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## Japanese environmental policy in an international perspective: lessons for a preventive approach

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## **8.1 Japanese Environmental Policy in an International Perspective: Lessons for a Preventive Approach**

Helmut Weidner

The interest that foreign countries show in Japanese environmental policy fluctuates very widely. First it was the great pollution trials in the 1950s and 1960s (Minamata, Itai-Itai disease, and Yokkaichi asthma) that attracted the world's attention. As it turned out, however, other industrialized countries learned no particular lessons from them. When the novelty of such catastrophes wore off, interest in Japan's environmental policy quickly flagged. Japan was, however, persistently stereotyped as a country shaken by environmental crises, a nation on the road to committing 'ecological hara-kiri' (or 'seppuku' as the Japanese call it). What escaped the foreign public, politicians, and many scientists for a long time was the new development in Japanese environmental policy that began to take place at the end of the 1960s. In contrast to the rest of the world's ignorance about Japan, the Japanese closely followed and studied the environmental policies of other countries. In Japan, 'learn from foreign countries' is the motto not only for economic, technological, and scientific areas but for environmental policy as well--and has been for some time.

### **The Saliency of Japanese Environmental Policy for Other Countries**

Since the end of the 1970s, interest in the laws, regulatory instruments, and technical measures of Japanese environmental policy has become intense in other industrialized countries. This is especially true for the spheres in which Japan has been relatively successful, as in clear-air policy. Great advances in individual spheres that tended to confront many other countries with growing problems gradually allowed Japan to

shed her reputation as the stage of environmental destruction in the eyes of the world. Instead, she began to serve now and then as a reference point for other countries' own environmental protection measures.

However, the sometimes serious shortcomings of Japanese environmental policy were frequently lost sight of in the process, with some countries occasionally even regarding Japan as a model of environmental policy. Both extremes--seeing Japan as a country epitomizing ecological *hara-kiri* and looking upon her as a model of environmental policy--are not only wrong but also regrettable because they lead to biased analyses and thereby squander or reduce the opportunity that study of Japanese environmental policy offers to gain knowledge for the improvement of one's own environmental policy. Unfortunately, it is not yet widely recognized that one can learn both from the successes and, especially, from the mistakes of environmental policies.

Now why is environmental policy in Japan, of all countries, particularly instructive for other industrialized countries in their efforts to design their own environmental policies? There are various reasons, one of the most important of which I consider to be that environmental damages appeared earlier and more massively in Japan than in any other country. Second, there were also very early efforts, some very successful, to counter those damages--without notably impinging on overall economic development. All this offers graphic and concrete examples for the type of environmental, social, and economic impacts that environmental neglect or action can have. The third, and perhaps most important, reason is that the limits and possibilities of a certain type of environmental policy, the technocratic kind, are clearly ascertainable in Japan because of her many years of experience with it. And because of Japan's economic growth and structural change, which is very dynamic compared to that in the rest of the world, the environmental impacts of new economic sectors and forms of production (such as biotechnology, gene technology, and the high-tech industry) appear more quickly than in less dynamic countries. This could bring about speedier recognition of latent dangers in countries with less intense economic growth and structural change and could help a more anticipatory and preventive environmental policy to evolve. With her advanced pollution control measures and persistent economic expansion, Japan can be seen as a living 'research center' for other industrialized

countries. As Paul R. Ehrlich once put it, "knowledgeable people in other industrial countries will be watching Japan closely, much as old-time coal miners once watched the canary in the cage." (1)

In the following chapter the significant lines of development in Japanese environmental policy will be outlined, including its political operationalization. Thereafter, the place that Japanese environmental policy has is compared to that in other industrialized countries, and the role Japan plays in international environmental policy is described. The chapter concludes with the question of which lessons can be learned in general from the Japanese example of environmental policy.

## **Environmental Policy in Japan: Development and Basic Features**

### *Stages of Development*

The road from the ecological ignorance of the government and industry in Japan to the active technocratic environmental policy that made Japan a pacesetter in the realm of environmental policy was long and, for the population, often painful. There is no other country in which so many diseases and deaths in the 1950s and early 1960s were so obviously attributable to environmental pollution; nowhere was the suffering and disease so acute as in Japan. A world-wide scandal was sparked by the Minamata and Itai-Itai diseases, both caused by toxic compounds (methylmercury and cadmium, respectively) that industrial plants had discharged into water bodies. Even breathing became increasingly hazardous for the Japanese people as industrial and automobile exhaust enveloped the cities in noxious clouds of smog, causing the number of respiratory disorders in the population to soar.

Japanese industrial policy after World War II was pursued with such disregard for human health and environmental needs that it turned into predatory capitalism that wasted and destroyed natural resources and eventually led to the annihilation of vast natural areas and the contamination of many water bodies. Japan's industrial centers came to suffer from serious environmental pollution. The damage rapidly reached such proportions that Japan was described as the 'showcase of environmental

pollution.' The country was seen to be on its way to committing 'ecological hara-kiri' (seppuku). (2)

The point of departure for Japan's national environmental policy was thus the environmental pollution of the worst sort and health hazards of epidemic proportions. The country's conservative government reacted in a variety of ways, whereby three stages of development have become relatively apparent thus far.

*(1) First Phase: Ecological Ignorance*

The first stage was that of *ecological ignorance*, which lasted until about the mid-1960s. During that period the government and the responsible authorities did little to improve environmental conditions despite proof that industrial emissions of pollutants were damaging health and property. Business and industry successfully resisted the demands that victims made for compensation and environmental protection measures. Occasionally, extremely modest compensation--'condolence money'--was offered. (3)

The government also used force to break up demonstrations. It abstained from environmental policy and did not abandon its ecologically ignorant and socially repressive ways until the frequency and militancy of protests by victims increased and the conflicts came to assume a national dimension. Some grass-roots initiatives succeeded for the first time in blocking large industrial projects (in the cities Mishima, Numazu, and Shimizu). The ever broader shift in public opinion in favor of taming rampant industrialization was conveyed by the slogan of one grass-roots group: "We would rather eat rice under blue skies than steaks in the smog." Taken up around the country, the words expressed a sentiment that made the government end its opposition to nearly every call for environmental protection measures.

This change of attitude towards victims of pollution in particular and the consequences of the prevailing strategies for economic growth and industrialization in general was brought about by various events and developments (4), of which the following had the greatest impetus:

- o *Growing evidence of pollution-related diseases:* The very high levels of all kinds of environmental pollution inflicted severe health damage from which socially and politically 'weak' groups of the population (those

with a high proportion of elderly people and children) suffered most. Faced by the clearly identifiable victims and the increasing frequent outbreaks of new pollution-related diseases (especially the second outbreak of Minamata disease in Niigata, far away from the region where it had first occurred), it was hard to ignore this issue further.

- o *Negative economic impacts due to environmental pollution:* The livelihood of many farmers and fishermen was increasingly endangered. Occasionally, products from polluted areas could not be sold, as in 1960 when the catch of the fishing cooperative of Isozu was not accepted by various markets all over the country, including the important central fish market in Tokyo.
- o *Increasing awareness of potential negative repercussions of large-scale industrialization:* The Japanese strategy of industrial development adopted in the 1950s, which pursued the establishment of huge industrial complexes (*kombinat*s) in many parts of the country and often in the immediate vicinity of densely populated areas, produced its first negative effects. In 1955 the City of Yokkaichi, located on the Pacific coast and once renowned for its beautiful beach, was selected as the site for the largest of Japan's first industrial complexes. By the 1960s the city had become notorious for severe water pollution and, particularly, for a dramatic increase in respiratory diseases due to air pollution. This provided empirical evidence for hitherto more diffuse fears among the public that these *kombinat*s were a threat to health and the environment. Increasing opposition against industrial expansion and siting decisions was the result.
- o *Gradual erosion of the ignorant attitude on the sublevels of the political system:* Because of the rudimentary medical and social security system in Japan at that time, the massive health impacts of industrial pollution often entailed harsh economic problems for the victims. Some local authorities therefore took to establishing aid systems of their own. The City of Yokkaichi, for example, officially certified victims of diseases caused by air pollution and granted them financial support for their medical expenses. With this initiative, at least the most detrimental effects of environmental pollution were formally acknowledged, and since the extra payments burdened the city's limited budget rather than that of the central government or the polluters themselves,

the potential basis was laid to demand reimbursement from those responsible if the city's treasury became overwhelmed.

- o *The mobilizing effect of the first successful opposition to the industrial development plan:* In 1964, a broad grass-roots action group formed in the three small cities of Mishima, Numazu, and Shimizu in opposition to a large-scale petrochemical project. The struggles went on for over a year, but eventually the central government had to give up its plans. Huddle et al. attach fundamental importance to this turn of events:

Battling the nation's bureaucracy and big business leaders, an aroused citizenry channeled its energies into a movement that was to become known as the first major domestic challenge to the nation's postwar economic policies. The fervor underlying it signaled a turning point in the people's awareness of the dangers posed by pollution, and the movement's tactics provided a groundplan that would later be adopted by other groups. (5)

- o *Comprehensive coverage of pollution affairs by the mass media:* Most of the pollution-related diseases occurred in remote rural areas. Increasing press coverage of pollution problems--often having a marked tendency to criticize the behavior of officials and industrialists--meant that the urban population was more frequently informed about environmental problems in rural regions, then used to be the case. This communication was essential if the topic were to evolve into a public issue.

Confronted by the general change of mood, the government thought it wiser to abandon its policy for partly hiding its head in the sand and partly repressing the issue. To reduce conflict, to engender trust, and to make future environmental problems more manageable, it adopted a more lenient approach by creating a legal framework to which it could refer.

## (2) *Second Phase: Symbolic Policy*

In the subsequent stage, that of *symbolic environmental policy*, strictly worded laws were passed but usually not enforced. In 1967, the Japanese government passed a basic environmental protection law that laid down the general principles of environmental policy (objectives, strategies, instruments, and jurisdictions). The subsequent laws and regulations pertaining to individual environmental sectors of specific cases had to conform to this basic law. Unfortunately, the law also contained a special clause that turned out to be a serious obstacle to the development and operationalization of environmental policies. This clause stipulated that the protection of the living environment be pursued in 'harmony' with



sound economic development. This 'harmony clause' was often involved by industrial lobbies to prevent strict environmental protection measures and was generally interpreted as giving priority to economic considerations. (6)

This weak legislation was followed by a series of equally half-hearted special laws and regulations most of which proved inadequate because they were difficult to implement. Unable to break up the traditional growth-oriented cartel formed by big industry, the leading factions of the ruling party, and the pro-business ministerial bureaucracy, the measures could not steer it in a direction less harmful to the environment. The result was that environmental pollution, previously restricted to rural and relatively small areas, spread throughout the country as industry continued to expand. This was particularly true of air pollution, which was responsible for a great increase in respiratory diseases. But in other sectors, too, the rate of pollution soared. There was almost no inhabited region of Japan in which rivers, lakes, coastal waters, or larger areas of land had pollution levels that could be classified as unarmful to health.

In a self-critical evaluation, the Tokyo Metropolitan Government described the cities' environmental quality (7) in terms that appropriately captured the nation-wide situation at that time. According to many observers, Japan had become a 'showcase for environmental pollution.' The Japanese people, however, had become increasingly unwilling to be mute actors in this ecological drama. Protests and lawsuits filed against those responsible for pollution and development projects grew in number. The daily occurrence of photochemical smog took the lustre off the GNP's impressive growth rates (which were about 11% from 1961 to 1970). Public opinion polls showed that more and more people were unwilling to tolerate damage to the environment and to health for the sake of economic growth. (8) Even the inhabitants of rural areas, who shortly before had welcomed new industrial settlements, refused to accept a wide range of industrial projects because many farmers and fishermen saw their livelihoods increasingly endangered by industrial pollution. (9) The number of grass-roots initiatives soared, and environmental problems and scandals were reported almost daily in the media. Even in its rural electoral strongholds, the ruling party--the LDP--steadily lost votes to competitors who

had made environmental protection the main plank in their election platforms. (10)

Grass-roots groups were not the only ones to fight for more rigid environmental protection measures; administrators of some highly polluted cities and prefectures also urged the central government to take action. Tokyo in particular was frequently in the front line of those cities pressing the government to pass stricter laws. As a form of protest against the government's one-track policy of growth, local or regional administrations issued environmental regulations that were sometimes much stricter than the corresponding national legislation. And where the legal bases for issuing such regulations were not broad enough, companies were put under political pressure to enter into what became known as environmental agreements. Furthermore, the coordinated action of several local authorities to force the central government and the automobile industry to restrict car exhaust gave great impetus to these public actions. Seven large Japanese cities were especially concerned with the central government's lax attitude towards stricter  $\text{NO}_x$  standards for cars. These cities founded a 'Seven City Panel of Experts' to press for more rigorous limits on car exhaust with the help of relevant research projects and public relations activities. They also issued bans on the use of motor vehicles in particularly highly polluted districts, preferred to purchase cars with low exhaust values for official use and published lists of the 'cleanest automobiles.' This concerted municipal effort eventually succeeded: today Japan has the strictest car-exhaust standards in the world, and since 1975 lead-free fuel is obtainable in every part of the country.

For quite some time managers of those companies that were responsible for serious pollution-related health injuries refused to yield to the relatively moderate demands of pollution victims. In addition, governmental authorities did not support these demands in any appropriate way. As a last resort, some pollution victims took their cases to court. This turn of affairs began in 1967 with four lawsuits that became widely known as the 'Four Major Pollution Trials.' (11) The plaintiffs were strongly supported by 'progressive' or leftist groups, by lawyers who in most cases developed close personal relationships with the clients and began to play a central role in the antipollution movement out of court as well, and by local politicians, independent researchers, and journalists.

