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## POLLUTION CONTROL IN JAPAN

Helmut Weidner, Director of Research Unit: Evaluation of Environmental Policies in West European Countries and Japan, Science Centre, Berlin

Thank you very much for your flattering introduction. My presentation is on major policy instruments for pollution control in Japan. I will mainly focus on those policies and instruments which have been developed since the 1970s.

The road from the 'ecological ignorance' of Japanese government and industry to, in the end, an active, technocratic policy approach that has made Japan a pace-setter in certain pollution control areas was long, and for the population, often very painful, especially in the 1950s and 60s when the Japanese people had suffered terrible experiences from environmental destruction. In a tremendous effort to mitigate damage to health and the environment, Japanese local and central governments have, however, developed some internationally unparalleled political and technical measures. We do not have enough time to go deeper into the very interesting details of the history of Japanese environmental policy. However, it should be borne in mind that the policy instruments developed in the 1970s in Japan were deeply influenced by the political conflicts at that time. That involved a very strong pressure on government and industry from the population to achieve positive, visible results in a very short time.

A strong incentive for basic changes in environmental policy was also given by court decisions in the so called 'Four Major Pollution Trials' initiated by pollution victims. The four trials involved two cases related to 'Minamata disease', caused by mercury pollution, the Hai-Hai case, related to cadmium pollution and one case dealing with respiratory diseases caused by air pollution, especially sulphur dioxide from several industrial plants - the so-called 'kombinato', in the city of Yokkaichi.

Except for one case in which the law suit was based on liability as defined in the Mining Law, the plaintiffs had to resort to civil court action but they won all four trials because the judges departed from prevailing legal opinion, changing it in favour of the citizen. Some of the new principles that have decisively marked Japanese environmental policy since then are:

the use of statistical or epidemiological proof of causality in the place of the strictly scientific proof of cause and effect between a certain concentration of toxic substances and the damage being claimed;

the non-consideration of fault or negligence in deciding liability, the so-called 'Principle of Strict Liability';

the recognition of each polluter's broad liability for

interacting emissions - the 'Principle of Joint Liability';

the introduction of rigorous standards of caution to be applied even to activities where danger was merely postulated rather than demonstrated;

the far reaching alleviation of the victims' burden, when it comes to establishing the legal and actual basis for a claim to compensation; that is the principle of 'Reversing the Burden of Proof' in certain circumstances.

On the whole the judges involved in the four Pollution Trials ruled in favour of the plaintiffs. In some cases the firms involved had to pay enormous sums of compensation. The court decisions had profound political impacts because the government and industry feared that stricter liability principles could precipitate a series of disputes which could seriously hamper corporate decision-making and make long term planning of industrial policy, the cornerstone of Japanese economic policy, all but impossible.

The government responded with a relatively radical switch in its environmental policy. This phase of an active technocratic environmental policy began with a flurry of Parliamentary activity, in which 14 environmental protection bills and regulations were passed in a special session of the Diet. Co-operating closely, the central government administration and the relevant industrial sectors established short term objectives for improvements in environmental quality and the strategies required to achieve them. Some of the world's most innovative regulatory instruments were created, including the area-wide total pollution load control system for air pollutants and discharges to water bodies. A law on environmentally sensitive chemicals was one of the first in the world. A cost apportionment scheme for firms involving preventative and remedial measures and also very strict standards for environmental quality and emissions was introduced. So was a compensation system for health impairments caused by environmental pollution. This was partly based on fees charged for emissions of sulphur dioxide. Responsibility for developing environmental policy was given to the Environment Agency, established in 1971. However, much of the control power in this area remained with other ministries, especially the Ministry of International Trade and Industry and the Ministry of Construction.

