

T h e P r i v a t e S e c t o r
i n E n v i r o n m e n t a l
P o l i c y m a k i n g
i n J a p a n *

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EXECUTIVE SUMMARY

1. This article is dually scoped. Its first two chapters look into the process of policy-making and institutional change Japan has come through since the 1970s. The remainder is intended to get a grip upon the current "state of mind" prevailing in the Japanese business community in regard to the yet somewhat "missionary" notion of international technology transfer for environment and development in the third world.

2. By way of Introduction, a brief critical reflection is presented upon one of the earlier studies concerned with the comparative politics of environmental policy-making in Japan and the United States: Pharr and Badaracco's thesis on "adversarialism versus cooperation" in the government-industry relations (in Thomas McCraw ed. AMERICA VERSUS JAPAN, 1986). While Samuel Kernell's PARALLEL POLITICS (1991) offers another, and more broadly scoped, comparative political perspective, we feel the need for a sharper focus on the process of *collective learning* in each country, since our major interest now lies in not just another fancy way of contrasting the two political cultures, but in seeing how to make a "regime change" evolve toward a sustainable new world order.

3. While the environmentalist enthusiasm subsided in both Japan and the United States after the Oil Shock, the wheel has been kept turning in Japan thanks to the

initiatives taken by the Environment Agency. Born out of the Ministry of Health and Welfare, the Agency has mounted an increasingly "value-oriented" challenge against the economic growth paradigm of post-war Japan, with its tacit alliance with the pollution-affected patients' groups, the citizens' groups always suspicious of the "heavy-riding" of the prosperous industry, and also the anti-regime opportunist opposition party politicians.

4. The struggles over anti-NOx control are recalled here as a reminder of the problem of scientific uncertainty in the context of environmental regulation - a major stumbling bloc being envisaged in the formation of an anti-greenhouse gas regime. The revision of the 1973 Act on the Reparation for Environmental Health Hazards is taken up as an indication of the creeping process of social value change during the 1980s. The 1987 revision signals a shift in Keidanren's leadership toward the "strict liability" principle of the U.S. Superfund type, which industry has come to accept as a matter of its "social responsibility".

5. The ill-fated bill on "Environment Assessment" is dwelt upon as a manifestation of Japan's institutional culture, and the more or less self-imposed role of private industry in the predominantly producers-oriented public policy environment. That is to say, industry would rather "internalize" the rules and procedures for environmental assessment and even make educational ef-

forts to induce a change in consumers' tastes toward ecologically sound products and services. This resonates well into the 1991 Keidanren Charter on Global Environment and the in-firm environmental charters that have come into effect to buttress it in the recent years. Focus there is on the notion of eco-auditing internalized into the corporate management routine. Here Japan may be said to be more comparable to countries like Germany and Switzerland than the United States where "compliance audit" seems still in currency.

6. The leadership toward a new industrial ethic (which includes not only eco-auditing but also an urge to adapt to the requirements of "international cohabitation") seems to come more strongly from major corporate executives than from the government bureaucracy today. In the latter the decision style remains still predominantly of the "bottom-up" type, coupled with inter-ministerial rivalry. Leading LDP politicians, too, have joined the tide, speaking out more audibly than before for a grand scheme of political reform that would help billet truly important external policy matters (such as international security and environment) on the legitimate agenda for political debates.

7. Industry is aware of the limit to internalization of the new ethic. One of the issues over which it betrays its self-inconfidence is that of carbon taxes. Here industry's voice is consistently low and sceptical, and suddenly sniveling to the Reganese cause of "deregula-

tion". This is no surprise, however. As Samuel Kernell once noted quite emphatically, "the politics of tax reform in Japan resembles more the image of America's discordant politics than the image of calm progression toward consensus commonly ascribed to Japanese politics."

8. The newly expanded cluster of environment-oriented *zaidans* - non-profit third-sector institutions - are reviewed briefly in terms of their role in the industry-government relations. In a way these *zaidans* serve as a podium for collective learning onto which private industry tries to "externalize" their ethical burden (including such notion as "philanthropy"). But the podium remains essentially internal to member firms to the extent that they are financially responsible for it. This act of quasi-externalization might be characterized as an act of "organizational hypocrisy" which tends to be invoked when firms' actual action capacity fails to meet the requirements of their socio-political legitimacy. Certainly here is a contrast against the U.S. ways of doing whereby philanthropical acts are almost totally externalized away out of the daily profit-seeking operations onto highly professionalized independent non-business NGOs.

9. The subject of technology transfer has an aspect of relevance to our preoccupation with the policy process. But the present stage of the evolution of international "eco-business" is such that the political market for it,

if not to speak of the economic one, is not mature enough as yet to make that aspect analytically interesting. This holds true even around the giant smokestacks in China and Russia. The third chapter, which constitutes a good half of this article, addresses basically the following two sets of questions:

10. The first one is concerned with such questions as: Do we have appropriate environmental technologies that can be more or less readily transferred to the third world? And how far can we count on the private sector in that matter? The second facet of the technology transfer issue relates to a much tougher question, such as: How can we go about the environmental diplomacy with big problem countries like China and Russia? Are there any signs that private industry should be more agile than government to create ways of cohabitation with those still less than fledgling alien models of capitalism?