The pollution victims became the center of the national uprising against pollution because their fates highlighted the moral failure of big business and government institutions:

Indeed, by the late 1960s and early 1970s many Japanese considered pollution that endangered health as a fundamentally immoral act. Against mindless economic growth the average citizen now advanced new concerns: the sanctity of human life, individual dignity, and the integrity of local communities. This transformation in values influenced all subsequent judicial and administrative policies. (12)

The four environmental pollution trials involved two cases of Minamata disease (methylmercury poisonings), the Itai-Itai case (cadmium poisonings), and one case of respiratory diseases caused by sulfur dioxide emitted by several plants in the industrial city of Yokkaichi (Yokkaichi asthma). The plaintiffs in the civil cases were suing for compensation because of health damage and, in some instances, death. They won all four trials. In some cases, the firms involved had to pay enormous sums in compensation. Moreover, it was of fundamental importance to the victims that the responsible executives of the defendant firms publicly confessed their wrongdoings and asked to be forgiven. (13)

Legally, the victims were at a disadvantage at first. Environmental law was rudimentary at best. Except for the Itai-Itai case, in which it was possible to base the lawsuit on liability as legally defined in the mining industry, the plaintiffs had to resort to civil tort action, meaning that their only grounds for suit were the general provisions of the Japanese civil code. They, in turn, are based on two legal principles that are virtually impossible for victims to comply with. For one, polluters are obliged to compensate the victim only if they are guilty of violating the law; for another, the burden of proof lies with the plaintiff, meaning that victims must document all the conditions that would entitle them to compensation.

The Japanese courts, however, pioneered legal approaches that largely, if not completely, dismantled the material and procedural barriers that confronted victims who had lost their health because of environmental pollution. The judges presiding over the four great pollution trials departed from precedent and from prevailing legal opinion, changing it in favor of the victims. (14) The four great pollution trials had profound political impact--not just the rulings themselves but also the very proceedings and the publicity they generated about the extent of the

injuries that environmental pollution had inflicted on health and about the passive, uncooperative response of the national government and business. The Japanese government's environmental policies of the 1950s and 1960s were classified as repressive and, at best, symbolic. The refusal of the purely growth-oriented business community to accept even a minimal amount of ecological responsibility was all too obvious.

All this lent great weight to the calls that the environmental movement, the opposition parties, and individual local governments made for a change in Japanese environmental policy. Deteriorating electoral results for the ruling party and continued mass protests against large public and private projects were to be expected. Ultimately, the government and business feared that the stricter principles of liability could flood the country in a wave of damage suits that would seriously hamper corporate decision-making and make long-term planning of industrial policy all but impossible.

### *(3) Third Phase: Technocratic Policy*

The government responded to these changes and prospects with a relatively radical switch in its environmental policy, thereby ushering in the third stage of development, that of active *technocratic environmental policy*. This stage, which is still in progress, began with a flurry of parliamentary and governmental activity. The most conspicuous indicator for the beginning of the third phase of Japanese environmental policy was a parliamentary 'tour de force' in 1970. In a special session parliament (the Japanese Diet) passed a whole package of fourteen environmental laws and regulations. In the course of time, these laws have been supplemented and amended, and, moreover, the disastrous 'harmony clause' in the basic law was abolished.

In close cooperation with the industries affected, the government set up short-term goals for improving environmental quality and determined the necessary strategies to reach these goals. The main emphasis was put on clean-air measures, partly because of their 'noticeable' effects (that is, the rapid visibility of environmental policy success), and on toxic substances (because of the serious health hazards they pose). And, as it turned out, the characteristic relationship between industry, government,

and bureaucracy in Japan (15) was able to produce (though not harmoniously) clear decisions and implement measures consistently.

### *Instruments of Environmental Policy*

Starting in the 1970s, a fundamental reversal of environmental policies took place, especially in spheres where the urgency of the problems was great. With the advent of active technocratic environmental policy, stricter environmental laws were not only passed but enforced as well. Some of the world's most innovative regulatory instruments were created, including the Area-wide Total Pollution Load Control System for air pollutants and effluents, a modern law on environmental chemicals, a cost-apportionment scheme for firms involving preventive and remedial measures at the national or local level, very strict standards for environmental quality and emissions, and a compensation system for health impairments caused by environmental pollution (the transfer payments being funded largely through fees charged for the emission of sulfur dioxide). Responsibility for developing environmental policy was given to the Environment Agency, which was established in 1971. However, much of the control in this area, especially the power of enforcement, remained with other ministries, most notably the Ministry of International Trade and Industry and the Ministry of Construction.

Aside from regulatory types of policy instruments, Japanese environmental policy employs several other unique 'instruments' and approaches, namely, the damage compensation system, antipollution agreements, environmental monitoring and reporting. Because these measures are outlined in greater detail in other chapters of this volume, only a synopsis is provided in this section.

#### *(1) Pollution-Related Health Damage Compensation System*

Japan is still the only country with a special law to regulate a comprehensive compensation system for health impairments caused by environmental pollution. Enacted as early as 1974, this law stipulates that certain injuries to health are to be compensated on a graduated scale reflecting the severity of the disability. (16) On the basis of this law,

compensation payments and other benefits were received by over 99,000 persons in 1987, 97,000 of whom were suffering from respiratory disorders.

For damages due to air pollution, the approach to apportioning costs is highly interesting because it was partially based until recently on the polluter-pays-principle. Costs are covered through a compensation fund financed from levies charged to firms exceeding a specified size if they emit sulfur dioxide. The rates they pay depend on the affected area and the number of its certified pollution victims. Air polluters in polluted areas must pay considerably higher fees per unit of emission than their counterparts in less polluted areas.

In 1988, a fundamental revision of the compensation law took effect. Henceforth, no new persons suffering from air pollution will be certified as pollution victims (see chapter 3.2 of this volume).

## *(2) Antipollution Agreements at the Local Level*

The ecological responsibilities of Japanese firms derive not only from conditions imposed by the government. In the historical development of the environmental policy system, local governments, and grass-roots groups were also granted broad leeway to enter into direct negotiations with representatives of planned or existing plants and, so to speak, to strike private agreements concerning environmental measures, many of which go far beyond what is legally required. (17)

There were isolated antipollution agreements (*kōgai bōshi kyōtei*) of this kind as early as the 1950s, the first significant one being that concluded between the City of Yokohama and the Electric Source Development Corporation with regard to a coal-operated power plant that was planned for construction within the city limits. This approach was the only way to avoid massive protests by citizens. Grass-roots groups took part in the final negotiations of the agreement, the text of which was published. Thereafter, the number of such agreements grew rapidly throughout Japan from 854 in 1970 and 8,923 in 1975 to 24,273 in 1984.

In most cases the parties to these agreements are firms and authorities of local governments and prefectures in whose jurisdiction the plant in question is sited. In many cases grass-roots groups are involved as third parties (in an advisory role or as co-signers). There are also

antipollution agreements concluded exclusively between grass-roots groups and firms, and their number climbed rapidly from 37 in 1969 to 1,113 in 1974. By 1984, there were 8,187 such agreements. Grass-roots groups are the independent contracting party also when agreements on such matters as incinerators and water treatment plants are concluded with communities.

Unlike antipollution agreements prior to 1970, those concluded as of that year not only contain blanket obligations but also spell out very detailed, specific responsibilities. For example, some clauses stipulate maximum permissible emission levels, conditions for monitoring and sanctioning, supplementary measurement, and liability agreements. In many cases firms are also required to use state-of-the-art technology. Such obligations are generally 'dynamized' by the fact that recent agreements usually run for three to five years, after which period new provisions are negotiated.

Local Japanese authorities and grass-roots groups consider the antipollution agreements as the most appropriate means to supplement national environmental law according to specific local needs and desires. They offer local authorities and inhabitants in particular the latitude necessary to consider local conditions (meaning the environmental situation and special political and social preferences) and the economic and technical capacities of the respective firm. In this regard, such agreements are the expression of decentralized 'on-site environmental policy.'

The agreements are not legally binding in the strict sense of civil or public law; they are gentlemen's agreements. Even so, it is relatively rare that the firms fail to honor them. According to the Japanese Environment Agency, individual contractual commitments are said to be disputed in two-hundred to three-hundred cases a year. (18) The great degree to which the contractual parties abide by their agreements is due in large part to the comprehensive system of environmental monitoring and reporting, through which plants polluting the environment run a high risk of being detected. Faithful compliance also has to do with the fact that breaking an agreement reached through consensus leads to 'loss of face,' still a very potent type of sanction in the Japanese culture. One must also recognize, however, that failure to comply with the terms of an agreement can result in 'genuine' sanctions based on the provisions

already made in the agreements themselves and on more general but nonetheless quite effective resources. For example, executives of firms not honoring their agreements have experienced local social discrimination, while their firms have experienced consumer boycotts and informal political pressure (such as requirements that work be done exactly according to the book and rigorous use of bureaucratic practices and red tape).

As an expression of decentralized environmental policy that is responsive to the needs and desires of the citizenry antipollution agreements are able to offset shortcomings in federal environmental policy, fill some of its gaps, or supplement regulations in it that are too general. Nearly all of Japan's major polluters, especially those in the ecologically problematic sectors of the economy, have concluded agreements committing them to antipollution measures that are more rigorous than what is required by law.

### *(3) Environmental Monitoring and Reporting*

The successes of Japanese environmental policy cannot be fully explained without mentioning the comprehensive, highly modern system of providing environmental information. The gathering, processing, and publishing of environmental data, including information on health impairments and damage to nature, had already begun at the end of the 1960s. At present, the nature and scope of the Japanese information system, especially that for air- and water-quality control, is probably unique in the world. (19)

Nearly 1,700 air quality monitoring stations are currently in continuous operation. Since about 1970, automatic emission measuring devices using remote data communication known as the telemeter system have been installed at major stationary sources of emissions in industry and at power plants. The data are continuously transmitted to the responsible environmental authorities. Since 1970, thirty-four Japanese municipalities have established such systems at more than seven-hundred plants. Water-quality control is organized in a similar way, though not as comprehensively as air-quality control. In both domains, the companies themselves bear the investment and operating costs of the emission monitoring stations. The monitoring and maintenance of the measuring devices, which are sealed, takes place under the supervision of the local authorities. There is no legal basis for the installation of emission monitoring



stations at sources of air pollution; such devices exist solely because of antipollution agreements.

### *Achievements and Remaining Problems*

Empirical studies on the impact of the instruments used in Japanese environmental policy indicate that the country's most outstanding achievements--domestically as well as internationally--lie primarily in the spheres in which the legal position of the victims has been improved by the decisions handed down in the four great pollution trials. (20)

Currently, national and especially local antipollution regulations are to a large degree stricter than those of many other industrialized nations. Moreover, investments in environmental protection are much higher in Japan than elsewhere and have helped her national economy in general. Negative impacts on economic growth, employment, currency stability, technological progress, and exports are either unknown or extremely slight. (21) Overall, the national economy has benefitted more than suffered. The strict limits on emissions, for example, gave industry and utility companies a powerful incentive to conserve energy, an outcome that worked especially well in Japan's favor during the crises in oil prices in 1973 and 1979. Court rulings and the grass-roots opposition against heavily polluting industrial sectors forced a general shift in industrial policy. Previous strategy was scrapped in favor of modern sectors that protected resources and energy. Aging industrial plants, too, were subjected to a wave of modernization. Japanese cars were equipped with catalytic converters at a very early date. In the field of flue-gas desulfurization and denitrification at stationary sources, Japan has meanwhile taken the world lead. The strict environmental measures strengthened Japanese economic power and greatly stimulated a structural change in industry that allowed Japan to weather global economic crises better than many other industrialized nations.

Despite considerable reductions in the emissions of important pollutants, undeniable improvements in environmental quality, and pace-setting achievements in environmental protection technology, there are still several unsolved problems in Japan. (22)

Wildlife conservation and protection of the landscape has made little progress, with no notable successes to show for the greater attention given this area of environmental policy in recent years. The country's water bodies still contain a very high level of organic substances, and noise pollution occurs almost everywhere. Household and industrial waste is mounting, and disposal sites are rare in densely populated Japan.

This may be one of the causes for the increase of illegal waste dumping since 1972. In that year, police recorded 420 cases of illegal dumping, totalling 46,000 tons of material. The rate increased to 8,853 incidents in 1986. Approximately 1.4 million tons of toxic wastes were disposed of in 1985, according to statistics of the Ministry of Health and Welfare. Of this, about 140,000 tons were buried. On the other hand, Japan does have a very effective system for disposing of municipal waste. More than half of her nonhazardous (household) solid waste is recycled and almost all of the rest is incinerated; only 10% to 20% of the municipal waste that is not recycled goes to landfills. Nevertheless, the country's existing landfills are expected to reach their capacity in 1990.

A wide array of tasks thus still confronts Japanese environmental policy. Furthermore, there are increasing signs that the success rate of environmental policy is levelling off in some spheres. There are even indications that new challenges are developing. In spite of the introduction of very strict standards for car exhausts, air pollution from nitrogen oxides is still high in large cities, and even increasing in some of them, mainly because the development of abatement techniques (catalytic converters) cannot keep pace with the steadily growing traffic volume. The highly effective flue-gas scrubbers, for example, lead to increases in by-products and wastes, some of which are deposited or discharged into water bodies, thereby shifting problems from one environmental medium to others.

Regardless of the population's 'nuclear allergy' and numerous scandals in the Japanese nuclear power industry, the government and the country's utility companies continue to bet on nuclear energy, even despite Chernobyl, ostensibly so as to reduce Japan's great dependence on foreign sources of energy. (23) A shift of the environmental problem is largely preprogrammed into this stance, for in Japan, too, the crucial question for industrialized nations--what is to be done with nuclear

waste--has thus far remained unanswered in ecological terms. Some of Japan's radioactive wastes are dumped into the ocean; others are deposited within Japan itself, a country plagued by earthquakes (as of March 1987 about 627,000 drums of low-level nuclear waste were being temporarily stored at nuclear power plants around Japan); and still further radioactive waste is transported to other countries for recycling. Japan's first low-level nuclear waste disposal site is scheduled to open in 1991 in Rokkashomura (Aomori prefecture, Honshu). According to governmental plans the site will hold about three million 200-liter drums when completed.

An assessment of Japanese environmental policies reveals that much has been done to reduce emissions of 'traditional' air pollutants from industrial and mobile sources. However, a preventive environmental policy *per se*, as a general concept applied to all sectors of public policy-making and private enterprise, does not yet exist. OECD's 1977 report on environmental policy in Japan summarized the situation with the following statement: "Japan has won many pollution battles, but has not yet won the war for environmental quality." (24) Now, eleven years later, this statement still holds true.

