institutional factors underlie the worsening environmental degradation in the Third World, and no solution will be possible unless they are addressed. The industrial world can lend a hand by supplying funds and technology, but while this may be a necessary condition for protecting the environment, it is by no means a sufficient condition. Only the Third World's citizens themselves can find solutions to the myriad of problems that exist.

4. Economic Convergence and the Stationary State: The Future of the Earth

4.1 Sustainable Development as a Norm for Action

"Sustainable development" was a phrase much bandied about at the Earth Summit. But I harbor doubts about this concept, defined as it is in cross-generational terms. Without the present generation, there can be no future generations. And poverty and starvation in developing countries constitute a very real threat to the continued existence of the present generation. The fact is that humanity cannot solve the problems surrounding the distribution of resources — that is, the North-South problem — among members of the present generation. ow can we hope to address the still more difficult problem of the distribution of resources across generations?

The term "sustainable development" came into widespread use after the publication in 1987 of the report *Our Common Future* by the World Commission on Environment and Development (the Brundtland Commission).[25] The term is defined in the report as the kind of development that meets the needs of the present without compromising the ability of future generations to meet their own needs. This definition can be interpreted in terms of the

problem of the distribution of resources across generations, but it also has to do with minimizing the costs of human activities (especially economic activities, that is, development) across generations (and therefore maximizing benefits — the economic welfare, or overall utility, of society as a whole — over the long term), as well as fairly distributing the cost burden across generations.

By "costs" I mean the damage likely to be sustained by future generations as a result of, for example, global environmental problems. Over the short run, or the life of the contemporary generation, little harm stems from the release of carbon dioxide from the consumption of oil, coal, and other fossil fuels or the use of chlorofluorocarbons in products like refrigerators and air conditioners. Over the long run, however, the former can cause greenhouse gases to build up, while the latter can expose the Earth to ultraviolet rays by depleting the ozone layer, in both cases doing harm to future generations, which will have to bear the costs.

Sustainable development is a concept requiring the world's peoples to broaden their perspective — far from an easy task. In fact, it is well nigh impossible under conditions of poverty, since people have to devote almost all their efforts simply to feeding themselves and their families from day to day. In other words, poverty means a situation in which one must worry about finding sufficient food to survive today, without which there will be no tomorrow. It is even possible to justify the behavior of people who plunder the natural resource base (by, for example, cutting down tropical forests) and thus rob themselves of tomorrow's daily bread in order to meet their present needs.

Above all, poverty causes a narrowing of perspective. In economic parlance, this narrowing of perspective can be defined as a situation in which limited income and assets make it impossible to minimize long-term costs. In Indonesia, for example, it is possible to make a living through the itinerant peddling of kerosene, an essential commodity. This is because poor people generally buy only enough for one day. It would be cheaper to buy kerosene in bulk, but people cannot afford the initial investment and must therefore buy in small quantities, knowing that the cost will be higher. Because their income is limited, these people are unable to minimize their long-term costs. In other words, poverty (in the general sense of low income) narrows people's options: this is why economist W. Arthur Lewis defines economic growth as a process that broadens the range of usable options available to people in their daily life and behavior.[26]

We can, therefore, consider sustainable development to be a model for action which aims for a cross-generational, long-term minimization of costs. Here the problem is that this concept does not immediately give us any concrete sense of the society of the future to be attained through this action. I will now, therefore, look for clues to the future form of human society through examination of the concept of the "stationary state," which has been postulated by many economic scholars, beginning with the classical economists.

4.2 A Stationary State as a Consequence of Development: The Classical View

The concept of a stationary (or steady) state has occupied an important position in the classical theory of secular dynamics since the time of Adam Smith. In classical theory, it is assumed that economic development will culminate in a stationary state. In fact, economic development itself is a process that leads to a stationary state. For example, Adam Smith described this phenomenon in the following terms:

> In a country which had acquired that full complement of riches which the nature of its soil and climate, and its situation with respect to other countries, allowed it to acquire: which could, therefore, advance no further, and which was not going backwards, both the wages of labor and the profits of stock would probably be very low. In a country fully peopled in proportion to what either its territory could maintain or its stock employ, the competition for employment would necessarily be so great as to reduce the wages of labor to what was barely sufficient to keep up the number of laborers, and, the country being already fully peopled, that number could never be augmented. In a country fully stocked in proportion to all the business it had to transact, as great a quantity of stock would be employed in every particular branch as the nature and extent of the trade would admit. The competition, therefore, would everywhere be as great, and consequently the ordinary profit as low as possible.[27]

What this means is that the accumulation of capital leads to competition among capitalists, which induces profits to fall, inevitably causing a country's economy to lapse into a state of affairs in which the accumulation of capital is halted. The population will also reach the maximum that can be accommodated by the country's capital, and further growth then becomes impossible.