11. Here "technologies" are meant to include both software and hardware. A fairly detailed diagnosis is provided by way of an interim evaluation of one of the on-going programs for the transfer of environmental technology and experience to developing countries: ICETT at *Yokkaichi*. The evaluation comes with more warnings than promises. Indeed, the ICETT initiative itself deserves a great deal of eulogia especially with respect to the mobilization of the experience and expertise of "locally focussed action" for international development

cooperation. But the setup could be both more efficient and more effective if it were placed in a multilateral cooperation network like the Consultative Group for International Agricultural Research (CGIAR).

12. As for the corporate initiatives in the Chinese landscape, the subtitle of section 3.c - "Between an ethical push and a realist scepticism"- may speak well of how things are or are not moving. There is apparently a long way to go before we see a politically well-committed, and economically responsive, market emerge in China for improved energy and environment technologies, new or intermediate. As far as low-cost clean coal technologies are concerned, the United States may be seen to have a broad edge of comparative advantage over Japan, to the extent that a sizable domestic market exists for such technologies in the United States. Japan and the United States together could fulfill the mission far more effectively than each will individually.

13. As for Russia, some forward initiatives on the part of Japanese industry are becoming visible, although limited in scope. The "standstill" option, which currently dominates the scene, seems to be embedded far more broadly, and no less intractably, than the Northern Territorial issue.

1. Introduction: "Adversarialism versus Cooperation"

1.a Pharr & Badaracco(1986)'s Japan-U.S. Comparative Study on Environmental Regulation

This excellent contribution to the comparative study on the environmental policy processes in Japan and the United States was focussed mainly on the shifting government-industry relations during the period through the mid-1970s.

The "tacit collusion" between industry and government against the victims' groups during the pre-regulation days (until the mid-1960s) was meant for joint negligence, or avoiding facing the problem if only due to ignorance. Amidst the supergrowth fever in the post-reconstruction phase, society was yet unprepared to take the issue of fact regarding the causal links between industrial pollution and public health. By the late 1950s several thousand victims displaying symptoms of organic mercury poisoning in the Minamata district had led a growing protest movement, as the municipal and prefectural governments' special advisory committee with the help of the local science community began to suggest a link between the disease and Chisso Corporation, a major chemical industry in the region. The Ministry of Health and Welfare, with its special advisory committee's report on the "inferred" causal links, was not able to break the wall of tacit collusion between Chisso and MITI until around 1968. A more or less similar story holds for the Yokkaichi air pollution which came into the open toward the end of the 1950s as soon as the huge petro-chemical

industrial complex entered its full operation. (See Section 3.b below for a further detail.)

This phase was followed by the so-called "stormy period" during which the government's policy stance turned increasingly adversarial as against industry. It culminated in the 1970 "Pollution Diet" through which 14 major environmental laws swept. The phrase of "preservation of the living environment in harmony with economic prosperity" in the 1967 Basic Law for Pollution Control was removed. As for air pollution, the earlier law was revised so as to provide that auto emission control standards were to be set by administrative ordinance. The so-called "Japanese Muskie Law", the then world strictest standards, once proposed by the U.S. legislation but vehemently voted away by the American auto industry, was put into enforcement in 1975.

Much of the success in Japan's environmental achievement is indeed attributable to that stormy period of adversarialism. The mounting pressure stemmed from the shocking waves of protests entailing the media, victims' and citizens' groups' movements, court rulings and progressive local administration. During the post-Oil Shock decades, during which the pace of improvement in environmental record slackened in both Japan and the U.S.. This period witnessed a growth of more "cooperative" relations between government and business in the environmental policy process in Japan, which, according to Pharr and Badaracco, has continued all the way into the 1980s, resulting in less impressive accomplishments in environmental legislation than during the period of adversarialism.

In the United States, too, the wall of tacit collusion between

government and industry fell down with the legislative wave of the 1970s. But the government's adversarialism against the straggling industry has continued thereafter all the way till today. The confrontation has even taken such extreme forms as repeated extensions of deadlines for the enforcement of standards, and costly litigation on ever broader front causing long delays in compliance. Even so, this U.S. system may be regarded to have a merit in that it offers a wider (and more formal than in Japan) channel of influence in decision processes by the citizens at large as well as highly professionalized non-business NGOs.