In its 1983 report on environmental quality, the Japanese Environment Agency drew an almost identical conclusion, calling for a more integrated approach in environmental policies and a broader consideration of the ecosystem's needs. It even speaks of a 'mission' in which we should see to it that nature, both priceless and finite, is handed down unadulterated from generation to generation. (25) This view resembles closely that of Karl Marx when he postulated that present-day societies do not possess the earth but merely hold it in trust to then pass it on in an improved state to future generations as '*boni patres familias*' should. (26)

However, there have already been several instances of successful opposition to attempts at expanding the existing approach of environmental policy into a policy of actively conserving and improving environmental quality through an integrated and preventive concept of environmental policy. For several years environmentalist groups and organizations, supported by the Environment Agency, fought for the enactment of a law mandating environmental impact assessment, but they were ultimately frustrated by the strong opposition of industry and influential ministries

(above all, the Ministry of Construction and the Ministry of International Trade and Industry). In 1984, the Environment Agency made a final unsuccessful attempt to obtain cabinet approval of the respective bill. A much weaker guideline was passed instead, one determining a uniform procedure for environmental impact assessment conducted on large-scale government-supported projects that are likely to affect the environment significantly.

The compensation system for health damage related to air pollution was especially criticized by business organizations, a reaction that ultimately led to an inquiry to the Central Council for Environmental Pollution Control. In 1983, this advisory body was asked to review the compensation system and recommend changes. In October 1986, the Council submitted its report to the Environment Agency, proposing several substantial alterations of the compensation system. The Council recommended, for example, that further certification entitling persons to compensation should cease. (27) In September 1987, a corresponding law to abolish class I areas (regions in which persons suffering from air pollution are entitled to compensation) was passed by the Diet and enacted in March 1988. There is thus little reason to expect that the existing system will be expanded to include other pollutants, especially nitrogen oxides as demanded by environmental groups and organizations representing the interests of persons suffering from air pollution.

As early as 1978, the Japanese government considerably lowered the then very strict ambient air-quality standard for nitrogen dioxide in response to pressure from both industry (especially the steel and electric power sectors) and some public agencies. This step encouraged new investments industries that pollute the air as well as in the construction of new highways--funding that would not have been permitted under the previous air-quality standard. (28) Furthermore, attempts at reducing nitrogen oxide emissions from cars were more or less futile because an increase in traffic volume and the number of cars was indirectly stimulated. Although the government introduced a new control system in 1981 ('area-wide total pollutant load control') to cope with the problems in urban areas, car exhaust increasingly contributed to air pollution, especially photochemical smog, in metropolitan areas. This problem is still not solved. The countermeasures proposed by Environment Agency--pro-

motion of electric and methanol-fueled vehicles and traffic-flow improvements, for example--seem to be much too weak to improve the situation, particularly since the increase in automobile traffic is expected to continue. In 1988, the Environment Agency tightened exhaust standards for nitrogen oxide emissions from compacts (cars weighing less than 1,250 kg with two passengers) and intermediate sized diesel passenger cars, with implementation targets of 1990 and 1982, respectively. The new standards will eventually reduce current levels of nitrogen oxide emissions by approximately 30%, according to the Environment Agency.

With respect to energy policy, the Japanese government still strongly emphasizes nuclear power, a stance that will inevitably increase nuclear waste. Moreover, present storage facilities are already exhausted. Problems of waste management exist in other areas, too. The amount of waste from households and certain industries continues to grow, and changes in the composition of waste (e.g., a rising share of plastics in household waste) pose a great problem for environmentally sound waste disposal or incineration. Furthermore, improvements in waste-water treatment have led to increasing amounts of sludge containing even greater concentrations of toxic substances. Such content makes it difficult to dispose of sewage sludge in landfill sites or to use it as fertilizer.

The rapid shift in Japan's industrial structure from resource-intensive and polluting industries (textile, pulp and paper, chemicals, iron and steel, and petrochemicals) to processing and assembling industries has entailed serious challenges for Japanese environmental policy. This shift has been generally beneficial to the environment because emissions of 'traditional pollutants' (such as sulfur dioxide, nitrogen oxides, and phosphorous effluents) have decreased. However, the rapid expansion of the high-tech sector (integrated circuits, biotechnology, and new materials) has been accompanied by changes in the types of chemicals used, some of which are highly toxic. They present a new threat to human health and the environment. (29) Additionally, waste and effluents discharged by high-tech industries contain a wide range of substances not yet covered by government regulations. Japan currently accounts for about 30% of the world's production of integrated circuits, a share second only to that of the United States. According to a limited survey conducted

from October 1986 to March 1987, most of the organic solvents generated by integrated circuit factories are incinerated.

In April 1987, after three years of study, the 'Conference on Environmental Technology' (an advisory body to the Environment Agency) published a report entitled 'New Direction of Environmental Protection in High-Tech Age.' The report contains proposals for new regulatory, organizational, and strategic measures to cope with the environmental problems posed by high-tech industries. These proposals are still under debate, and it can be expected that their implementation will take some time because instances other than just the Environment Agency also have to be involved in the decision-making process. (30) In January 1987, the Central Council for Environmental Pollution Control advised the Environment Agency to revise the regional pollution-control programs to reflect the country's changing industrial structure and place more emphasis on the problems of toxic chemicals used in high-tech industries.

All in all, the belated response to environmental problems, which have been obvious for quite some time, is indicative of what was already noticed by critical observers several years ago. Kenichi Miyamoto, one of the pioneers of environmental economic research in Japan, concludes that "the ideal of 'Environmental Protection First,' which seemed to be established as a consensus throughout Japan in the 1970s, has disappeared." (31) One explanation for this erosion of purpose is that the visible success of Japanese environmental policy over the years eventually led to decreasing environmental awareness and less action by citizens and local authorities. There are still some relevant groups calling for a more stringent environmental policy, but they are considerably fewer in number than they used to be. Considering the present political and economic climate and the lack of public attention, it seems relatively unlikely that Japan's government and industry will start designing and implementing new environmental political strategies that might once again make Japan the pacesetter in environmental policy. Instead, there are many indications that Japan is experiencing structural economic modernization without simultaneously pursuing systematic ecological modernization. Even more skeptical observers (32) are afraid that only a severe environmental catastrophe can give the Japanese government the necessary incentive to enter a new phase of environmental policy.

## Japan and Other Industrialized Countries Compared

### *Developmental Trajectories of Environmental Policy in Industrialized Countries: A Survey*

As early as the 1950s and especially in the 1960s there appeared a body of literature that called critical attention to the social costs of economic growth. (33) At the same time, criticism of the existing method of national accounting began to mount as an ever larger number of authors pointed out that the Gross National Product (GNP) arrived at by this method was an inadequate measure of societal welfare. For this and other reasons, it was suggested that the defensive costs and economic activities that detract from welfare be calculated and then subtracted from the GNP. For example, a recent study on the Federal Republic of Germany showed that the GNP systematically inflates the figures representing economic welfare because defensive costs are not included. Approximately 5% the share of the GNP was spent on coping with damages and similar problems in 1970 and up to at least 10% in 1985. (34) It was in the context of the discussion about the limits of economic growth and its 'undesired' (and mathematically uncalculated) negative impacts that environmental damages played a prominent role. With the methodological concept of 'negative external effects,' it was shown that deterioration of environmental quality is systemic--rather than coincidental--because microeconomic activity and economic policy treat the environment largely as a 'free good,' as a good that carries no price. (35) This approach leads to macroeconomic misallocations that systematically produce environmental damages.

Linked with the economic debate about the negative impacts of industrial society's growth is another body of literature whose theoretical, methodological, and practical discussion is focussed on the environmental menage of human intervention. In this context, the concept of 'spaceship earth' became important as a particular theoretical model according to which the economy is no longer understood as an open system but as a cycle that, together with nature, constitutes a closed system. (36)

The rapidly expanding corpus of environmental literature and writings critical of growth, especially the publications by Carson and Meadows (37) had a great impact on the public discussion in the late 1960s and early 1970s. National governments and parliaments as well as inter-

national organizations took up the subject of the environment. In 1969 NATO established the Committee on the Challenges of Modern Society, and in 1970 the OECD formed a panel for environmental issues. In 1972, the first United Nations conference on the environment was held in Stockholm. After this highly regarded conference, the topic of the environment made its international breakthrough. There was a veritable boom in environmental themes during the 1970s, and the subject had an abiding effect on the policies of many countries. In the 1980s, the increasingly clear signs that global environmental catastrophes are indeed possible lent even greater urgency to environmental concerns. The forecasts of some experts in the 1970s that the environmental discussion was more or less a fad and that it would have no great public significance after a few years clearly proved to be false. (38)

National governments responded to the 'environmental challenge' of conventional growth-oriented society in different ways and at different paces. The following synopsis is intended to show the salient environmental developments that have come to pass in the large industrial countries around the world since the 1970s and to delineate Japan's position within this global trend.

#### Environmental Protection Legislation

Beginning with isolated efforts in the 1960s and becoming more marked around 1970, there was a world-wide development among most industrial countries toward more systematic environmental policy in which pollution control was recognized as a political responsibility in its own right and expressed through legal and institutional measures. Among the first countries to pass independent environmental legislation were the United States, Sweden, the Federal Republic of Germany, the German Democratic Republic, and Japan. (39) In Japan, the Basic Law for Environmental Pollution Control was enacted in 1967. The country's Environment Agency was founded in 1971. Its staffing and task areas make it very similar to the environmental ministries in other countries.

At present, almost every country has promulgated special laws for the most important environmental spheres. In most countries, for example,



there are acts or ordinances pertaining to air pollution, water pollution, noise, waste, toxic substances, and wildlife conservation, all problematic spheres. However, the regulations often differ considerably in scope, detail, and severity. At the same time, there are very few countries that have a general environmental law that establishes the objectives, strategies, instruments, and areas of administrative responsibility for all areas of the environment. (40)

In Japan, the Basic Law for Environmental Pollution Control took effect in 1967. In that form it is largely an enabling act for its primary function is to lay down the fundamental principles, responsibilities, and regulatory spheres of governmental environmental policy, which must then be operationalized by ordinances, administrative regulations, or special laws. In one of its most important sections (Art. 9 ff.) this law stipulates that the government shall establish environmental quality standards for air, water bodies, soil, and noise to protect human health and preserve the living environment and shall work to enforce them. The standards can vary from region to region. The government is simultaneously empowered to establish emission and product standards, which must be met by firms. The responsibilities that the Basic Law of 1967 assigns for *operationalizing standards* have largely been fulfilled. Laws governing all important environmental spheres have been passed. Furthermore, there are now many detailed environmental standards (for environmental quality, products, and emissions). (41)

A comparison with other industrialized nations shows that Japan belongs to the small group of countries in which all important environmental spheres have been regulated by detailed laws and clearly formulated objectives. (42) In the international context, however, Japanese environmental law has a conspicuous gap--the absence of a special law mandating environmental impact assessment. On the other hand, there are antipollution regulations in Japan unmatched anywhere in the world, especially the Pollution-Related Health Damage Compensation Law, the Pollution Control Public Works Cost Allocation Law, and the Area-wide Total Pollutant Load Control System to reduce pollution of the air and water bodies in designated, heavily polluted areas. Even the Law for Settlement of Environmental Disputes has few counterparts in other countries. On the whole, it can be said that Japan is one of the first industrial countries

to have systematically built up a set of instruments in the field of environmental law.

### Environmental Policy Institutions

Japan also anticipated the trend toward the founding of independent environment ministries that commenced in the mid-1970s. The Environment Agency was founded in 1971 and made responsible directly to the Office of the Prime Minister. The agency is headed by a director-general whose status is virtually that of a minister. In addition to general advisory and coordination functions of a scientific type, the Environment Agency's primary responsibility is to develop national environmental standards. It has no executive competence but does assume a supervisory role in certain spheres of the environment. Even since the Environment Agency was founded, key environmental responsibilities have continued to lie with other ministries, primarily those of trade and industry, construction, and transport. (43)

The establishment of special environmental institutions has not been confined to the national level, however. Special environment agencies, some of which have their own scientific and technical environmental institutes, have also been founded in the prefectures and large municipalities. When the personnel, material, and financial support of these institutions is considered, Japan can be said to belong to a comparatively small, leading group of nations that have created a specialized, sound institutional foundation for environmental policy.

### Environmental Policy Instruments

The policy instruments used most to cope with environmental problems around the world are of the regulative type. They lay the legal basis of the calls for environmental policy action

whereby regulations and licensing responsibilities are coupled with binding standards ... and, under certain circumstances, even price-fixing are used. Violations risk sanctions ... Regulatory programs ... are mostly administrative in nature and obligate organs of public administration to enforce or supervise and monitor them. (44)

By contrast, economic incentives (such as environmental taxes, charges, and emission licenses), which are assumed to be more efficient than regulatory instruments, are used in only a few countries, and even there only in subsidiary spheres. (45) The United States has probably proven to be the most innovative pioneer in this field, particularly with systems of bubble, emission-banking, and certification relating to air pollution and with the superfund system for hazardous waste sites. (46) U.S. environmental policy also includes a highly regulatory component, however. There is no other country in which environmental regulations are as comprehensive and detailed as they are in the United States. Environmental law in the Federal Republic of Germany is similarly regulatory, though not quite as comprehensive and detailed. (47)

Japan's environmental policy instruments are also largely of the regulatory type, but they are very pragmatically implemented. (48) The result is that flexibility in applying them is far greater in Japan than in other countries where formal, legal requirements of law enforcement play a large role. The sometimes confusingly large array of regulatory instruments in Japan is accompanied by at least two more measures that are something like the type of option known as economic incentives--the aforementioned Pollution-related Health Damage Compensation Law and the noise abatement charge in the field of air transport.