I would now like to provide some more information on the policy instruments that I have just mentioned, dealing firstly with the area-wide total pollution load control system. The basic aim of this system is the reduction of pollution loads from certain pollutants creating chemical oxygen demand in water bodies and acid gas pollution in the air, in highly polluted areas which are specified by the central government. The prefectural governments of these regions were called upon to work out special programmes fixing envisaged reduction in emissions and time limits for achieving these reductions. On the basis of these programmes the

permitted amount of emissions is individually determined for each of the larger stationary emission sources. The concerned companies are free to decide which emission abatement measures they wish to apply to which specific outlet. This brings a lot of flexibility to business decisions. Considerable decreases of emissions from plants have been achieved by this system.

However in the case of nitrogen oxides, where a system of total emission load control was introduced in 1981 for three urban agglomerations, the envisaged ambient air quality standards could not be reached within the set period of time because of automobile-originating air pollution. This cannot be so easily controlled and traffic is one of the most problematic areas in Japanese air pollution control policy.

The second system is the so called 'cost apportionment scheme for firms', enacted by law in 1970, to provide that private firms pay for part of the costs paid by public authorities to safeguard or to improve the environment. The firms contribute according to their degree of causing the need for restoration measures. In general, this system is used for construction of green belts, management of contaminated sludges and sediments, reclamation of agricultural land, and sometimes the movement of residences away from factories. To give one example, the dredging of polluted sediments from the port of Tagonoura amounted to a cost of 500 million yen. 80% of the cost was shared by 158 industries in that area.

The third and most famous system is the compensation system for health damage caused by environmental pollution. Japan is still the only country with a special law to regulate a comprehensive compensation system for health impairment caused by environmental pollution. This law went into effect as early as 1974 and provides for certain injuries to be compensated on a regulated scale reflecting the severity of the disability. On the basis of this law, compensation payments and other benefits have been received by over 99,000 persons in 1987, 97,000 of them because of respiratory disorders. For damage due to air pollution the approach to apportioning costs is highly interesting because it is based in part on the 'Polluter Pays Principle'. Costs are covered by a compensation fund financed by fees charged to sulphur dioxide emitting firms exceeding a specified size. The rates they pay depend upon the affected area and the number of certified pollution victims. Air polluters in polluted areas must pay considerably higher fees per unit of emission than their counterparts in less polluted areas.

Because of considerable problems over the time of implementing this system, the compensation system for air pollution was recently substantially modified. The problems, just to mention a few, have included the number of certified victims increasing tremendously over time and also the fees to be paid by industries have increased, but the sulphur dioxide emissions decreased, especially emissions from large combustion plants, so that over the years firms were paying a lot more money for less emissions.

The second problem was that newcomers, new firms which had not

been responsible for any of the problems of the past, also had to pay the same fees as long standing firms. Furthermore, in certain areas there developed a 'free rider syndrome', that is some people wanted to be certified as pollution victims while their diseases seem mainly to have been caused by smoking or other things. However it is only fair to mention that there have also been problems on the other side with some pollution victims unable to get a fair acknowledgement of certain health impairments. As mentioned, after a long and heated debate in Japan, the system was substantially modified. In September 1987, a law to abolish the air pollution compensation regions, that means the regions in which those suffering from air pollution were entitled to compensation, was passed by the Diet. It was enforced in March 1988. As a consequence no new persons will be entitled to compensation. However, those already receiving it will still get compensation.

Aside from such regulatory types of policy instruments, Japanese environmental policy employs other instruments for policies that are unique worldwide. Because of their key role in Japan's environmental policy system, two of these instruments - the so-called 'Anti-pollution Agreements' and the 'Environmental Monitoring and Reporting System' are worth looking at in detail.

Let us take first the anti-pollution agreements. The environmental responsibilities of Japanese firms derive not only from conditions imposed by the government and responsible authorities. There is also broad leeway for prefectures, local governments and also citizen groups to venture into direct negotiations with representatives of proposed or existing plant to, so to speak, reach private agreements concerning environmental initiatives many of which go far beyond what is legally required. Sometimes the standards fixed in such anti-pollution agreements are two or three times stricter than the national standards for air pollution emissions, or toxic substances in water. Of course, the national standards themselves are also very strict in the first instance.