1.b Regime Change: - *Need for a sharper focus on the Historical Learning Process*

One of the possible criticisms to the Pharr & Badaracca approach is that whether the pattern of government-industry relations is cooperative or adversarial is not quite a matter of policy design in Japan. The style of environmental decision making has depended very much on the very nature of the problems envisaged by society in a particular historical phase for one thing, and on the ability of government administration to politically consensualize the available (still never perfect) knowledge base concerning the cause-and-effects relationships underlying public health hazards, for another. No matter whether the overall structure of the decision-making machinery appears cooperative or adversarial, painful negotiations must take place among the concerned parties, within or in the periphery of that machinery. In fact, the antagonism between the citizens in general and industry, as well as the subtle political tension between major metropolitan

autonomies and the central bureaucracy, have continued to serve as an effective motor force for the undaunted value-oriented initiatives that have been taken by the Environment Agency against the country's weathered paradigm of economic growth and efficiency. Substantively speaking, it is that facet of the social negotiation process that would deserve further incisive analysis in the context of a comparative analysis of the environmental policy process in Japan and the U.S..

Moreover, the difference between the two countries in terms of the relative roles being played by the bureaucracy, the politicians and the private business sector seems to be embedded to a considerable extent in the basic difference in the political regime the evolving change of which is a matter of "meta-policy" or what history determines so to speak. The evolution in Japan is framed along the system of parliamentary democracy while that in the U.S. unrolls within the framework of presidential democracy coupled with the strict separation of legislation, administration and judiciary. The implications of this basic difference are fairly well studied in the recent political-scientific literature. Samuel Kernell's recent book is one of the excellent examples in this domain [Kernell 1991].

Particularly interesting in the context of environmental policy would be Roger Noll & H. Shimada's contribution on "comparative structural policies" in that volume. Among their noteworthy conclusions are:

(1) The richer resource base of the U.S. causes it generally to exhibit less concern than Japan about the nation-wide ability to restructure its economy to important noneconomic objectives;

and

(2) While structural policies are substantially influenced by narrow economic interests in both countries, the apparent power and autonomy of Japanese bureaucracy owes to the nation's long-cherished consensus on economic growth and the single-party's control of the government from 1950 until the 1980s, while the U.S. Constitution causes more judicial review, making structural policies more difficult and costly [Noll & Shimada 1991, esp. pp. 228-229].

The "small country" posture of Japan has been prolonged well into the 1970s during which how to allocate the dividend of the post-war supergrowth for domestic social welfare proved a more urgent concern than how to contribute to the governance of international relations. Patchy responses to the never-ending external pressures in the 1980s have gradually built up to engender a shift of gravity in the set of long-term goals to which government-industry coalition is to be steered. The problems of planetary environment, regional and global security and the rapidly aging population structure have come to assume greater salience in the policy agenda of common importance to politicians, bureaucrats and industrialists as well as to the public in general. It is open to question how far the traditional institutional devices for "consensus building" can manage to cope with this change.

For that matter, Noll & Shimada seem to anticipate that the salience of such noneconomic issues should be likely to make Japan a less consensual society and that the structural policies, increasingly detracted from domestic economic well-being, might

become less effective.

In fact Pharr & Badaracca's analysis is grossly incomplete with respect to the gradual, and yet far-reaching, shift which has taken place in the overriding national concerns during the period after the mid-1970s, which the authors touched only superficially. So, before looking at the latest development toward a new Basic Law on Environment, a brief review will be presented in the following section of the legislative struggles over NOx control and environment assessment through the 1980s. Focus was then still on domestic pollution abatement, but the struggles seem to have been instrumental for keeping alive the environmental concern even during the years of Fiscal Reform and thus preparing the society to face the surge of globalized preoccupation with Environment and Development since the late 1980s.

2. The Process of Internalization: the Period since the Mid-1970s

2.a The Struggles over NOx Control:

- Forward Pressurizing under Scientific Uncertainties

The problem of NOx control is yet far from being resolved. The latest survey in Tokyo, Kanagawa and Osaka has revealed that the NO₂ density in these urban regions registered a historical peak in 1991: only 5 out of the total 72 survey points along major highways could clear the government standard of 0.04-0.06 ppm in

terms of daily average; and this in spite of the application of severer standards to auto emission at the unit level since 1978 and the introduction of a total quantity regulation of factory emissions since 1981. In contrast to SOx control for which the shift to low-sulfur fuels and the development of desulfurization technologies achieved unexpectedly rapid results, the NOx problem calls not only measures against fixed pollution sources but also those concerned with automobile pollution which in turn is complexly intertwined with the problems of transportation systems and urban structures. The recent worsening of the NOx record seems to owe to the business boom during the latter half of the 1980s which resulted in a nearly 50 percent increase in the number of diesel buses and trucks in circulation in the Tokyo region.

The Japanese Muskie Law was an outcome of the informal (closed) hearings held by the Environment Agency's Technical Committee on Passenger Cars' NOx Emissions from August to September 1975. None of the nine auto makers was confident then about the technological possibility for meeting the proposed 1978 target of 0.25 gr. per km run. According to Hashimoto, then Director-General of the Agency's Air Pollution Department, the exercise was aimed to stimulate competitive technological development among the auto producers. By the spring of 1976 when the second round of closed hearings was held, all the nine auto makers proudly reported that the 0.25 gr. target had proven achievable. The key to the success turned out to be an improved combustion technology in all the cases, which implied that the NOx regulation had been instrumental for achieving a better fuel efficiency, which later proved an important source of the Japanese auto industry's international

competitiveness [Hashimoto 1988, pp.257-266].