David Ricardo developed his classical theory of secular dynamics by skillfully linking the theories of Smith and Thomas R. Malthus. His theory was based on (1) Say's Law; (2) the law of diminishing returns to land; and (3) Malthusian population theory. Ricardo explained the transition to a stationary state as follows: During the initial phase of industrialization, returns diminish only gradually, allowing the rise of profit rates and the accumulation of capital to accelerate. All accumulated capital is invested, without surplus or deficit, in productive labor in line with Say's Law. However, as described by Malthusian population theory and the law of diminishing returns to land, the growth of capital forces people to cultivate not only fertile land but also inferior land, with the result that wages and rents soar and profits fall, thereby halting the accumulation of capital and fixing population at a certain level. This marks the emergence of a stationary state.[28]

As readers are doubtless aware, the decades during which by the classical economists were active comprised the period that we now know as the initial phase of the Industrial Revolution. From a modern perspective, one of the most important characteristics of the Industrial Revolution was sustained growth in real wages. Yet Adam Smith, who witnessed the Industrial Revolution, and his successors have steadfastly denied the possibility of a sustained rise in real income. "The economic growth process that Adam Smith described was indeed a cumulative, progressive and unitary phenomenon. . . . But, for reasons cogently argued by Smith himself and his successors, the momentum of growth was to be expected to peter out after a time, arrested by changes endogenous to the growth process itself, and giving rise in due time to the stationary state. Moreover, the classical economists were unanimous in doubting whether even the then prevailing level of real wages could be sustained indefinitely."[29]

Why did the classical economists adopt such a cautious view of future growth potential? Economic historian E. A. Wrigley attributes this to the importance that the classical economists placed on land. In simple terms, he offers the following theory. First, the Industrial Revolution was not a single process, and the economic growth that occurred in the 18th and 19th centuries was driven by two different forces. Second, these two forces were a traditional economy limited by the productivity of land (an organic economy) and an

energy economy based on mineral resources. The Industrial Revolution saw a shift from the former to the latter. Third, it was an energy economy based on mineral resources that made possible the sustained rise in living standards that we now refer to as the "Industrial Revolution." Fourth, the classical economists overlooked the emergence of an economic base with characteristics clearly different from those of the organic economic.[30] That is why the classical economists saw a stationary state as the "inevitable" outcome of economic development.

4.3 The Stationary State as a Normative Concept: Boulding and Daly

Although unanimously proposed by the classical school, the emergence of a stationary state as a consequence of economic development has so far failed to materialize. Since the Industrial Revolution, the world economy has gone through temporary periods of confusion caused by such factors as wars or rises and falls in individual national economies. On average, however, it has maintained almost consistent growth. In fact, the world economy has maintained its overall vitality and growth through a series of shifts in its "growth zones." The emergence of new markets such as East Asia, and more recently India and Latin America, is evidence that this pattern is unlikely to change in the future.

Yet if this growth has been made possible by what Wrigley described as an energy economy based on mineral resources, then ironically we also face the possibility that this same factor could actually limit the growth of the world economy. In *The Limits to Growth*, the Club of Rome pointed to the danger that non-renewable energy and mineral resources would eventually be depleted. While this is unlikely to occur in the short- to medium-term future, the environment's limited capacity as the ultimate receptacle for waste has already become a problem that requires concrete countermeasures. Consider global warming, for example. It was the emergence of global environmental problems, such as global warming and ozone-layer depletion, that inspired the 1992 Earth Summit and the boom in interest in the environment that occurred around the same time.

Discussion of these global problems brings to mind K. E. Boulding's "The Economics of Coming Spaceship Earth."[31] In this paper, written over a quarter of a century ago, Boulding points out the finite nature of the Earth's environment, and describes a shift from a "cowboy" economy based on the maximization of throughput, in the form of production and consumption, to a "spaceman" economy oriented toward the minimization of throughput. From the standpoint of this model, he stresses the need to move from a growth economy to a stationary state. Boulding and H. Daly define the conditions needed for a stationary state as being the existence of a stable population and stable material asset stocks.[32] Unlike the classical school, they define the stationary state as a concept that can be measured in material quantities. It is not money but rather the movement of energy and materials as a consequence of human activity that impacts directly on resources and the environment. In order to understand Boulding's stationary state concept, it is necessary to be aware of the following two points.