No country has yet satisfactorily solved one of the basic problems of formulating a fair environmental policy--how to compensate the victims of environmental damages. Very few countries have special laws bearing on this aspect, almost always relying only on common tort law and its liability provisions. That framework has proven unable to ensure adequate compensation. In its report entitled State of the Environment 1985, the OECD noted that

a final area of adjustment that some governments are exploring is the compensation of victims of environmental damage. In all OECD countries it has long been possible in certain cases for people harmed by pollution to be compensated for some of the damage through court suits if there were clear monetary damages that could be directly linked to the pollution. However, these restrictions have limited successful damage suits to a relatively few, unusual cases, and even in these cases the damage awards have often been less than the full amount of the damage experienced. Such suits are also expensive and time consuming, limiting them to only the most costly damages where the damaged party has the means to support the high legal costs. However, in the USA there have been class action suits where the damaged party is not individually responsible for the cost of the

suit, but where the cost is spread out over a large number of individuals. Recently, there has been increased interest in legislation establishing victim compensation schemes which avoid many of the limitations and problems associated with nuisance suits ... National legislation was enacted in the Netherlands in 1972 and in Japan in 1973 establishing funds to compensate victims of air pollution, the funds being financed by direct or indirect levies on polluters. By 1983, more than 2,000 victims had received compensations for water pollution by mercury, cadmium or arsenic in Japan. In 1983, France established a fund to compensate victims of noise near French airports. The concept has also been explored for other areas and by other countries. Such an approach, if properly implemented, can accomplish two goals: providing assistance for pollution victims, and creating incentives for the polluting enterprises to be more careful. (49)

In the Federal Republic of Germany, the issue of appropriate compensation for forest owners, who through no fault of their own are losing billions of dollars, has been discussed for some years especially in connection with forest damages, but without any solid results as yet. (50) A practicable way of dealing with this legally and organizationally difficult problem was developed in Japan very early by international standards. Even though that system of compensation is not perfect, Japan's pioneering effort in this complicated matter deserves note.

#### Environmental Monitoring and Assessment

A fundamental prerequisite for designing and implementing effective environmental policy is the systematic gathering and processing of environmentally relevant information. This point is clearly stated in the OECD report on the state of the environment:

One of the most serious problems facing OECD countries as they attempt to implement their environmental programs is the lack of information on current and past environmental conditions, and incomplete understanding of why some of the more serious environmental problems are occurring and what can be done to solve them. There is a substantial need for more research and better track of the progress being made and to allow better anticipation of emerging problems. (51)

In many countries, there are great lapses not only in the collection and processing of the data (52) but also in the flow of current information to the public. In Japan, both data collection and environmental monitoring and assessment were systematically expanded in the early 1970s. For some environmental spheres (especially air and water bodies) Japan has the

most modern monitoring system in the world. Japan's leading role in the publication of national environmental reports is stressed by the OECD:

One of the major means of keeping the public informed about environmental issues and programs has been the preparation of 'state of the environment' reports and statistical yearbooks by international organizations and many individual governments. Since Japan published the first in 1969, the number of countries that have issued such reports has risen to 13 in the period 1979-1984. However, such reports are not yet regular in many countries. (53)

### Regulation of Participation

In the process of shaping objectives and making decisions in environmental policy, competing interests clash. In democratic countries, the principle of democracy calls for all citizens to have equal opportunity to bring their interests to bear on vital issues, including the environmental sphere. Nonetheless, scientific studies have shown that economic interest groups are generally better able than grass-roots groups to influence environmental policy decisions formally and informally to their own advantage, and numerous examples have shown that environmental protection authorities often decide in favor of economic interests or even pursue their own bureaucratic interests in the sphere of pollution control. Thus the actualization of the democratic principle in environmental protection depends largely on the degree to which the public or concerned citizens are granted substantial opportunities to participate in the environmental decision-making process. The reality of environmental policy, however, is largely that the general public, antipollution organizations, and individual victims often have far fewer opportunities to influence environmental policy decisions than corporate (or union) interest groups do. (54)

There are various causes of this inequality. A key one is that there is often no effective, legal basis for participation and that special environmental law or general public and common law usually includes too few provisions for citizens to assert themselves when affected by environmental policy decisions. (55) At present, there are not many nations in which citizens or environmental associations have legally protected ways to offset the influence of economic interest groups when trying to affect environmental decision-making processes or oppose environmentally harmful

projects. The OECD report on the state of the environment does mention some forms of participation and a few countries that enhance the public's influence on environmental decision-making (56), but important elements necessary for substantial participation (timely information about environmentally harmful projects, the right to examine files, and the right to file a class-action suit, for example) do not yet exist in most countries. Particular exceptions are the United States, Canada, the Netherlands, and Sweden.

The Economic Commission for Europe (ECE), too, stresses the great importance of public participation for the successful implementation of environmental policy measures.

If ECE member countries are going to make significant progress in preventing and abating contamination of the environment, efforts must be undertaken to enlist the full understanding, cooperation, and participation of the public. ... But public support also places a responsibility on Governments to inform the people about the difficulties faced and the trade-offs which alternative environmental futures will entail. If a Government is effectively to regulate environmental pollution, the public must understand how and why the decisions are made, and they must have opportunities for meaningful input into the decision-making process. The public should also be properly informed and should have available information about the state of the environment ...

Evolving from the legacy and tradition of citizen involvement, public environmental organizations today play a greater role in the overall management of environmental quality than at any time in history. They are often able to draw attention to potential or existing problems either locally, nationally or internationally, offering, for instance, critical assessment of available environmental information. These organizations act, in general, as a driving force for negotiation, mediation and action and as sources of ideas, proposals, and, in many cases, as contributors of significant technical allocations to deal with both short- and long-term environmental problems. ECE Governments should utilize the interests and capabilities of non-governmental institutions (both national and international in scope) in an integrated and optimal fashion, so as, in particular, to augment the intellectual resources of governmental bodies. (57)

The participatory rights that Japanese citizens have in the licensing of industrial plants or similar projects and in the formulation and planning of national policy are quite weak in comparison with other countries. That is also true of the rights that Japanese citizens have to challenge administrative rulings in court, especially through injunctions. In Japan's case, however, one must keep in mind that lack of formal participatory rights is offset by other forms of participation--such as anti-pollution agreements concluded with large plants at the prefectural and

local levels. Frequently, grass-roots groups are directly and indirectly involved in this process of negotiation. This way of having grass-roots groups affect environmental decision-making on the shop floor is practiced on such a scale only in Japan. Seen in a world-wide context, then, it can be said that citizens in Japan are granted little opportunity to influence decision-making at a national level and that their legal means to oppose administrative rulings are very limited but that on a decentralized level their impact on private-sector decisions entailing environmental consequences is often greater than in other countries.

#### Environmental Impact Assessment (EIA)

Unlike the provisions of conventional antipollution laws, which are usually oriented to specific environmental media or pollutants, environmental impact assessment is concerned with anticipating and identifying precisely which environmental impacts are likely with projects that are potentially harmful to the environment, the purpose being to enable one to make informed decisions that will take the best environmental policy option available. Because of its cross-media approach, environmental impact assessment is considered a regulatory instrument that can overcome the apparent limitations of the medial or sectoral approach and lend environmental policy a more preventive and integrative perspective. An integrative policy approach is understood to mean that the environmental consequences of activities in other policy areas such as energy, agriculture, and transport are systematically taken into consideration.

This emphasis on making environmentally relevant policy areas more responsive to ecological issues is especially clear in the European Community's Third Action Program for Environmental Protection (1983-1986). It commits the European Community to ensuring the gradual and preventive integration of environmental parameters into the planning and execution of all its actions in the various economic sectors if those actions can have significant impacts on the environment. In the Fourth Action Program (1987-1992), the objective of establishing an integrative environmental policy has again been given prominence. (58) In keeping with this objective, the directive on 'Environmental Impact Assessment Regarding

Certain Public and Private Projects' was adopted (Directive 85/337/EEC, Abl. No. L 175/49). The member countries were to incorporate it into national law within three years, that is, no later than July 1988.

The directive does not conclusively specify which projects shall undergo EIA. Appendix I of the directive lists only large-scale projects that require comprehensive environmental impact assessment, including crude oil refineries, conventional and nuclear power plants, final disposal sites for radioactive wastes, steel and asbestos works, chemical plants, highways, airports, shipping lanes, and waste-disposal plants. The projects cited in Appendix II are exempted from this procedure in the member states. (59) Criticism expressed in the literature focuses particularly on the fact that certain environmentally harmful projects are not included--military projects in general, for example--and that environmental impact assessment is required only for projects, not for plans and programs as well. The very vague provisions for public participation drew particularly harsh judgment, as did the absence of a requirement to cite alternatives to the project in question and to include them in the decision-making process. (60)

The next few years will show whether the EC directive mandating environmental impact assessment meets the expectations that environmental groups in the member countries have of it. In the Federal Republic of Germany, it is already becoming apparent that some of these expectations are being disappointed. The EIA directive was not implemented as an independent law in West Germany. Instead, the intention is only to pass a so-called *Artikelgesetz*, i.e., a law which only states all the articles of existing German laws pertaining to EIA matters. Article 1 of the bill introduced in March 1988 by the Federal Ministry of the Environment, Wildlife Conservation and Reactor Safety does provide for what can be understood as environmental impact assessment, and *the rest of the articles* do adapt existing laws to the EC directive, but there is, as yet, no sign that the West German Government will use the requirements of the EC directive to develop EIA into an independent regulatory instrument of environmental policy that will decisively increase the opportunities for citizens and organizations representing environmental protection interests to participate and exert influence. (61)



Because it is now mandatory for provisions of the EC directive on environmental impact assessment to be incorporated into national law, there will soon be more or less comprehensive requirements for the environmental impact assessment of private and public projects in the twelve member countries. A number of countries—including the Federal Republic of Germany—did not meet the deadline of July 1988, however. Some members of the EC (notably France, the Netherlands, and, partly, Great Britain) already have had such requirements. In a few cases, such as the Netherlands, they go beyond the requirements of the EC directive. An OECD survey shows that more or less comprehensive regulations mandating environmental impact assessments were in effect by 1984 in other countries as well: the United States, Canada, Australia, New Zealand, Ireland, and Sweden. (62)

By far the most comprehensive system of environmental impact assessment is found in the United States, where Part I, § 102 of the National Environmental Policy Act of 1969 (NEPA) introduced the concept of the 'environmental impact statement.' In the course of the eighteen years since the NEPA was passed, the act has been revised and amended many times to reduce confusion, narrow the range of interpretation in the law's enforcement, work in which the Council of Environmental Quality was especially involved. Indeed, a recent study has shown that the number of environmental court cases has decreased over time. (63) All the same, unanswered questions and resulting conflict in the way EIA is conducted continue to arise. Admittedly, there is wide disagreement about the contribution that the EIA procedure has made to improving environmental decisions in the United States, but the positive voices are in the majority. (64)

Experience with conducting EIA's in the various countries has shown in general that this procedure for ensuring extensive consideration of environmental concerns is optimal from an environmental point of view when it is conducted during the planning and program stage, when the public is granted broad participatory rights and timely and complete information, when possible alternatives to the project in question must be considered administratively (at least for argumentative purposes), when the responsible authorities are obliged to publish detailed information on the inclusion of EIA results in the decision-making process, and when

citizens, especially environmental protection groups are granted rights to challenge administrative rulings in court. (65)

In Japan, the introduction of EIA through special law has been under discussion since about 1970 (see chapter 3.6 in this volume). Various initiatives, backed primarily by the government environmental agency, have failed to overcome resistance by economic interest groups, politically powerful groups within the government party, the Ministry of Trade and Industry (MITI), the Ministry of Transport, and the Ministry of Construction. In addition to questions about the substantive scope of EIA and the issue of which authority is to have jurisdiction, reservations about expanding the right of public participation were a major cause of this opposition. (66)

The last previous attempt at legal regulation was abandoned in August 1984 (the bill harked back to a report by the central environmental council). The bill, sponsored by the government environmental agency, was withdrawn and replaced by a cabinet decision recommending specific procedures for assessing selected projects. This administrative guidance relates only to public projects or to those projects in which the public sector has invested. Since the scope and severity of the administrative guidance now in effect fall short of what was called for in the original bill introduced by the Environment Agency, it can be assumed that the failure of the bill is a setback for the Environment Agency and a victory for economic interest groups.

Although Japan has no national regulation mandating EIA, the procedure has been used on environmentally harmful projects for some time. This has been the case with large-scale public construction schemes since a 1972 governmental order that amended a number of laws by adding procedural rules on conducting EIA. In some instances, however, EIA have been conducted on the basis of voluntary agreement, partly on 'administrative guidance' given by various ministries for projects under their jurisdiction, as well as ordinances and miscellaneous regulations of local autonomous bodies. In some prefectures (Tokyo, Kanagawa, or Hokkaido, for example) and in the city of Kawasaki, EIA is required by ordinance. Unlike this approach at the local level, which is more open to participation, jurisdiction exercised by national authorities limits the public's rights to participate in the decision-making process and the right to

challenge the rulings of the responsible authorities far more than is the case in such countries as the United States, the Netherlands, and Sweden, where EIA is anchored in special laws. The failure of the EIA bill points out a basic feature of Japanese politics--in short, the fact that ministerial bureaucracy and economic interest groups enter into close cooperation that more or less systematically excludes other interests groups, including environmentally-minded authorities like those of the national Environmental Agency. (67) This characteristic suggests a preference for technocratic ways of solving problems in the environmental sphere and a high likelihood of realizing them.

### Expenditures on Environmental Protection

An indicator important for judging the actual value attached to environmental policy in a country is the level of environmental expenditures by government and industry. These expenditures alone tell little about the quality of the measures, however. An international comparison must also take into account that differences in the levels of expenditures do not allow systematic inferences to be drawn about their appropriateness. Countries with poor basic environmental conditions (such as when the geographical location or settlement pattern does not allow for adequate room to spread out or when the industrial structure is built on pollution-intensive sectors) must spend a great deal more than environmentally more fortunate countries to achieve like results.

Problems of data collection and classification have thus far prevented the compilation of totally comparable information about the financial expenditures on environmental protection measures in industrialized countries. The available data as prepared by the OECD in particular allow only very general conclusions to be drawn about this point. In general, environmental expenditures by government and industry in the large industrialized countries rose during the 1970s, whereas partially regressive trends have been noted in the 1980s. According to OECD data, this development cannot be explained solely by the fact that the market for environmental protection investments was saturated to a certain extent. It was also due to the generally depressed state of the global econ-

omy, a condition that actually prevented necessary environmental expenditures.