Another noteworthy facet of the story is that the publication of the reports on the hearings was intended for an education of domestic consumers at large, and the dissemination of their English versions to stimulate a process of international legitimization of whatever final outcome might result from the exercise. That tactic did in fact work rather well. The first English publication was financially helped by the Japanese Automobile Industry Association, which apparently hoped that it might help clear the possible overseas suspicion that the introduction of a severer standard would result in an extra nontariff barrier to Japanese auto imports. Both the reports on the second and the third rounds were published domestically and internationally. The OECD review of country environmental policies in November 1976 concluded that the Japanese auto emission regulation, the world most advanced as it was, should not be deemed as a nontariff barrier.

The story is not complete, however, confides Hashimoto, without mentioning the growing grievances of automobile noises and smogs by residents along traffic roads, and also the efforts of local emission surveying and assessment of abatement techniques voluntarily conducted by Tokyo, Yokohama and five other metropolitan cities.

The situation of diesel buses and trucks has been somewhat different. The unit-level NOx standards for those large vehicles were set in two stages (late in 1977) and cleared by 1986. But the increased vehicle longevity (a little over 8.5 years as of 1981) has made the new-vehicle regulation rather ineffective. Even local

autonomies have continued to be lukewarm in coping with the environmental impact of the public transportation system for which economic efficiency and safety remain an overriding concern even today.

Besides, the Environment Agency, being responsible mainly for the public health and other social impacts of pollution, is always faced with the difficult task of reconciling the insight from the endemic science with the logic of law-making as well as the ethic of public administration. The task was particularly strenuous as Japan was the first to tackle the NO_x regulation from the public health standpoint while no precedent existed elsewhere in the world. Furthermore the available scientific knowledge base was far from being consensual even among scientists; still more so internationally. Setting fast standards in relation to widely varying geographical and climatic conditions would become possible only after a far greater accumulation of empirical evidence than what exists today, as well as of politico-economic wisdoms from the collective learning processes going on in different parts of the world.

The WHO-UNEP specialized committee on the conditions for judgement of the NO_x impact on human health, held in Tokyo in August 1976, hesitated to suggest any definitive quantitative benchmark then. It suggested the need for further empirical investigation before judging which should prove more plausible, the current U.S. standard of 0.05 ppm or the Japanese precedent of 0.02 ppm (in terms of annual average) which had happened to be established amid the earlier stormy period.

The Environment Agency's specialized scientific committee on

this matter started its deliberation in May 1977 and reported 10 months later with an "agreed-upon" guideline set between 0.02 and 0.03 ppm. The empirical evidence accumulated within the country by that time was not claimed to be adequate for rigorous scientific verification. Industry reacted vehemently by stressing the need for international consistency in standard setting and the absurdity of any severer standard than the American and European 0.05 ppm. Local governments were rather at a loss except that they would abhor any decision that might shunt the citizens' confidence in government administration. Citizens' groups reiterated their opposition to any move to dilute the standard of 0.02 ppm. MITI's Advisory Council on Industrial Structure stepped in to take up the issue through its own subcommittee on NO_x Pollution Prevention. That move had been welcomed by industry. That subcommittee emerged with what might serve as a sort of target range for political compromise that could be interpreted to lie between 0.025 and 0.04 ppm in terms of annual average.

The controversy became highly politicized as it entered the Diet, but the Environment Agency's initial proposal of the 0.02 - 0.03 range was not defeated. In retrospect, one may venture to say that, in the absence of the help of rigorous science or well thumb-marked international standards, the end result could only be a human agreement. There was little reason for forgoing the possible ratchet effect of the once enforced agreement even under a considerable degree of scientific uncertainty as long as it promised something no worse than the present.

2.b Revision of the 1973 Act on Environmental Health Hazard
(Kokenhou):

*- Towards a System of Collective Responsibility for
Preventive Environmental Policy*

The 1972 Act on Non-fault Responsibility which was intended to facilitate the judicial decision process regarding environmental health hazards and reparative settlements. The Act exonerated the process of verifying the fault or negligence on the part of potential pollutor agents (which is based on the so-called principle of "strict liability"), but it still required the plaintiff to prove at the courts the causal links between his particular health hazards and the locally prevailing environmental pollutions. It is always less easily done than said to integrate the knowledge and judgements from different medical sciences (clinical, basic, experimental and endemic medicines) into administratively manageable (and fair) criteria. The patients' burden of verification of environment-disease causalities was lessened by the adoption of an "area designation" approach.