First, as stated in my "Reconsideration of Economic Growth and its Implications for Resources and the Environment," a stationary state based on the aforementioned conditions is at times a material and at times a monetary term, ad does not necessarily imply zero growth.[33]

Second, when Boulding and others postulated the necessity of shifting to a stationary state, they were interested only in rich, affluent-effluent economies like the United States. For example, Daly states that GNP growth is still "a good thing" for poor countries.[34]

4.4 The Demand-Side Definition of a Stationary State: Keynes

The classical school thus defined the stationary state in supply-side terms, stating that the ultimate result of economic development was zero growth. The theory, which assumes that the diminishing returns (increasing costs) will dominate, says that profit rates inevitably decline as the concentration of capital increases, so that capitalist economies move inevitably, in secular dynamic terms, toward stagnation (a stationary state, i.e. zero growth), or, in Marxist terms, toward inevitable collapse.

In his essay "Economic Possibilities for Our Grandchildren," John Maynard Keynes classified human needs into absolute needs and relative needs (such as Veblen's "conspicuous consumption").[35] He argued that while the latter were insatiable, the former would eventually reach saturation, at which point human beings would devote their surplus energy to non-economic purposes. Keynes also concluded that, provided there were no major wars or dramatic population growth, economic problems would either be solved or within range of solution within the next 100 years. In other words, he did not see economic problems as eternal problems for humanity. This view reflects Keynesian thought on the "inevitable" transition of economies to a stationary state.

The key aspect here is Keynes' definition of the stationary state in demand-side terms. If what Keynes refers to as "absolute need" is defined in terms of demand for material goods, then it also becomes apparent that there is a limit. According to Juro Hashimoto, "It was traditionally thought that the desire of consumers to consume was basically unlimited, and that actual consumption levels were decided by income limitations. However, that assumption is now starting to appear unrealistic."[36] He lists the following factors as evidence of the limited nature of material consumption.

(1) It is readily apparent that food consumption is limited in advanced countries with Engel's coefficients between 20 and 30.
(2) Economic development is accompanied by a decline in the relative importance of the secondary sector, which supplies material goods. . . . While this assumption disregards trade, it can be interpreted as meaning that there is a limit to material consumption.
(3) The percentage increase that occurs in each item for every 1% rise in total consumption is defined as elasticity. Japanese household budget statistics show that many material goods have elasticities of below 1.0. . . . This suggests that consumers are not actively selecting the goods that they consume.
(4) It may be possible to interpret trends in consumption of durable consumer goods as corrections in the stocks of these items. Unlike production facilities, however, it is difficult to pinpoint such trends as stock adjustment factors. . . . Many durable consumer goods are now owned by virtually all households, and new demand is generated by replacement purchasing. According to surveys of consumption trends, breakdowns are the reason for approximately 70% of replacement purchasing, while upgrades items account for only 16-18%.

Boulding and Daly regarded the global environment as finite and emphasized the "need" to shift to a stationary state. However, if there is a limit to material consumption like that suggested by Hashimoto, then in accordance with Keynes' theory, the economy will inevitablY move toward Boulding's version of a stationary state as a consequence of self-sustaining demand-side trends. It seems reasonable to conclude that population stability, which

is one of the preconditions cited by Boulding and Daly for the transition to a stationary state, has already been attained in most advanced countries. As readers are doubtless aware, the populations of advanced countries are mostly stable due to demographic transitions resulting from economic development (rising income levels), or from the microeconomic perspective, as a result of selective behavior by individuals.[37]

4.5 Concluding Remarks: The Convergence of Economies and the Stationary State

In his posthumously published work, *Hankoten no Seiji Keizai Gaku* (Political Economy of Anti-Classics), Yasusuke Murakami argued that industrialization in Japan and the newly industrialized economies was attributable to the success of developmentalism in an environment of diminishing costs.[38] In the same work, Murakami made the following observation: "Environmentalism must be accompanied by tolerance of industrialism, at least in developing countries. Simplistic advocacy of environmentalism produces no real benefit at the international level. Unless advocacy of environmental justice can accommodate the reality of industrialization, the order of development will be reversed with irreversible consequences for humanity."

Assuming that tolerance of industrialism in developing countries is inevitable, what should advanced countries do to avoid catastrophe? The answer is that they should maximize the efficiency of material consumption in their economies and societies. This implies a total commitment to energy and resource conservation, the development of technology for this purpose, and the reform of social systems.