Because of the general economic conditions prevailing during much of this period, several countries were unable to devote the resources to the environmental programs that were required. (68)

As concerns the environment expenditures made by private industry, the OECD noted in part that

the most significant form of payment for enterprises ... has probably been pollution investment. Because the OECD countries have adopted the 'polluter-pays principle' as the basis of their environmental programs, enterprises have had to pay most of these costs. The payments can be quite high in the early years of an aggressive pollution control program, but diminish over time as existing facilities complete the installation of the required pollution control equipment. Thus, in the United States, conventional pollution control investment fell from approximately 5.8 per cent of all plant and equipment investment of 1975 to 2.4 per cent in 1983. In Japan, the percentage of private investment devoted to pollution control fell by more than half between 1975 and 1980, and similar decreases have been observed in Austria and Denmark. Other countries, such as Sweden, Finland, France, Norway, Germany and the Netherlands, have seen industrial pollution control expenditures either increasing or fluctuating up and down over the past decade. In southern European countries, however, investment in pollution abatement began only recently and largely remains still to be accomplished. Operation and maintenance expenditures, on the other hand, should continue to increase, partially off-setting any reduction in investment. In the United States, for instance, annual operation and maintenance expenditures is currently about twice the rate of investments. ... Other countries tend to keep less complete records of private sector expenditure: however, this same trend in the relative importance of operation and maintenance expenditures in comparison with investment is probably occurring in most of them. OECD's estimates of total pollution control expenditure by industries in major OECD countries in 1978 show that it varies from 1 per cent or less to 2 per cent of the country's gross industrial domestic product. (69)

Public expenditures on environmental research and development have remained about the same or have declined since 1975 in most OECD countries. (70)

Compared to the OECD countries on which sufficient information is available, Japan ranges in the middle to top of the field as far as expenditures on pollution control are concerned. Pollution control by private firms with a capital of 100 million Yen or more steadily rose from 1965 through 1975, declined through 1979, then rose again through 1983. In 1984 it dropped again. (71) By contrast, public pollution-control expenditures have risen continuously since 1970, with a large part of the funds

being used for sewage treatment and waste disposal. (72) Japan's private and public pollution-control expenditures, which have been much higher than those by many other OECD countries especially since the mid-1970s, must be regarded partly in the light of the urgency of the problem (heavy environmental pollution) and partly in the light of the great backlog. Japan's investments in the field of 'social capital,' for example, were minimal for a long time. (72)

The politically explosive question about the effects that environmental expenditures have on the state of the overall economy is answered by the OECD by and large in favor of environmental protection:

In many countries there was concern that the magnitude of these expenditures could have a significant impact on the nation's macroeconomic performance: on GDP, inflation, trade and employment. In response to these concerns Finland, France, the Netherlands, Norway and the United States undertook macroeconomic analyses in an effort to estimate how great these impacts might be. All the analyses showed that the net macroeconomic effects are very small. The impacts may appear to be slightly positive or slightly negative, but in all cases they are barely detectable. Some enterprises and some industries may suffer more than others, but these negative effects are likely to be offset, at least in part, by the growth of other enterprises--for instance, those that produce pollution control equipment. (74)

Studies on Japan come to similar results. Generally, one can even assume that the macroeconomic benefit of strict pollution-control regulations has prevailed in the long-term macroeconomic perspective. (74)

In some spheres of antipollution technology, Japan is a leader in the world. That is especially true for flue-gas desulfurization equipment, denitrification equipment, and for the process of desulfurizing heavy oil. Japan is also an international leader in energy conservation:

... increased energy efficiency in the OECD economies (energy use for a given output fell by 25 per cent in Japan, and by 15 to 20 per cent in the USA, France, Germany, Italy, and the United Kingdom over a ten year period) helps to reduce environmental pressures. (76)

In some areas of environmental technology, Japan has developed a growing export market for herself. Her exports of pollution-control technology reached a total volume of 58 billion Yen in fiscal 1986. The precipitous increase in volume in 1986 is attributed primarily to increasing exports of sewage treatment plants to Asian and oceanic countries. By contrast, the soaring level of exports of pollution-control technologies to Europe in 1985 is explained by the increase in exports of flue-gas desulfurization

equipment and the related know-how to the Federal Republic of Germany. (76)

For a comparative assessment of industry's environmental expenditures, it is important to consider the share of governmental subsidies involved. Despite official lip-service to the polluter-pays principle, generous (and partially hidden) government funding is available in Japan to promote private pollution-control measures. Such grants are also available in many other countries as well, one exception being Great Britain. However, the Japanese practice of having the government provide environmental aid tends to differ from that in other countries, for in Japan it is medium-sized and small firms that receive most of the subsidies, special counselling, and guidance. In § 24 of the 1967 Basic Law for Environmental Pollution Control, it is stipulated that the central government, the prefectures, and the municipalities should make an effort, in matters of corporate investment, to take the necessary fiscal and tax measures and give small and medium-sized firms special consideration in the process. Since that time many different types of subsidies have been developed. They comprise financial aid (loans, interest subsidies), grants, and tax benefits (exemptions, reductions, and favorable depreciation conditions). To administer this government aid, independent institutions were founded such as the Environmental Pollution Control Service Corporation, the Environmental Sanitation Business Finance Corporation, and the Small Business Finance Corporation to name only a few. According to one study, the Japanese practice of subsidization has been systematically adapted to the respective priorities of environmental policy set by the government and the municipalities and 'tailored' to the varied funding problems of the individual sectors and firm sizes. In that sense the subsidy policy must be seen as an extensive, complementary instrument of Japanese environmental policy. It helps to create conditions under which the standards set by environmental policy, some of which are very strict, can also be met by small and medium-sized firms within a prescribed period (78).

## Environmental Awareness and Environmentalism

Throughout the world, in industrialized and developing countries alike, in both capitalist and socialist states, the subject of environmental protection increased in importance at the beginning of the 1970s. It was not just a fad that would vanish from the political discussion after only a few years as some experts had predicted. Instead, more and more traditional policy fields like economic policy, transport, agriculture, energy, and foreign policy are coming under 'environmental pressure' and are having to take concerns about environmental protection more and more into account in their accustomed area of expertise. The persistent, increasing, and politically potent boom in environmental subject matter was due not only to the ever more apparent negative impacts that environmental policy failures have on life, health, the natural environments, and, ultimately, on the economy itself. The environment has become important particularly because of the population's increasing environmental awareness and the rise of organized environmentalism, which ranges from grass-roots initiatives and environmental protection associations to local and national 'Green Parties.'

Environmental awareness and environmentalism spread very early and very rapidly in the United States. In the 1960s, especially as of the second half of that decade, environmental protection became one of the country's most important national political themes. The membership of wildlife organizations swelled by leaps and bounds. (79) Other countries later experienced a similar development, although it was usually less distinct. True, economic and oil price crises in the 1970s eventually slowed and sometimes even stagnated this trend in some countries, but never reversed it. (80) Public opinion surveys conducted in thirteen OECD countries by the OECD tracked environmental issues in thirteen countries from 1981 through 1984 and came to the following results:

Despite the economic problems experienced by many of these nations at the time these surveys were conducted, only a small minority of the public is willing to sacrifice some degree of environmental improvement for economic growth when offered the choice in a trade-off question.

Expressed concern is higher for national and global environmental problems than for local problems. One-third or more of the respondents in these surveys are very concerned about a number of national environmental problems, oil spills, nuclear waste and toxic chemical disposal are problems that elicit the highest level of concern. ... The

opinion polls also show that public concern about such natural resource issues as disappearing spaces, destruction of tropical forests and harm to natural landscape can be as strong as concern about pollution issues.

Public opinion supporting environmental improvements has remained remarkably strong over time. Where public opinion polls have asked the same questions about environmental issues over a period of years, there has been little or no softening of support for stronger programs in spite of either observable improvements in environmental quality or adverse economic circumstances. ... Polls in the United States, Japan and Finland show that large numbers of people believe things have worsened rather than improved over the past ten years. For example, 48% of Japanese rated the quality of the environment in their country ten years ago as 'fairly good' or 'excellent,' whereas only 19% felt that the present quality was at this level. (81)

In Japan massive environmental problems that in many cases had led to health damage and even death sparked a nation-wide discussion as early as the 1960s, combined at times with fiercely violent conflict. In the late 1960s and beginning of the 1970s the number of grass-roots initiatives addressing environmental issues jumped. These groups were very successful not only in blocking planned industrial projects and governmental development projects that could be harmful to the environment but also exerted great influence on the policies of the prefectures and municipalities. The environment came to have such general political significance as a topic that the issue of pollution control dominated campaigns in several large cities and led to shifts in partisan politics in town and city councils. (82) With the advent of systematic environmental policy and its perceptible improvement of environmental quality especially as of the mid-1970s, the number of grass-roots initiatives suddenly diminished. Environmental topics lost much of their importance in the public political discussion and in public elections. Other subjects (such as employment and the security of the energy supply system) gained significance. At the end of the 1970s environmentalism in Japan had already largely vanished from the political scene. Nonetheless, the subject is still virulent in social life, as public opinion surveys show. The topic is now pursued mostly by informal mutual-support groups and organizations responding to many different interests represented by housewives, consumers, and wild-life protection associations. Yesterday's dominant topics--industrial environmental pollution and health damages--have given way to new ones like 'amenities' and 'the quality of urban life.'



Unlike the status of environmental protection in most other industrialized countries, the subject has been losing importance in the political and public discussion in Japan the last ten years. The decline in the number of special grass-roots antipollution action groups and organizations is especially conspicuous at a time when their number and political importance has been increasing in many other countries. Whereas special environmental parties have been founded at local, regional, and even national levels and although in some cases they have been elected to their respective parliaments, special party organizations representing environmental protection interests play a negligible role in Japan's social and political life. (83) A recent study points out this obvious difference between Japan and other industrialized countries:

Whereas the advent of concern for environmental values in the advanced industrialized democracies of the West have typically given rise to strong national organizations (with many dispersed, typically weak local organizations) that challenge both national and local authorities, in Japan the pattern appears reversed. There, environmental groups at the national level are weak and formalistic, whereas at the local level they are typically well-grounded and enjoy a working relationship with local political forces and governmental leaders. (84)

### The Development of Environmental Quality

No uniform, internationally comparative trend in the development of environmental quality is discernable. Stated in very simplified terms, the data compiled from various organizations (85) indicate a general worsening of the trends, at best a stagnation, in the industrialized countries and most socialist countries. In many western industrialized countries improvements have been registered for at least a few classic environmental pollutants, but there are still numerous problems in traditional spheres of the environment. (86) In addition, new pollution concerns are arising, be they 'new pollutants' from diffuse emitting sources or the effects of problems being shifted from one environmental medium to another, to cite just a couple of these problems. (87) Because of methodological and practical difficulties with international comparative research on environmental quality and its trends and because of establishing its relative importance, it is not possible to rank countries. The aforementioned compilation of data as well as detailed national studies (88) do show, however, that

countries like Canada, Norway, Sweden, Switzerland, the Netherlands, the Federal Republic of Germany, and Austria enjoy a relatively good position in a comparison that takes the development of environmental trends as of about 1980 into account. Despite all the environmental problems that Japan still faces, some of which are only now reemerging, she rates among those in this top group by virtue of the successes she has scored in pollution control thus far. Within this group, however, Japan has relinquished the leading role she had in the 1970s. Even in the sphere of environmental policy itself, it has been a long time since Japan has pioneered strategies and instruments in any field as she still did a decade or more ago.

### **Japan's Role in the Global Environmental Context**

Although it was recognized very early (in the concept of 'spaceship earth,' for example) that environmental pollution respects no borders and that it would be necessary to conceive and implement an environmental policy that would be successful in the long run, the field of international environmental policy has seen very few international agreements and measures that can be described as appropriate. According to a leading student of international environmental policy analyses,

In an uncertain world, one apparent certainty is that popular attitudes and governmental and intergovernmental arrangements are not yet adequate to cope with threats to the environment. There have been significant advances in the structural evolution of international environmental policy during the past two decades, and perhaps more importantly, measurable changes in public opinion. More of this evolution will be necessary if the quality of all life on the planet Earth is not to be irretrievably impaired. (89)

The OECD does point to a few positive trends in international environmental policy, but otherwise largely confirms the above statement:

Since the OECD published its first Report on the State of the Environment, much international attention has been focussed on ratifying implementing and modifying treaties that had been signed earlier. In many cases progress in achieving environmental improvements under these treaties has been slow. (90)

The necessity for a basic reorientation of international environmental policy is also stressed in the final report submitted in 1987 by the World

Commission on Environment and Development (91), which was founded in 1983:

The Commission's call for action is based above all on the notion of the growing ecological interdependence of nations, and the threats posed to collective security by actions and policies which are degrading the resource base of future generations. This interdependence is most obviously visible in the air pollution which has brought widespread acidification to Europe and North America, and promises ecological upsets following the depletion of stratospheric ozone and global warming by early in the 21st century. But no less important are the pressures for unsustainable use of land which are built into present agricultural, aid and trade policies. ... The necessary reforms could only be achieved in a new spirit of international collaboration. After a decade and a half of a standstill or even deterioration in global cooperation, as Mrs. Brundtland (Prime Minister of Norway, then head of the World Commission on Environment and Development) puts it, perhaps our most urgent task today is to persuade nations of the need to return to multilateralism. (92)

The necessity of an internationally coordinated environmental policy that takes the global environmental context into account is now no longer disputed. It is even accepted that the industrialized countries have an active role to play and that they must make common cause with the developing countries. However, research gaps and methodological difficulties currently render it impossible to rank the various states by their positive or negative role in international environmental policy.

Nevertheless, available data do allow the general observation that Japan is one of the countries that not only has a considerable direct and indirect bearing on the emergence of global environmental problems but that also has played a rather passive--and sometimes even restrictive--role in the field of international environmental policy:

Despite her enthusiastic pledge of environmental good citizenship at the 1973 (*sic*) Stockholm Conference on the Human Environment, Japan has consistently taken anti-environmental positions in international negotiations. (93)

Even in its own recent official publications, especially in the official environmental report of 1988, the Japanese government has chided itself for Japan's marginal involvement in international environmental policy. (94) It should also be understood, though, that the Japanese public, too, has thus far shown comparatively little interest in global environmental problems. In a public opinion survey conducted by the Prime Minister's Office, 44% of the people questioned about the relevance of global environmental problems responded that developments in their immediate sphere of

life were more important for them. (95) The relatively weak interest that the Japanese public has in global environmental problems is also reflected in a comparison of public opinion surveys in Japan and member states of the European Community (see Table 8.1.1).