The Act also incorporated the principle of "joint liability" in that reparative duties were assigned, in the spirit of civil action, to all the potentially responsible parties, in particular country-wide industrial establishments as they were considered as major fixed-source air polluters. In those days the rate of athmatic and other respiratory complaints (associatable with the diseases specifically designated for legislation purposes) showed a stronger correlation with the SO₂ density of the air. So the reparatory contributions have been levied for each case at issue

in proportion to the quantities of SO₂ emitted by individual fixed-source establishments.

That legislation was an outcome of the syncretized pressure that had arisen during the stormy years from the political community (both LDP and the opposition parties), from within government administration, both central and local, as well as from patients' and citizens' groups, with the Keidanren and other industrial associations following suit in the movement unexpectedly quickly.

However, the Act became less and less sensible as the environmental conditions in most of the once designated areas got quickly improved in the subsequent years. By the 1980s its *raison d'être* was eroded by the ever increasing weight of moving-source polluters - particularly trucks and buses in urban pollution. Levying on fixed-source agents turned increasingly unfair as it was those fixed-source agents who had made particularly great efforts to bring about the now considerably improved environment. By 1981 the SO_x emission in the designated areas had been reduced to a one-twelfth of the 1973 level, although the number of acknowledged patients increased more than five times during the same period. The public and private transportation and distribution systems were posing an almost intractably difficult problem, both politically and economically, in the anti-NO_x context, for which the individual vehicle level regulation alone would no longer be adequate.

The reparation to the already acknowledged patients had to continue, and there was also the need for a more stable source of funds for implementing longer-term, "preventive" environmental measures in a fuller scale: such as the diffusion of low-pollution

vehicles, rationalization of transport and distribution systems, and other measures to tackle complex urban environmental problems, as well as improved medical care for patients' accelerated convalescence.

It took a 39-months long laboring by the Environment Agency to produce an agreeable amendment to the 1973 Act. Industry welcomed the proposal of total rescission of the area designation, while local autonomies were ill at ease at it. A new special fund was proposed for long-term steady policy action, yet without bending the principle of joint civil liability on which the 1972 Act was based. The proposed ¥ 50 billion fund was to be borne again by industry, rather than consumers in general. The negotiations with the automobile industry which was proposed to represent all the moving-source liability for convenience's sake, proved particularly tough. Keidanren succeeded in persuading the fixed-source industrial emitters to take up to 4/5 of the burden if only for the cause of "social responsibility". [Okazaki 1990, pp. 57-108] The auto industry conceded soon after that commitment had come into the open. The revision was enacted in 1987.

By that time the compensations being effected annually for the authorized patients (totalling to some 98.7 thousand) amounted to ¥ 104.4 billion.

2.c The Problem of Environment Assessment:

- *an ill-fated Bill Prompting an Internalization of Preventive Environmental Practice*

The 1970 U.S. Law on National Environmental Policy introduced the concept of "assessment" signifying something more than just "prevention". Apparently it was meant for a legal warrant for the citizens' direct participation in environmental decision processes. In Japan, studies on the techniques of environmental impact analysis and their application in the context of the appraisal of regional development projects began in conjunction with the comprehensive survey mission mounted in 1964 to check the development plan in the Mishima and Numazu region. By the mid-1970s the actual practice reached already a level of technical severity that was being acknowledged in the OECD fora as the world most advanced [Hashimoto 1988, p.325]. But the assessment procedures were not yet backed by any specific legislation at the national level. The practice was still generally based on the pollution prevention ordinances of local autonomies which provided for case-by-case agreements between them and the specific industrial parties to be involved in local developmental projects.

The Environment Agency's Central Council for Pollution Abatement Measures was requested to examine the possibilities for institutionalizing the process of environmental assessment, or more precisely "appraisal of environmental influences" - a softer terminology adopted to de-emphasize the negative connotations of the American type of assessment. The Council put forward its recommendation amid the reactionary atmosphere prevailing in the post-Stormy Period. Prime Minister Ohira took a forward policy stance and put the matter for deliberations by the Ministerial Council, as well as the LDP Policy Research Committee. After one year-long deliberations the Agency's draft got mutilated bit by

bit so as to weaken the scope for the Agency's intervention, and to leave aside totally the electricity affairs in the end.

The bill failed to clear the Diet three times from April 1981 through November 1983. Industry and LDP remained lukewarm for fear of its possible consequences for the litigation-oriented citizens' movements. The opposition parties postured indignantly negative for fear that the bill should serve only as an acquittal for less than ideal assessment procedures. Local autonomies also feared lest any inconsistency between the bill and their local ordinances should just enervate their authority. The public in general seemed to have lost their earlier sense of environmental crisis already for some time.