The priority for developing countries is to reconsider the aims of development. Let us consider the example of South Korea. Per capita GNP and energy consumption levels are both about one-third of their equivalents in the United States, but South Korea has emerged from absolute poverty and has even gained admission to the Organization for Economic Cooperation and Development, which is regarded as a symbol of advanced-nation status. Moreover, here is now talk of a "South Korean disease," symptoms of which include a decline in the motivation to work.[39] If one of the aims of development is to overcome absolute poverty, then South Korea has achieved that goal despite the fact that its energy consumption, and thus the burden that it imposes on the global environment, are far smaller than in advanced countries, especially the United States. It is well known that energy demand is essentially derivative. We need to recognize that the goal of development is not the attainment of the same level of energy consumption as the United States.

In his book *Institutions, Institutional Change, and Economic Performance,* Douglass C. North makes the following observation. "The central puzzle of human history is to account for the widely divergent paths of historical change. How have societies diverged? What accounts for their widely disparate performance characteristics?"[40]

He also raises an important question: Why the convergence of economies, which is suggested by economic theory, has not occurred. Yet what the world is witnessing on the threshold of the 21st century must surely be seen as a giant shift toward the convergence of economies. It is not the so-called advanced countries that are today experiencing rapid growth and buoyant economic performance, but rather the emerging markets of East Asia, India, and Latin America. This change reflects the increasing erosion of national borders, as manifested in cross-border flows of goods, capital and even labor. We need to ask whether the global environment can in fact tolerate this convergence.

One glimmer of hope is the fact that neither population nor material consumption are likely to grow indefinitely. Japan's population is expected to start declining from around 2010 onwards. Its productive population peaked in 1995 and is already in decline. In recent years there has also been much discussion of the saturation of demand. Are Japan and the European economies moving toward a stationary state in the Keynesian sense? As suggested by the "South Korean disease," East Asia is unlikely to maintain high growth indefinitely. The greatest issue that will confront humanity in the 21st century is whether the convergence of economies and the transition to a stationary state, as long-term trends in the world economy, will be achieved within the limits of what can be tolerated by the global environment.

Notes:

1. Downs, A., "Up and Down with Ecology — The 'Issue-Attention Cycle,'" *The Public Interest*, No. 28 (Summer 1972), National Affairs Inc., 1972, pp. 38-50.
2. Takeuchi, Kei. "Chikyu kankyo mondai no keizaigaku 1" (The Economics of Global Environmental Issues 1), *Nihon Keizai Shimbun*, September 1, 1990.
3. Watanabe, Taro, "Nan-Boku mondai no kako to tenbo" (The North-South Problem Yesterday and Tomorrow). *Kikan Gendai Keizai*, No. 25 (December 1976), Nihon Keizai Shimbun Inc., p. 6.
4. *Ibid.*, p. 17.
5. The appearance of the Asian NICs dealt a great blow to the socialist sphere as well. See, for example, Sato, Tsuneaki, "Keizai kaikaku no hikakuronteki kosatsu" (A Comparative Study of Economic Reforms) in Yamauchi, Kazuo, ed., *Chugoku keizai no tenkan* (Turning Points in Chinese Economics), Tokyo: Iwanami Shoten, 1989, p. 110.
6. Watanabe, Toshio, *Seicho no Ajia, teitai no Ajia* (Growing Asia, Stagnating Asia), Tokyo: Toyo Keizai Shinpo Sha, 1985.
7. Hashimoto, Michio, "Shorai no kadai" (Topics of the Future), Environmental Agency, Global Warming Research Group, ed., *Chikyu ondanka wo fusegu* (Preventing Global Warming), Tokyo: Nihon Hoso Shuppan Kyokai, 1990, pp. 117-124.
8. The World Bank, *World Development Report 1995*, New York: Oxford University Press, 1995, pp. 170-171.
9. Mishan, E. J., *Growth: The Prices We Pay*, London: Staple Press, 1969.
10. Murakami, Yasusuke, *Hankoten no seiji keizaigaku* (Political Economy of Anti-Classics), Chuo Koron Sha, 1992, vol.2, p. 345.
11. *Ibid.*, vol. 2, p. 346.
12. *Ibid.*, vol. 1, p. 57.
13. Editorial: "Atsui totan yane no ue de: Sengo 50 nen asu wo motomete" (On a Hot Tin Roof: Hoping for Tomorrow 50 Years After World War II), *Asahi Shimbun*, January 1, 1995.
14. See, for instance, Poole, Peter J., "China Threatened by Japan's Old Pollution Strategies," *Far Eastern Economic Review*, 23 June 1988, pp.78-79.
15. See, for instance, Ueta, Kazuhiro, "Environmental Policy Planning in Japan," Research Development and Evaluation Commission, Proceedings of the International Conference on Public Policy Planning, October 1989, Taipei.
16. Kim, Jun-Wk, "Environmental Aspects of Transnational Corporation Activities, Impact and Regulation (Phase II)," Seoul National University, 1990.