*Table 8.1.1: Public Opinion about Global Environmental Problems: Japan and EC-Countries*

	Percentage of Persons Concerned about Environmental Problems	
	Japan (1988)	EC-Countries (1986)
Extinction of some plants or animal species in the world	26	42
Depletion of natural resources such as deforestation and desertification	30	35
Possible climatic changes brought about by carbon dioxide	32	38

Source:

Japan: Prime Minister's Office, Survey of Public Opinion on Environmental Problem, 1988;

EC-Countries: Commission of the European Communities, The Europeans and Their Environment in 1986, Brussels 1987.

Japan's direct and indirect part in the emergence of global environmental problems is quite great in some spheres. Global environmental problems are caused more or less indirectly by Japan by virtue of the fact that, as the world's second largest industrialized nation, she accounts for a considerable amount of the world-wide consumption of energy and other resources. She imports most of her primary energy carriers and industrial raw materials. The source countries, in turn, suffer from environmental problems stemming from the recovery of resources. The very transport of these raw materials to Japan harms the environment.

Japan's gross national product had a volume of about two trillion Dollars in 1986, approximately 12% of the world's gross national product.

Food, raw materials, and fossil fuels accounted for 58% of Japan's total imports in 1986. The volume of the country's food imports have steadily been growing for years, the largest share (in terms of import value) being accounted for by shrimp from Taiwan, India, Indonesia, and China. The shrimp production in some of these countries has been boosted increasingly by special cultivation, thereby hampering the important ecological function of mangrove forests. (96) Japan accounts for fully 24% of the global imports of logs. The share of Japan's total imports accounted for by wood from tropical countries was 42% in 1986. Thus, Japan is making a sizeable contribution to the destruction of tropical forests. Furthermore, the country's imports of wild fauna and flora are also massive. The list of protected plants and animals that was published by the Japanese government in 1987 reveals that Japan, more than any other country, still allows the import, hunting, or gathering even of species banned from commercial trade by Appendix I of the 1973 Washington Convention on International Trade in Endangered Species of Wild Flora and Fauna (CITES)--which Japan did not sign until 1980. The groups of animals at issue include some types of whales, lizards, sea turtles, the Chinese alligator, and the musk deer.

Japan's energy consumption in 1985 came to 310 million tons of crude oil equivalents, or 4.9% of all consumption of the world's primary energy. The level means a large contribution to global air pollution. For production purposes Japan manufactured and used approximately 170,000 tons of chlorofluorocarbons in 1985, which threatens the ozone layer. Japanese emission of carbon dioxide, which is suspected of generating the greenhouse effect, totalled 842 million tons in 1985, 4.3% of the world's emissions of that gas (fourth place in the world). The dumping of environmentally harmful substances into the sea makes Japan greatly responsible for the pollution of the world's oceans as well. Thanks to strict environmental measures introduced in the 1970s, however, Japan's share of the sulfur dioxide and nitrogen oxide emissions in the world is relatively small.

Japan also contributes to environmental pollution in other countries through her investment policy. Japan's overseas direct investment has rapidly climbed since the early 1980s, making the country one of the largest overseas investors in the world. Even before that, especially pol-

lution-intensive industries were relocated to other countries as a policy, primarily to the south-east Asian area. In the White Paper on the Environment in Japan 1988, the concomitant environmental issues are noted:

Japan's overseas investment, particularly in the manufacturing industry, is liable to affect local environment including water, soil and air. (97)

A study conducted by the Japan Overseas Enterprises Association in 1983 indicates that the installation of antipollution technologies was neglected in such overseas investments. Although 67% of the Japanese firms studied were equipped with waste water disposal plants, only 40% had dust collectors, 15% had anti-noise devices, and only 13.5% had exhaust-gas collectors. (98)

The Japanese government has recently announced a much greater involvement in international environmental protection, no doubt a move induced at least in part by increasing international criticism of Japan's restrictive, self-interested stance on global problems. A few measures have already been introduced by the Japanese government. For example, Japan initiated the founding of the aforementioned World Commission on Environment and Development, whose main responsibility was to identify long-term strategies that would achieve environmentally sustainable development by the year 2000 and beyond. Japan was also the largest funder of this commission. Japan paid 4 million Dollars in 1985 to the Environment Fund of the United Nations Environment Program, second only to the United States (which paid 10 million Dollars). (99) Japan is also giving an increasing amount of development aid and support in the field of environmental protection. The base level against which that increase is measured is relatively low, however:

Many of the cases of Japan's bilateral official development assistance in the field of environmental conservation have (only) just been started, but the number of cases of assistance has been steadily increasing. (100)

Legally nonbinding external investment guidelines for Japanese investments in developing countries, established by the five large Japanese economic associations in 1973, were expanded in April 1987 to take greater account of environmental concerns.

In the White Paper on the Environment in Japan 1988, the official view of the problem is described and proposals for improving Japanese policy on global pollution control are forwarded in an extensive chapter

entitled 'Japan's Contribution toward the Conservation of the Global Environment.' On the whole, however, the treatment is relatively vague.

In October 1987 the Japanese Environment Agency established an Office of Stratospheric Protection to oversee implementation of the international agreement to protect the ozone layer, a measure approved by twenty-four nations, including Japan, in Montreal in September 1987. Since 1980 several studies on the ozone layer issue have been conducted in Japan by governmental institutes and agencies, and several more are due to follow. For example, the Environment Agency's National Institute for Environmental Studies purchased an ozone laser radar in 1987 to measure the vertical distribution of ozone concentration in order to clarify fluctuation in ozone concentration and detect the pattern of its long-term change. Research based on ozone laser radar systems presently is conducted in France, the United States, and West Germany, but the Japanese Environment Agency claims that its laser radar system is the world's most powerful system and that it is capable of continuous and exact measurement from the ground surface to an altitude of fifty kilometers. The National Institute will inaugurate a five-year research program on the ozone layer in fiscal 1988.

In response to the need to protect the earth's ozone layer, the Ministry of International Trade and Industry (MITI) issued administrative guidance aimed at making domestic producers of chlorofluorocarbons (CFC's) refrain from expanding production facilities and urging manufacturers of aerosol sprays to increase their efforts to reduce the use of CFC-based aerosol propellants. On March 11, 1988, the government also approved a bill that was drafted mutually by MITI and the Environment Agency. The 'Bill Concerning the Control of Designated Substances for the Protection of the Ozone Layer' was sent to the Diet on March 14, 1988. In part, this bill stipulates the introduction of a licensing system for domestic CFC production and the specification of the volume of CFC's produced for export purposes. Furthermore, the bill provides for a preferential tax system for firms establishing facilities to reduce CFC emissions.

In summary, Japan only recently began to play a more active role in the solving of global environmental problems. However, the activities initiated and announced are still nowhere near enough to compensate for Japan's part in the problems of the global environment. An advisory

group to the Environment Agency called for a greater effort to solve global environmental problems, particularly in developing countries. In June 1988 the advisory group presented a report urging Japan, among other nations, to take the lead in devising long-term, world-wide strategies for global environmental risks and advocated active promotion of environmentally related aid to developing countries. It also said that Japan should adopt emergency measures to protect tropical forests and preserve rare wildlife.

### **From Remedial to Preventive Environmental Policy: Some Lessons from Japan**

Recent studies on approaches to and methods for the evaluation of environmental policy (101) have pointed out at least four crucial issues as being particularly important for an assessment of environmental policies:

- o *Effectiveness*: While earlier studies often assessed environmental policy on the basis of governmental programs of action (including laws, regulations, and standards), studies in implementation research drew attention to policy enforcement and the actual effects on environmental quality. (102)
- o *Efficiency*: In the face of general economic stagnation and current financial constraints on public budgets, the consideration of pollution-abatement costs and related administrative expenditures has gained tremendous weight in the environmental debate.
- o *Equity*: Right from the beginning of the environmental debate, the question has been raised whether environmental protection measures will increase the trend towards inequality or improve social justice. This discussion has often focused on the question of whether middle and upper income groups support environmental concerns primarily in order to defend their own interests (protection of 'positional goods') while the poor have to foot most of the bill for environmental protection even though their share of the benefits is disproportionately small. (103)
- o *Prevention*: Aside from theoretical studies, experiences with the unsatisfactory results of environmental policies in most countries have drawn



attention to the fundamental shortcoming of existing policies--the fact that they are reactive instead of anticipatory and preventative. (104) These four criteria considered essential to an evaluation of environmental policies will be applied in the following assessment of Japanese pollution-control policy. Because of the limited space, two aspects will be touched upon only briefly. In keeping with the main purpose of this chapter, the fourth category, prevention will be considered of greater length, particularly the concept of preventative environmental policy and the shortcomings of a reactive, nonanticipatory policy.

### *Efficiency and Equity*

Compared to Western industrial countries, the debate on the economic effects of environmental policy (e.g., on the employment situation, growth rates, export business, and inflation) has had only a marginal role in environmental policy-making and enforcement in Japan. Accordingly, studies on such effects are scarce. This lack of micro- and macroeconomic arguments against environmental policy measures is extraordinary, especially since Japan's expenditures in this field are among the highest in the world. One of the main reasons for this information gap is that the economic growth rate in Japan was higher than in any other industrial country until 1974. Hence, intensive pollution-abatement measures were introduced under very favorable economic circumstances. In 1975, private expenditure on pollution abatement reached its peak. True, private investments decreased considerably after 1976, but picked up again only a few years later, about 1980. In the mid-1970s public expenditures also increased remarkably, particularly for sewer systems, waste water treatment, and waste incinerators. (105)

Considering the improvements in environmental quality, environmental policies (including industrial policy measures designed to conserve energy and natural resources) and antipollution expenditures 'appear to have been fairly efficient.' (106) Moreover, a tentative assessment of the macroeconomic consequences of environmental policies comes to the conclusion 'that the impact of relatively high pollution-abatement costs on macroeconomic magnitudes, such as GNP, employment, prices, and foreign

trade, is practically negligible.' (107) Japanese experts even went a step further when they stressed that strict pollution abatement regulations and the activities of environmentalists exerted a favorable influence on industry, helped overcome the two oil-price crises in the 1970s, and secured the continuation of the 'Japanese economic miracle.' (108)

Even though it is generally very difficult to assess the effects of environmental policy on *equity*, or rules regarding social justice, the case of Japan clearly reveals that equity was furthered by antipollution measures. From the outset, the groups that had suffered most from pollution were those that generally hold a very weak position in society--the old, the young, the sick and the poor. (109) Furthermore, the basic principles of the court decisions in the 'four great pollution trials' and the administrative system of compensation for pollution victims have substantially increased the power of these groups. However, there are still many disparities, especially with regard to the preservation of the natural environment *per se*. Here, the principles derived from tort law within the civil code are less suitable because they do not provide a sufficient basis for litigation against public development projects (e.g., motorways, airports, and railroads) to prevent damage to the natural environment. In response to these difficulties, environmentalists have developed a concept of 'environmental right' based on the constitutional guarantees providing for a full and civilized life. As recent court decisions show, this concept has not found favor with the Japanese judiciary. (110)

The more environmental policy focuses on 'amenity,' the more difficult the evaluation of issues involving equity apparently tends to become. All in all, the Japanese case was therefore rather simple since the stress was on reducing health hazards. Thus, if one centers the issue of equity on the uneven distribution of risks and damages to health and property among emitters and the population (including future generations), then Japanese pollution-abatement policy clearly has improved the position of the latter. This shift to increased equity, engineered by reducing health hazards through technocratic pollution abatement, is basically unchallenged by industries or politicians, even in the face of less favorable economic conditions. It may be concluded, therefore, that conventional pollution-control policy (*anti-kōgai* policy, as the Japanese call it) has become firmly rooted in industrial policy and is an accepted social re-

sponsibility just like occupational safety and health, for example. Opposition is directed mainly at attempts made to broaden the rather limited approach of avoiding damage through an active policy of preservation and improvement of environmental quality (and amenity).

*'Anticipate-and-Prevent' versus 'React-and-Cure' Approaches*

Conventional environmental policies are basically reactive, *ex post* policies. The emphasis is on the remedial aspect after damages have occurred. The deficiencies of such an approach are well-known: nature and human health have been seriously harmed, often irreversibly. In addition, the economic shortcomings of this approach are enormous and are sparking more and more criticism. Because a problem is belatedly identified and the pressure to take immediate measures then is very high, it is usually not possible to develop well-conceived, cost-effective strategies to counter it, and, with respect to equity, reactive policies usually adhere to the taxpayer-pays principle instead of the polluter-pays principle, especially when emergencies arise.

There are thus many good reasons to develop environmental policies based on an anticipate-and-prevent approach. This concept does not imply a mere avoidance of problems in one environmental medium (air, water, or soil) but calls for a long-term policy giving due consideration to the whole 'ecological context.' Admittedly, that task is rather difficult--from the theoretical, institutional, and political points of view. (111)

In several studies (112) it has been pointed out that the insufficient consideration of the 'ecological context' and the long-term effects of pollution is characteristic of most environmental policies because of their prevailing strategy of *peripheral and selective* intervention. Intervention is *selective* when the environmental political focus is only on the part of the ecological context in which damage has become manifest and when remedial activities are limited to that part, that is, when they address pollution of the air, water, or soil incrementally with medium-specific policies without systematically coordinating them. *Peripheral* intervention is defined as a policy that does not tackle the cause of a pollution problem in an attempt to eventually overcome it but instead simply 'manages'

(mitigates) pollutants or regulates the last link in a chain of events. With air-pollution control for stationary sources, for example, this could be the abatement of harmful emissions by dilution (e.g., a policy of dispersing air pollutants by funneling them through tall smokestacks) instead of energy-saving measures, which would produce fewer pollutants in the first place, or, more progressively, by ecologically sound structural changes in modes of production and consumption.