The wrestling with the bill lasted long enough to permit central government ministries and agencies to move ahead to "internalize" the rules and procedures of environmental assessment within their respective jurisdictions. By 1983 the situation appeared such that a national legislative action would have added very little to what prevailed in the actual practice. In the end the part and parcel of the assessment bill was adopted only in the form of a cabinet decision (August 1983) that would exert no legal obligation although instructive to public administration. [Hashimoto 1988, pp.327-333]

That society-wide hesitation may be accounted for by several other substantive factors. Firstly, the exigencies of the densely populated land conditions seem to leave little room for the American type of time-consuming pluralist approach to conflict resolution. Secondly, the Japanese legal system more readily fits for the permission and authorization system of development

administration as in the case of some European countries, than for the check-and-redo approach to project development and optimization in the United States [Toshio Kojima 1991, pp. 46-51].

The lack of a tradition and societal experience in formal full-fledged "stakeholders' dialogues" for flexible pluralist solutions is still another important reason. Public administration in Japan has evolved with a weathered tradition of the Advisory Council approach drawing upon a relatively small number of knowledgeable participants instrumental for consensualization of views on the technical issues involved in each key decision-making. As Pharr and Badaracco (1988, p. 257) stress, it is "closed to most outside groups", even though they stay active in a "remarkably informal" fashion in exerting indirect influences to turn the tide to them. As a consequence the administrative information system is internalized within government and little legal basis exists yet for making it open to the public. The Assessment bill was originally meant to challenge this very culture of the Japanese administration.

These cases illustrate the repeatedly frustrated, yet unyielding initiative-taking of the Environment Agency officials and the basic problems encountered in their essentially value-oriented struggle for environmental norm-setting. Thus, adversarialism has continued well into the 1980s in Japan, too. Although it has become less stormy and reconciliatory negotiations have gradually engendered an overall framework of cooperation, the process has managed to remain progressive somehow, even without much of an eye-opening legislative venture. Besides, the two private *memoires*

published recently by Hashimoto and Okazaki, both having been once among the leading officials of the Environment Agency, are quite revealing about the ways in which each new initiative had to fight its way in the process of legislation. The two memoirs would make a strong impression on the reader that the social change accompanies devoted micro-level change agents - leadership-taking personalities who jam themselves against the inertial wall of resistance to change. This is an important facet of the slow but steady progress achieved in the post-Storm phase, which the cold-hearted interest group model alone would fail to bring into sight.

The achieved environmental record might look unimpressive as technological solutions were quickly approaching a phase of decreasing returns. But in terms of input into the social decision process that much greater effort was required to keep the wheel turning. It is after this decade-long struggle that the Japanese society emerged with a broadly shared enthusiasm about the global environmental issue towards the end of the 1980s - a new dimension that stretches great distance beyond the local pollution abatement affairs.

2.d An Era of Value-Oriented Executive Leaderships

The preparatory process for the 1992 Rio Conference on Environment and Development resonated broadly into the Japanese society which had spent almost two decades in brooding over how to do with a surplus country's "international responsibility". The Conference was offering a critical part of the new frame of consensus building on what should stand as overriding long-term

goals for the nation to pursue, in place of the long thumb-marked ones centering in the postwar economic recovery and then domestic distribution of the dividends of growth.

In spite of Japanese industry's growingly triumphant feeling about its achievements in domestic pollution abatement and energy efficiency, its overseas image appears to leave still much to be desired, with the accusation of its free-ridership in international society looming back at every sign of its never weakening economic resilience. The CERES call for environmentally responsible economic behavior, and the ICC-WICEM initiatives towards the Rotterdam Charter, were almost synchronized with the Keidanren initiative to build a Japanese version of Global Environmental Charter.

In-firm Charters on Sustainable Development and Eco-audit

The new chairman, Mr. Hiraiwa, came to Keidanren with a new trilogy, "Globe, Market and Humanity". This new industrial ethic, with the help of its secretariat's agile assistance, gave rise to a series of consensus building exercises among the executives of its 1,000 leading member companies. The effort resulted in the Keidanren Global Environment Charter, published in April 1991, around the same time as the Rotterdam Charter was being adopted.

The Charter has 24 specific pointers for action in 11 distinct areas of environmental concern. In a nutshell it provides for concrete steps to be taken in order for its members to internalize the rules and procedures for ecological assessment into their respective corporate management routines. It includes also a set of guidelines for the Japanese enterprises operating overseas.

Just one year later, the Keidanren secretariat undertook a follow-up survey to see how the member firms were making use of the Charter.

According to the survey [Keidanren, 1992], more than 70 % of the members have used the Charter as a model for their respective company charters. Incidentally, the survey reveals the fact that a sizable proportion of the members had already instituted their own in-firm setups for environmental assessment well ahead of the Keidanren Charter. By the late 1980s, some 54 % of the firms had established own executive posts in charge of environmental issues; 44 % equipped with specialized in-firm assessment staff units; and 31 % operating with self-governing targets or plans for reducing the load on the environment. Evidently, the Keidanren Charter was not just an ethical exhortation for the sake of corporate image buiding but itself constructed as a forward-looking syntheisis of the eco-auditing type of practice which had been gaining currency among member firms.