17. "Advantages of backwardness" is a technical term of Economics. See, as a typical example, Gerschenkron, Arthur, *Economic Backwardness in Historical Perspective: A Book of Essays*, Cambridge: Belknap Press, 1962, pp.5-51, pp.l52-187, pp.353-364.
18. Miyamoto, Ken'ichi, *Kankyo keizaigaku* (Environmental Economics), Tokyo: Iwanami-shoten, 1989, p.l62.
19. *Ibid.*
20. See, for instance, Lee, Sang-Gon, "Economic Growth and the Environment: Korea's Experience and the Policies for Sustainable Development," Kojima, Reeitsu, et al., eds., *Development and the Environment: The Experiences of Japan and Industrializing Asia*, Tokyo: IDE, pp.294-295.
21. With respect to the term "soft" budgetary constraints, see Kornai, Janos, *Economics of Shortage*, Amsterdam: North Holland, 1980.
22. See "Report on Development and Environment: The Case of Thailand" (A report of NESDB-IDE joint study project), March 1993.
23. North, Douglass C., *Institutions, Institutional Change and Economic Performance* (Cambridge: Cambridge University Press, 1990) p. 3.
24. *Ibid.*, p.4.
25. World Commission on Environment and Development, *Our Common Future*, Oxford: Oxford University Press, 1987.
26. Lewis, W. Arthur, *The Theory of Economic Growth*, London: George Allen and Unwin, 1955.
27. Smith, A., *An Inquiry into the Nature and Cause of the Wealth of Nations*, vol. 1. Cannon, Edwin, ed., London: Methuen Co., 1950.
28. About the classical economists, see Torii, Yasuhiko, *Keizai hatten ron* (Theory of Economic Development), Tokyo: Toyo Keizai Shinpo Sha, pp. 68-87; Adelman. I., *Theories of Economic Growth and Deyelopment*, Stanford: Stanford University Press, 1967.
29. Wrigley, E. A., *Continuity, Chance and Change: The Character of the Industrial Revolution in England*, Cambridge: Cambridge University Press, 1988.
30. *Ibid.*
31. Boulding, K. E., "The Economics of Coming Spaceship Earth," Daly, H., ed., *Toward a Steady-State Economy*, San Francisco: W. H. Freeman and Company, 1973, pp. 121-132.
32. Daly, H., "The Steady State Economy: Toward a Political Economy of Biophysical Equilibrium and Moral Growth," Daly, H., ed., *op cit.*, p. 152.
33. Fujisaki, Shigeaki, "Development and Environment: Experiments of Japan and Industrializing Asia," Kojima, R., et al eds., *op cit.*, P. 4.
34. Daly, H. ed., *op. cit.*, pp. 11-12.
35. Keynes, J. M., "Economic Possibilities for Our Grandchildren," *The Collected Writings of John Maynard Keynes*, vol. IX, London: Macmillan, 1972, pp. 321-332.
36. Hashimoto, Juro, "Shijo no joho kokan kino 5" (The Information Exchange Functions of the Market 5), *Nihon Keizai Shimbun* (Morning Edition, January 13, 1994).
    Over 20 years ago, during Japan's high-growth period, a certain confectionery manufacturer attracted considerable interest by using the phrase "Bigger is Better" in its television commercials. If we substitute "more" for "bigger," then we have one of the basic assumptions of micro-economic theory, namely that more is better. This is the assumption that consumer preferences are characterized by strong monotonicity. Although this may be slightly inaccurate, this assumption could also be referred to as the hypothesis of "non-satiation" of demand. Economics also posits a "satiation point" or "bliss point" in relation to consumer preferences.
37. An economic analysis of birth behavior in relation to population transitions is provided in Leibenstein, H., "An Interpretation of the Economic Theory of Fertility: Promising Path or Blind Alley?" *Journal of Economic Literature*, vol. XII, no. 2 (June 1974), pp. 457-479; Becker, G. S.,

"An Economic Analysis of Fertility," National Bureau of Economic Research, ed., *Demographic and Economic Changes in Developed Countries*, Princeton: Princeton University Press, 1960, pp. 209-231.

38. Murakami, *op cit.*, p. 540.
39. Gendai Koria Kenkyujo, "Bunmin seiji wa kankoku byo o naoseru ka" (Can Civilian Government Cure 'South-Korea Disease'?), *Gendai Koria*, February-March 1993, pp. 24-32.
40. North, *op cit.*, pp. 7-8.