An environmental policy that does not consider the overall ecological context is necessarily limited. A strategy of selective and peripheral interventions may achieve short to medium-term improvements, but the rate of improvement will sooner or later slow, and old problems may reappear. In fact, there are at least two reasons why they might be even worse than before. First, nothing has meanwhile prevented the ongoing *accumulation* of residual pollutants caused by the structurally unaltered sources of the problems. (Further economic growth, for example, eventually nullifies improvements brought about by abatement measures, especially since pollution abatement is very rarely complete.) Second, pollution problems are constantly being *shifted* from one environmental medium to another.

There are various forms of such environmental 'problem shifting.' As far as my studies on environmental policy permit a judgment, the aspect of problem shifting may be generally classified under one of four categories.

- o *Medial problem-shifting.* Environmental problems are shifted from one medium to another--from air to water or soil, for example. Dust collectors, for instance, reduce air pollution at the expense of greater water or soil pollution when dusts are disposed of recklessly.
- o *Spatial problem-shifting.* One region is 'cleaned up' at the expense of others. For example, air quality in urban agglomerations is improved through long-range dispersion of pollutants.
- o *Temporal problem-shifting.* Environmental problems are dispersed over a lengthy period of time. For instance, concentrations of pollutants in the ambient air are diluted so as to avoid immediate, acute injury to human health. While this may mitigate critical problems in the short run, continuous, long-term exposure to pollutants may impair health or

induce chronic disease that becomes noticeable at a relatively late stage and is thus difficult to trace back to its actual cause.

o *Problem-shifting caused by substitution measures.* Industrial processes, raw materials, fuels, and other factors are substituted for by others (sometimes in response to environmental policy decisions) that may pollute the environment just as much or even more. Examples would be a switch from fossil fuels to nuclear power or the substitution of lead in gasoline for aromatic hydrocarbons, which are suspected carcinogens.

In Japan, as in all other industrialized countries, all these forms of problem-shifting are encountered. In spite of the general ecological shortcomings of environmental policies in all industrialized countries--apparent in peripheral interventions rather than in interventions related to cause--an international comparison nonetheless reveals distinct differences between the various policies of individual countries. These differences in the various kinds of policies became apparent as a function of the respective regulatory instruments used (e.g., laws, regulations, and economic incentives) and in their results as reflected in the developmental trends of environmental pollution. Unlike many industrial countries, for example, Japan has established quite unconventional regulatory instruments, with great emphasis on technological innovation, and has now taken the lead in many fields of environmental technology. Furthermore, because of its technological progress Japan has succeeded in alleviating severe pollution-related problems to an astonishing extent. All this has been achieved through a kind of policy that I have referred to as *active technocratic environmental policy* (see above).

The difference between an *active technocratic environmental policy* and other forms of environmental policy that are equally indifferent to the overall ecological context can be characterized by three features:

- o In the development of specific pollution-control measures, the emphasis is on their technical feasibility rather than on their legal foundations.
- o For selected problem areas, stringent ends-means relations are set up, and, the goals to be reached are made very explicit, not intentionally vague. In this respect it is noteworthy that the legal basis for the formulation of environmental policy measures in Japan is often less precise and formalized than in other countries. Nevertheless, these objectives are a far greater stimulus for action.

o To achieve environmental policy objectives, a short-term, and sometimes medium-term deadline is envisaged, and implementation is strictly supervised, say, by a comprehensive and sophisticated monitoring system.

In the present context, an environmental policy having these three features is called *active technocratic* policy, not simply effective policy, for it adheres to technocratic solutions to problems. Policies that pursue transcending problem solutions would have to deal more directly with the causes of problems in an attempt to eventually overcome them. Thus, Japanese environmental policy remains an intrinsic part of the political system, which is still dominated by a powerful coalition consisting of big industry, the most influential factions of the ruling party, and top-level bureaucrats, a system that pursues a policy of economic growth based on industrial expansion.

What makes Japan so remarkable and outstanding is the very fact that most other industrialized countries have not yet reached the same level of activity in their environmental policies, which are also technocratic. Japan is one of the few countries to have succeeded in alleviating massive conflicts over environmental policy, disputes that otherwise would have had far-reaching consequences for industrial policies. Antipollution protests, which had a tendency to grow into an anti-industry movement, posed a challenge that was quite unusual for the Japanese political system. This challenge and the impending danger of mushrooming litigations against all sorts of industrial pollution have been channelled into 'manageable' procedures. Nevertheless, a great deal of the latitude previously attained by local governments and grass-roots groups still remains, above all the possibility to conclude pollution-control agreements with industries--an effective strategy for pollution abatement that is not controlled by the central government and its ministries. All in all, it has been widely acknowledged that the pollution disputes have strengthened Japan's democracy in general. Committed grass-roots groups have acquired more rights to participate in decision-making processes of vital public concern, and local authorities have attained more influence, thus softening authoritarian centralist policy. (113)

A summarizing assessment of Japanese environmental policies reveals that much has been done to prevent pollution from industrial sources and

that legal developments have created strong disincentives for industrial polluters. The political preconditions that largely shaped the environmental policy objectives, the selection of instruments, and enforcement were, nevertheless, also the cause for the shortcomings in Japan's environmental policy. The primary demand was for compensation of health injuries and prevention, at least for drastic reduction of pollutants detrimental to human health; it was not for environmental protection *per se*. The measures and regulatory instruments of Japanese environmental policy, however, were aimed primarily at *remedying* existing problems and not at *preventing* future damages. As a general concept applied to all sectors of public policy-making and private activities, a preventive environmental policy *per se* does not yet exist.

Empirically speaking, there is no optimal preventive environmental policy anywhere yet. Nor are there any refined theoretical concepts in which its feasibility and implementation are considered systematically in the light of previous difficulties in enforcing even a reactive environmental policy. In all countries environmental policy is presently conducted in a largely conventional, reactive way, and even that approach does not often produce rapidly effective measures to restore the environment.

In view of this real and theoretically unsatisfactory situation, effective, conventional measures and instruments of environmental policy should not be underrated, although they do strike one as being rather unimaginative and simple when compared to the preventive environmental policies emphatically called for (which, however, are rarely formulated in practical terms). Politically, though, conventional measures and instruments of environmental policy seem to be a highly sensitive topic. In the decision-making and scientific communities, for example, it is easier to find general agreement on the grand call for preventive environmental policy reconciling society and nature than on the pragmatic proposal to charge pollution fees or to publish data on emissions continuously. That is my observation at any rate.

In Japan, where environmental policy has been pursued with considerably more vigor since 1970 than has been the case in many other countries, there are at least a few empirically supportable examples of environmental policy strategies and regulatory instruments that quickly become effective and that have the potential for stimulating a preventive perspective in environmental policy. In the following pages they are discussed in terms of the general function they can have for preventive environmental policy. At the same time, the fact that Japan's environmental policy still suffers from serious shortcomings is not overlooked. In studying the country's advanced kind of active technocratic environmental policy, one can also learn from its now obvious deficiencies. Most of the lessons drawn in that process underscore the wisdom of taking a preventive approach early in the shaping of environmental policy.

In view of the persistence with which stagnating conventional (remedial) environmental policies continue to be pursued in many countries despite the increasing urgency of the environmental problem, the Japanese example can provide ideas that may help relieve the environment in an 'ecologically sound' manner, at least in the short and medium term. In principle, such a perspective is pragmatic, but given the rather lethargic environmental policy in Europe at present it can be heartily recommended. For one thing, problems urgently requiring action have accumulated. For another, preventive environmental policy also needs legal, administrative and technical instruments for its implementation. After all, scientific knowledge now probably widely accepted holds that preventive environmental policy must be centered on ecologically-minded change in the structure of the economy and society. In the search for appropriate instruments, Japan's experiences can be especially helpful. After all, they have been tried out over many years, meaning that their effects can be assessed realistically and that obvious weaknesses can be eliminated before the instruments are adopted.

Realistically, it must be added that several high hurdles must be cleared on the way to achieving preventive environmental policy. As yet there is no refined theoretical concept for getting there, nor can one adequately assess how interest groups entrenched in existing power, de-



cision-making, and organizational structures would react to the far-reaching changes associated with a preventive strategy. What is known is that instruments consistent with a market approach (pollution fees, for example) and regulatory measures (provided they are aimed at major environmental polluters) often encounter fierce and successful resistance from the business and policy-making communities, sometimes also from administration, even when they are intended for the pursuit of 'only' conventional (i.e., remedial) environmental objectives. Moreover, the all-too-lengthy delay in launching preventive environmental policy has led to problems that rule out a new start based on a purely preventive approach. But how can required short- to medium-term reactive (remedial) measures be designed to avoid conflicting with and even precluding preventive strategies? There is neither a concept for nor consensus on this matter. And if a convincing concept is developed, who is supposed to push it through against conflicting interests?

The conceptual development, operationalization and enforcement of preventive environmental policy seem to me to be almost heroic tasks, especially when one considers the international dimension involved (such as long-range pollution flows and supranational restrictions). In any case, *no royal road is evident. Careful analysis of the wrong tracks taken by environmental policies and consideration of the constellations of interests involved in policy-making are a must in such a situation. It is equally important, in my mind, to come up with and win the acceptance of principles, regulations, and organizational forms that have been shown to accommodate ecological concerns in such a way that they allow for effective remedial measures while promoting the conceptualization and management of preventive environmental policy.*

In my opinion, the study of Japanese environmental policy shows that three basic elements are particularly important in amplifying the effect of the citizen's environmental involvement and in stimulating the use of preventive measures: (1) comprehensive, problem-centered environmental monitoring and reporting to enhance the comprehensibility of the issues and information involved, (2) substantial grass-roots *participation* in decision-making processes pertaining to environmental policy, and (3) legal parity of the people involved in environmentally related conflicts, that is, their *equality before the law*.

The concept of preventive environmental policy is understood here pragmatically as a continuum in which the principle of prevention varies in intensity and scope. (113) The optimal case would be the anticipatory, environmentally sound management of the economy and society (an approach that avoids pollution and conserves resources, for example). In this continuum, one of whose endpoints is represented by the remedial principle of eliminating damage, end-of-pipe technologies used prior to the occurrence of damage would also fall in the range of this concept's underlying criteria. True, that interpretation would be remote from the general understanding of prevention, but in not a few cases it would be a welcome step forward in environmental policy as it is actually practiced in some countries. This aspect should not be overlooked when concepts of preventive environmental policy are worked out on the basis of rigid conceptual explications and when conventional (remedial) measures are rejected. Such an interpretation would be as unjust to the environmental official who enforces stricter measures than legally required to improve the environment as it would be to grass-roots initiatives fighting for the installation of flue-gas desulfurization devices in polluting sources in their neighborhood or to the industrial company that voluntarily equips old plants with expensive remedial technologies.

Accordingly, the function of stimulating rapid and effective remedial measures is seen as an additional positive element of the three aforementioned basic prerequisites of preventive environmental policy (aside from their potentially preventive components). In the following passages, these basic elements of a preventive orientation in environmental policy will be presented. It is not implied that they alone are sufficient for a preventive environmental policy to prevail. As is plain from the weak points of Japanese environmental policy pointed out above, more 'building blocks' will be necessary.

The regulatory and other types of instruments dealt with in the preceding analysis of Japanese environmental policy are only one of several possible operationalizations of the abstracted basic elements. It is in regard to precisely this point that comparing environmental policy instruments of various nations 'from the perspective of prevention' could reveal other functionally adequate instruments. For example, existing instruments and approaches like the class-action suit (as in Switzerland, the United

States, and the Netherlands), the right of the public to examine files (as in the United States and France), environmental impact assessment procedures with substantial public participation (as in the Netherlands and the United States), and the institutionalized participation of environmental organizations in processes of policy formulation (as in the Netherlands) are just a few of the possibilities that also fit into the preliminary set of basic elements described below.

In addition to the general lessons that can be drawn from the results of Japan's advanced technocratic environmental policy, the following aspects of technological progress, information-sharing, and empirical evidence may be of great interest to those involved in the enforcement of environmental protection measures. The study of Japanese pollution-control policy reveals that there are many more feasible pollution abatement techniques available than industries and responsible authorities in other industrial countries usually admit. Not long ago, it was officially averred in Great Britain and West Germany, for example, that there were no suitable facilities for flue-gas desulfurization or denitrification. An observer of the latest European discussion on the introduction of stricter car exhaust regulations might have experienced vivid *déjà vu* listening to the arguments brought forth by industry and politicians. The Japanese example clearly demonstrates that technological progress can be decisively accelerated when emitters are put under political pressure. Furthermore, decisions on pollution-abatement measures in concrete cases (e.g., licensing) may be influenced in other countries by pointing to tested and applied techniques in Japan--as has clearly been the case in clean-air policy in West Germany. Anyone who has either been involved in such decision-making processes or has conducted case studies on this subject knows what an important role empirical information on practicable abatement devices has in conflicts about feasible pollution-control techniques. Three basic features to consider in this regard are comprehensibility, participation, and equality before the law.

### *(1) Comprehensibility*

Information about environmental developments is the (nonmaterial) 'raw material' of a preventive environmental policy. (114) The problem-centered and anticipatory gathering of environmental data and current,

continuous, accurate, and understandable monitoring and reporting thereon are fundamental prerequisites for pursuing concerted environmental policy measures and for enabling citizens to evaluate the quality of their environment and environmental policy. The better the information base, the better the conditions for the citizen's purposeful involvement in environmental policy and for the development of long-term measures by the competent authorities.

Improving the standards of information also prompts efforts at control that in many cases can efficiently replace costlier control measures of a formalistic, bureaucratic nature. Moreover, it reduces the problematic issue of so-called transaction costs, which often has not been adequately considered in the theoretical discussion about discrete economic instruments of environmental policy. This sphere includes the costs of information, planning, administration, supervision, and enforcement that are incurred in the process of applying environmental policy instruments. A comprehensive information system is in general a basic condition for the optimal development of flexible, cost-minimizing instruments. Indeed, the lower the degree of intended government control and intervention and the greater the flexibility to be maintained for corporate decision-making on environmental protection measures, the more intelligible the measures and their effects are bound to be for the public. Otherwise, 'deregulation' and an 'increase in flexibility' are apt to run the risk of becoming a mere information game in which outsiders are virtually unable to verify actual effects. Not until objective environmental monitoring and reporting has been established does it become possible for general administrative intervention to be partially replaced by 'environmentally informed citizens.' Only they have a genuine chance of bringing about rational, purposeful control having appropriate market and price effects.