Another survey, conducted independently by the *Global Environmental Forum* (GEF - a foundation active on domestic and international information exchange on environmental problems and measures) reveals on the basis of a different sample, that some 64 % of major Japanese firms have instituted in-firm specialized units for environment, of which about a half were originated in the 1970s and 1980s. Now, over 63 % of the sample firms have assigned managing directors or higher levels of supervisors [Global Environmental Forum 1992].

According to the same survey, some 30 % of the firms (or 45 % of large firms with annual sales higher than ¥ 1,000 billion) have

established their own environmental standards severer than the current official regulations, and introduced an internal system of environment auditing. Both small and large firms have become active in intra-firm environmental education as well as in making philanthropic contributions to local communities. More than 75 % of the firms operating overseas comply with the local standards (which are mostly less severe than the Japanese ones). Those firms voluntarily adopting the severer Japanese standards even under less exigent overseas conditions are not many (only 6.8 %), however.

Many firms declare that they are "prepared to share the environmental costs to the extent that doing so does do not seriously impinge on their business performances". But few firms are willing to reveal the magnitude of such permissible costs. Of those who have revealed it, 70 % regard 2 % or less of gross profits as being an upper limit, while one out of ten firms tolerate an 8 % or even higher proportion of their profits spent in environment-related investments.

Intra-firm environment auditing is not a concept unique to Japan. It has become increasingly popular in Western firms since the 1970s, several examples of which are reported by UNEP [UNEP 1988]. ICC-WICEM II stresses the information disclosure aspect of environmental audit [ICC 1991] . The EC proposal of a Community Eco-audit Scheme also includes the idea of regularly compiling in-firm environmental audit statements to be validated by outside accredited auditors for the public's access, although its 1991 version has been quite softened with the "obligation" clause exonerated into "voluntary participation" and the term "outside

independent accredited auditor" made more equivocal to read "accredited auditor independent of the object of auditing". [EC 1992].

The Keidanren Charter emphasizes a regular (once a year) self-assessment in accordance with each firm's self-imposed environmental targets or regulatory plans. It assumes as though the latter were in principle aimed for more ambitious standards than current government regulations. The shift of emphasis from the earlier defensive concept of "compliance audit" toward individual firms' voluntary codes of conduct is not unique to Japan. According to the Global File Report of the Elmwood Institute, German industrial management has evolved a new methodology stressing the individual firm's ethical commitment to ecological compatibility during the 1980s. Even the U.S. EPA is reported to encourage the voluntary self-assessment by firms to an extent that it would grant a degree of clemency to the infringer firms which are actively engaged in self-assessment [EARG 1992, p. 89].

Quiet but persistent retort against new carbon taxes

The emphasis on the ethical self-motivation comes, however, with a certain negative connotation. Coupled with the recent "deregulation" tide, it might be serving as an additional pretext for resisting the move towards any grand design of carbon taxes or surcharges.

Indeed, the best way to rectify the market failure to the requirements of environmental governance would be to internalize a desired incentive mechanism into the very framework of the market functioning in such a way as to make the generation and use of

environmentally friendly new technologies more profitable and the older, environmentally less friendly practice less profitable. However, the latter aspect of the regulatory and incentive policy is often purposely neglected or toned down in the on-going policy debates.

That is, two different types of tax reform can be distinguished. One emphasizes restraining the use of fossil fuels through their increased relative prices, and the other is aimed primarily at securing a new fiscal source for subsidizing environment- and energy-saving measures. The precedents in Finland, Holland, Norway and Sweden seem to have been all focussed more or less on a shift in the consumption pattern from coal to petroleum and natural gas. Taxation is certainly better than subsidization to satisfy the polluters-pay principle. But no wonder private industry prefers subsidization for change promotion to taxation on stragglers. When fiscal sourcing poses a problem, it is circumvented by a "special fund" approach that draws on quasi-voluntary contributions.

The Keidanren Charter makes no mention of the tax policy issue. The GEF survey mentioned above indicates that only few returns were accompanied by positive remarks about the carbon tax concept, while the great majority called for due public subsidization of the pure public good component of their environmental efforts. Such voices resonate well in the recently published recommendations from *Keizai Doyukai* (Japan Association of Corporate Executives) - a revered private, non-profit, non-partisan organization (since 1946) where 1,500 corporate executives from some 900 firms endeavor to participate in their capacity as individuals in

consensus building on general socio-economic policy matters.

Doyukai's Committee on Global Environment admits the very merit of the taxation approach which internalize the policy objectives into the market function, but stresses a number of difficulties to be envisaged in its implementation. Firstly, our knowledge of the market structure is not yet adequate for establishing fast quantitative criteria for setting a desirable relative price structure. Secondly, a high burden to be placed on energy industries and energy-intensive industries would leave them little room for taking new environmental measures, especially future-oriented R & D. Thirdly, those industries and firms which are already very much advanced in energy saving and conversion would be technically unable to make much of a further advancement in the near future. Fourthly, a new tax or surcharge system, if once successfully established, would be subject to continual readjustment to changing demand structures; and so on and so forth. So the recommendation goes that extremely great care ought to be exercised in further consideration of the taxation approach [Keizai Doyukai 1991, pp. 31-32].