The number of such agreements grew rapidly throughout Japan from a few in the late 60s, to 854 in 1970, to about 25,000 in 1986. The local Japanese authorities and grass-root groups consider the anti-pollution 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, namely the environmental situation and special political and social preferences of the neighbourhood, and also the economic and technical capacities of the affected firms. In this regard such agreements are the expression of a decentralised on-site environmental policy.

The agreements are not legally binding in the strict sense of civil and public law. They are gentlemen's agreements. Even so, it is relatively rare that a firm will fail to honour them. 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 recording through which plants

polluting the environment run a high risk of being detected.

The successes of Japanese environmental policy cannot be fully explained without mentioning this comprehensive modern system of providing environmental information. The gathering, processing and publishing of environmental data including information on health impairments and damage to nature as well as on ambient air and water quality and on emissions from specific factories and power plants, 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. Not only environmental quality but also emissions of large plants are continuously monitored and the data are automatically transmitted to the responsible authorities on an hour by hour basis. Most of the data are open to the public.

As far as one can tell, the Japanese information system has decisively increased the influence of citizens and responsible authorities as well, on environmental protection issues without swamping firms with a wave of impossible demands. The only firms disadvantaged by the disclosure of environmental data are those doing little to protect the environment. Furthermore, transparency on environmental developments is a fundamental prerequisite for the ability of citizens to bring about rational decisions, for example on which products, from which firms, they want to buy. To generalise the findings of our institute's research on the importance of environmental information systems, I can say that a comprehensive information system is a basic condition for the development of flexible, cost-minimising policy instruments. It also can replace measures of a formalistic, bureaucratic nature and, last but not least, nurture a basic principle of democracy.

Finally, can I say a few words on achievements and remaining problems of Japanese environmental protection policies. Japan's environmental protection regulations are generally stricter than many industrialised nations, as we have seen. Moreover, investments in environmental protection are much higher in Japan than many other countries and have had favourable effects on Japan's national economy in general. Negative impacts of certain policy instruments on economic growth, employment, currency stability, technological progress and exports seem to have been slight. Overall, the benefits of environmental protection policy to the national economy outweigh negative effects. The strict limits on emissions, for example, gave industry and utilities a powerful incentive to conserve energy, an outcome which worked especially well in Japan's favour during the crises in oil prices. Court rulings and grass roots opposition to the heavily polluting industrial sectors caused a general shift in industrial policy. Ancient industrial plants were subjected to a wave of modernisation. Japan's cars were early on equipped with catalytic converters. Almost all large combustion plants are fitted with flue gas desulphurisation and denitrification plants. The strict environmental measures gradually stimulated a structural change in industry which has enabled Japan to weather the global economic crisis better than many other nations.

Despite considerable reductions in the emissions of environmental pollutants, undoubted improvements in environmental quality and pace-setting achievements in environmental protection technology, there are still several unresolved problems in Japan. To mention just the most important ones, the country's water bodies still contain a very high level of organic substances and noise pollution occurs almost everywhere. Domestic and industrial waste is mounting and disposal sites are rare in densely populated Japan. Wildlife conservation and protection of the landscape have made little progress compared with European countries. Despite an ambitious nuclear energy programme, the nuclear waste problem is still far from being solved. There are still no comprehensive regulations for pollutants specific to the so called 'high tech' industry. As we know from cases in 'Silicon Valley' in the USA, the high tech industry is not necessarily a clean industry, for it uses toxic substances such as cadmium, arsenic and so on. Furthermore there are increasing signs that the success rate of environmental policy is levelling-off in a formerly successful area. Nitrogen oxides concentrations are on the increase in some urban agglomerations, due to vehicle exhausts.

An assessment of Japanese environmental policy reveals that much has been done to reduce emissions of traditional air pollutants from industrial and mobile sources and of toxic substances from waste water outlets. 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. In 1977, the OECD produced a report on environmental policy in Japan that summarised that the situation with the following statement 'Japan has won many pollution battles but has not yet won the war for environmental quality'. Now 11 years later this statement still holds true.