## *(2) Participation*

Effective, not just symbolic or formal, opportunities for citizens to participate in decision-making processes bearing on environmental policy are rare in many countries. Exercising direct, on-site influence on environmentally unsound projects or occurrences is often either very difficult or altogether impossible because of centralized procedures. In Japan, citizens and local politicians have broken up the 'centralist elements' by

using antipollution agreements to commit environmental polluters to measures that are often far more stringent than what is required by law. This approach has not only made progress in environmental policy more dynamic but has also brought about new policy instruments.

One must also remember that participation is a general postulate in democratic social systems, and in geographically large states the suitable basis for it is first and foremost decentralization which can be provided by 'on-site' antipollution agreements.

Especially at the national, but also at the international, level it has primarily been environmental groups and organizations that have called attention to emerging environmental problems and pressed for counter-measures, often doing so earlier than the responsible governmental agencies have. In many countries the activities of these groups and organizations, including mass protest against environmentally detrimental projects, have helped achieve stricter environmental regulations--often against the powerful resistance of economic interests. Without the commitment of environmental groups and organizations, the environmental situation in Western and Eastern industrialized countries would undoubtedly be much worse than it is.

In my opinion, this demonstrably stimulating and ecologically responsible role of environmental organizations should be accorded greater recognition in future international negotiations on environmental protection. This could be achieved by improving the access that these groups have to decision-making processes, perhaps by granting formalized rights to representation in international organizations and institutions. Since international environmental policy has thus far shown little interest in innovation in policy instruments and decision-making procedures, an important step towards the dynamization of the still rather sluggish political process would be to provide environmental organizations with the opportunity for substantial participation in international deliberation on environmental protection.

### *(3) Equality before the Law*

The Japanese judges ruling in the four great pollution trials demonstrated in many ways how a rigid legal system that favors environmental polluters both structurally and procedurally can be reformed to take ecologi-

cal (and health) concerns into greater consideration. The litigation described above clearly shows that inflexibly conceived proof of causality encourages environmental destruction and severely hampers even remedial action, not to mention preventive measures.

The Japanese example shows that environmental protection measures prevail more easily when principles easing the burden of proof begin to make the victim and the environmental polluter more equal before the law. In Japan at any rate, the vastly increased risk that companies thereby face of having to pay compensation was a great stimulus not only to undertake remedial action but also to adopt preventive environmental protection measures. The 'ecological revision' of old, outdated legal principles therefore appears to be a promising way to promote the principle of prevention. (In most countries, however, such change would require a 'quantum leap' in legal doctrines.) Legal parity between the victims and environmental polluters can ultimately also be regarded as a fundamental dictum of democracy.

### **Summary**

The three basic elements that I have described as fundamental (comprehensibility, participation, and equality before the law) are certainly not sufficient on their own to ensure the establishment of a preventive environmental policy. I do, however, consider them essential for an overall setting of various innovations that are necessary for the improvement of environmental policy. Although the three elements are illustrated and documented above with examples from the Japanese experience, they are not so closely tied to Japanese culture that it would be futile to try transferring them to other cultures, especially if their operationalization is functional in design rather than strictly imitative of the Japanese model.

Overall, though, it is always extremely difficult to dislodge firmly entrenched power structures in order to promote environmental protection. (116) In view of industrialized society's structures of economic power and dominance, the establishment of preventive environmental policy is becoming a test of sovereignty between governmental authorities and the indus-

trial system (including agrobusiness). Despite all the stimulating ideas coming out of Japan that could be helpful to environmental policy in Europe, that test of sovereignty of the politicoadministrative system has thus far produced a negative result, even for Japan.

It is probably impossible to say how important each of the three basic elements is in the development and establishment of a preventive environmental policy. But what is known is that great public concern for the protection of the environment and readiness to participate in environmental policy matters is the most important prerequisite for long-term environmental improvements. As we can learn from Japan, when social pressure to adopt environmental protection measures subsides, government and industry soon slacken their efforts.

#### Notes

- (1) Quoted in Huddle et al., 1974: 14.
- (2) See for example the title of Bo Gunnarson's (1974) popular book on environmental problems in Japan: "Japan's ecological hara-kiri or the deadly end of growth" (translation H.W.).
- (3) See for example the compensation agreement signed by a group of victims of the Minamata disease and Chisso Corporation in 1959. The agreement stipulated that adults were entitled to 100,000 Yen annually, children to 30,000 Yen annually, all victims to a lumpsum of 300,000 Yen plus 20,000 Yen for funeral expenses if a victim died of the disease. The agreement included a clause to the effect that victims and their relatives renounce any further claims even if Chisso Corporation were subsequently held responsible for causing the disease. Cf. The Mainichi Daily News (Tokyo), March 17, 1983, and Smith & Smith, 1975. The Japanese word for condolence money is mimaikin.
- (4) A comprehensive description and analysis is given in Huddle et al., 1975; Tsuru, 1976a; McKean, 1981; Kelley et al., 1976 and Enloe, 1975. See also Iijima, 1979.
- (5) Huddle et al., 1975: 256-257.
- (6) "There are two places in the Law where consideration for 'harmony with sound economic development' is indicated: firstly in Article I where the purpose of the Law is spelled out, and secondly in Article XI where the prescribing of ambient quality standards is specified." (Tsuru, 1976a: 287).

- (7) Cf. Tokyo Metropolitan Government, 1971 and 1977.
- (8) The findings of a national opinion poll on environmental pollution and industrial development showed that between 1966 and 1971 the percentage of citizens who felt that 'pollution should never be permitted' had increased from 27.4 per cent to 49 per cent. Cf. Environment Agency, 1973: 39.
- (9) Cf. Japan Environment Agency, 1973, and Huddle et al. 1975.
- (10) Cf. McKean, 1981, and the articles by Flanagan, MacDougall and Krauss & Simcock in Steiner et al., 1980.
- (11) Gresser et al., 1981, and Upham, 1976.
- (12) Cf. Gresser et al., 1981: xviii.
- (13) Cf. Upham, 1976, and Smith & Smith, 1975.
- (14) Cf. Gresser et al., 1981, and Upham, 1976.
- (15) On the relationship between industry and government cf. Pempel, 1977, and Johnson, 1982, with further references.
- (16) Cf. the contribution of Weidner in this volume.
- (17) Cf. the contributions of Yamanouchi & Otsubo and Shibata in this volume. See also Weidner et al. 1987: 170-206.
- (18) Interview at the Environment Agency, April 1985.
- (19) Cf. Weidner, 1987, and the article on environmental monitoring by Weidner in this volume.
- (20) Cf. Weidner et al., 1987.
- (21) Cf. OECD, 1977.
- (22) Cf. the official views in Japan Environment Agency, 1985 and 1986, and Reich, 1983.
- (23) Cf. Powell, 1983, and MITI, 1987.
- (24) OECD, 1977: 83.
- (25) Japan Environment Agency, 1983: 40.
- (26) Marx, 1965: 784.
- (27) Cf. Japan Environment Summary, Vol. 14, No. 12, 1986, and the article on the compensation system by Weidner in this volume.



- (28) Cf. Miyamoto, 1981: 261-264.
- (29) Cf. the experiences made in Silicon Valley, California.
- (30) Cf. Japan Environment Summary, Vol. 15, Nos. 5 and 8, 1987.
- (31) Miyamoto, 1981: 237.
- (32) Reich, 1983: 206.
- (33) Cf. Mishan, 1971; Mishan, 1969; Jarrett, 1958; Kapp, 1950; Coase, 1960.
- (34) Cf. Leipert, 1987; Tsuru, 1976b. For environmental damage costs in the Federal Republic of Germany see also Wicke, 1986.
- (35) Cf. Dolan, 1969; Dales, 1968.
- (36) Cf. Boulding, 1966. See also Commoner, 1971.
- (37) Cf. Carson, 1962, and Meadows et al., 1972.
- (38) Cf. especially Downs, 1972.
- (39) Cf. OECD, 1985: 242.
- (40) Ibid, pp. 241-244.
- (41) Cf. the Appendix in this volume (taken from Japan Environment Agency, 1986: 248-275).
- (42) Cf. Weidner, 1981.
- (43) Cf. Gresser et al., 1981: 229-242.
- (44) Cf. the introduction (Einleitung) by Mayntz in Mayntz, 1980: 5-6.
- (45) Cf. Ewringmann & Schafhausen, 1985; OECD, 1980; Schneider & Sprenger, 1984.
- (46) Cf. Reh binder & Sprenger, 1985; Bonus, 1981; Oates, 1984; Liroff, 1980.
- (47) Cf. Salzwedel, 1982.
- (48) This is especially true for the area of air pollution control policy. Cf. Japan Environment Agency, 1986: 90-108.
- (49) OECD, 1985: 243-244.
- (50) Cf. the corresponding contributions in Baumann, 1986.

- (51) OECD, 1985: 248.
- (52) Ibid, pp. 247-248.
- (53) Ibid, p. 247.
- (54) Cf. Jänicke, 1986; see also the contributions by Wengert and Ingram in Kury, 1985.
- (55) Lummert & Thiem, 1980.
- (56) OECD, 1985: 258.
- (57) Economic Commission for Europe, Economic and Social Council, Draft Regional Strategy for Environmental Protection, etc.; (ENV/R.1985; 17th March 1987), Geneva 1987: 33-34.
- (58) Cf. Commission of the European Communities, 1987: xv-xvi, 32-33; Amtsblatt der Europäischen Gemeinschaften C 30, 30. Jg., 18.3.1987.
- (59) Cf. Cupei, 1986; Kennedy, 1986; Jarass, 1987.
- (60) Cf. Rehbinder & Stewart, 1985: 104-108.
- (61) Cf. Spindler, 1987; Rat von Sachverständigen für Umweltfragen, 1987.
- (62) OECD, 1985: 242.
- (63) Cf. Jörissen, 1988: 19.
- (64) Cf. Jörissen, 1988, as well as Rehbinder & Stewart, 1985, for further references.
- (65) Cf. Jörissen, 1988; Cupei, 1986; Rehbinder & Stewart, 1985; and Jarass, 1987.
- (66) Cf. Japan Environment Agency, 1979: 99; and the contribution by Nomura, Inoue & Ogano in this volume.
- (67) Cf. Gresser et al., 1981; 229-279, 376-377.
- (68) OECD, 1985: 241.
- (69) Ibid, pp. 252-253.
- (70) Ibid, p. 248; OECD, 1987: 299, 301, 339.
- (71) Japan Environment Agency, 1986: 280.
- (72) Cf. the various reports "Quality of the Environment in Japan" published by the Japan Environment Agency since 1971, as well as OECD, 1977.

- (73) Cf. Japan Environment Agency, 1973: 14.
- (74) OECD, 1985: 240.
- (75) Cf. Weidner et al., 1987, and the references therein.
- (76) OECD, 1985: 267. See also International Energy Agency, 1987.
- (77) Japan Environment Agency, 1988: 57, 117.
- (78) Cf. Weidner et al., 1987: 300-304.
- (79) Cf. Kelley et al., 1976: 124-130. See also Roos, 1971: 52-63.
- (80) Cf. Watts, 1987; Kommission der Europäischen Gemeinschaften, 1983; Rüdig, 1988. For a socio-historical explanation of the Green movement see also Galtung, 1986.
- (81) OECD, 1985: 255, 258.
- (82) Cf. Steiner et al., 1980.
- (83) Cf. the contribution by Jun Ui on antipollution movements in this volume.
- (84) Pierce et al., 1986: 443.
- (85) Cf. UNEP, OECD, EEC, ECE, and World Commission on Environment and Development, 1987; Conservation Foundation, 1987; DOCTER, 1987; World Watch Institute, 1987; Council on Environmental Quality, 1980; Malone & Roederer, 1985.
- (86) Cf. OECD, 1987: 325-331.
- (87) Ibid; see also World Commission on Environment and Development, 1987.
- (88) Cf. Knoepfel & Weidner, 1985; Vogel, 1986; Weidner, 1986; DOCTER, 1987; Enyedi et al., 1987; Jänicke & Mönch, 1988. See also the official State of the Environment Reports published by the governments of various countries.
- (89) Caldwell, 1984: 12.
- (90) OECD, 1985: 244.
- (91) Cf. World Commission on Environment and Development, 1987.
- (92) Environmental Data Services Ltd. (London), ENDS-Report 147, April 1987, p. 12.
- (93) Upham, 1982: 186. See also Gresser et al., 1981: 353-385.

- (94) Cf. Environment Agency, 1988: 53-67.
- (95) Ibid, p. 85.
- (96) For this and the following information see Environment Agency, 1988.
- (97) Ibid, p. 60.
- (98) Ibid, pp. 60, 121.
- (99) Environment Agency, 1986: 225.
- (100) Environment Agency, 1988: 64.
- (101) Cf. Schneider & Sprenger, 1984: 41-73.
- (102) Cf. Bardach, 1977; Barrett & Fudge, 1981; Mayntz, 1980, 1983; Majone & Wildavsky, 1978.
- (103) Cf. Schnaiberg, 1980.
- (104) Cf. Jänicke, 1985; O'Riordan, 1985.
- (105) Cf. OECD, 1977. It must, however, be noted that this investment policy was partly pursued to accelerate economic growth and was maintained even in phases of a general economic slowdown as part of general industrial policy to modernize the country's industrial structure. the intention was to shift the emphasis from resource and energy intensive, heavy industries to 'knowledge-based' industries requiring less inputs of energy and raw materials.
- (106) Ibid, p. 67.
- (107) Ibid, p. 87.
- (108) Cf. the contributions by Ui and Miyamoto in this volume.
- (109) Cf. Miyamoto, 1983: 5.
- (110) Cf. the contributions by Awaji and Ueki in this volume.
- (111) Cf. O'Riordan, 1985.
- (112) Cf. McHale, 1970; Mayer-Tasch, 1974.
- (113) Cf. McKean, 1981; Pempel, 1977.
- (114) Cf. Rehbinder, 1988.
- (115) Cf. Weidner, 1987.
- (116) Jänicke, 1986.

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