Muramatsu & Mabuchi , in their contribution to the Brookings Institution study on Parallel Politics, give a good analytical illustration of the legislative odyssey of the tax reform during the past decade [Muramatsu & Mabuchi 1991]. Tax reform efforts, once pushed strongly by the national executive, soon stalled when they entered the legislature. Kernell is so much impressed by the odyssey as to conclude that "the politics of tax reform in Japan arguably resembles the image of America's discordant politics more closely than it does the calm progression toward consensus

commonly ascribed to Japanese politics" [Kernell 1991, p. 328].

The Role of Third-sector Institutions

The remark made about the "closedness" of the advisory council system toward the end of section 2.c above deserves further qualifications. Government ministries and agencies are equipped with a number of advisory councils, some officially established and others privately instituted. Each council is supported by a variety of specialized committees, some on a permanent basis and others on an ad hoc basis. But this is not a complete story. The market-oriented private sector, too, has built an almost equally complex consultation machinery within itself. And the part of it which serves more explicitly as government-industry links comprises a number of non-profit "third-sector" institutions.

Towards 1990 quite a few such institutions were born anew, functionally more or less differentiated along the commonly shared theme of global environment. Among them, foundational juridical persons (*Zaidan Hojin*) are equipped respectively with interest-earning "funds" to support their current operations, the bulk of those funds drawing upon voluntary contributions by their corporate members. Their current operations are financed by the tax-free interests earned on the funds, supplemented by annual membership fees and the research and other contracts specifically granted (on an annual basis) by their governmental "counterparts". The managing directors of such zaidans come customarily from the particular governmental counterparts - the administrative bureaus which have been instrumental for their creation. An important part of their staff resources consist of the people seconded (on a two

to three year term) from member firms by way of contributions in kind. For all the large cohort of such zaidans, they are individually rather small. Neither their combined total resources nor their accumulated stock of professional competence are likely to add up to any impressive scale. In the domain of planetary environment, there exists in Japan not a single zaidan, nor a single research NGO that can match , for example, *The Nature Conservancy* (TNC) in the United States in terms of the staff size and the level of professional competence.

GISPRI is one of the environmental zaidans established during the last few years under the aegis of the MITI, along with ICETT and RITE which will be referred to later at some length. The Environment Agency, too, has been active in creating several new zaidans during the same period. The Global Environmental Forum mentioned above is one of them.

The important role of these zaidans seems to lie in ensuring continual informal dialogue and information exchange between industry and government. They also serve as fora whereby to pump up from the knowledge and experience dissipated widely among scholars, technical practitioners, journalists, etc. in order to respond to policy issues of general interest to their members. The latter function may be said to be more reflective than creative in nature. That is, their members seem generally much less expectant for formal outputs like independent research papers than for the very process of communication offered them to express their individual views.

Some third-sector institutions are more action-oriented than others. Action-oriented third-sector zaidans (such as the ICETT

referred to below) are generally concerned with the supply of public or semi-public goods the need for which individual firms' initiatives alone can not cope with. In the realm of global environment and development, these institutions may help individual firms to "externalize" at least part of the ethical burden which is not compatible with the political economy of competitive business. Thus a subtle balance is struck between cooperation and competition.

The proliferation of action-oriented third-sector organs may signify the existence of a less than full consensus regarding the very nature of the collective goals to be shared by private industry, or the criteria for equitable burden sharing, or some times even the very procedure for goal implementation. Organizational proliferation runs in the vein of classical functionalism. That is, in the terminology of Nils Brunsson, it emanates from the act of "hypocrisy" on the part of the business entity as a political organization, typically resorted to when its consciously inclusive political goal (such as attainment of an ever more solid image of "corporate citizenship") is not matched by its capability as a technical action organization (profit-maximizing or share-preserving business) [Brunsson 1989].

In conclusion, one may say that the Japanese system is characterized as the one whereby the burden of societal conflict mediation is partly externalized into the ever proliferating third-sector machineries dedicated to steer government-industry as well as industry-society relations. But the externalization is only partial since it is mainly the private business entities who financially support those machineries. In contrast, the U.S.

system may be characterized as the one whereby such mediative functions are almost completely "externalized" into the wilderness of judicial settlement.

Both systems may be said to be equally compatible with pluralism and functional differentiation. But as for the question which is more effective, the answer would be different depending on which aspect of the system function we are to emphasize. The Japanese system may be said to be more effective as far as the mediative function is concerned, whereas the American system may lend itself to a more innovative change, if accompanied by a process that appears often too turbulent to the Japanese eyes.

In spite of the growingly conscious effort of re-adapting its institutions to the requirements of international cohabitation, Japan is still one of the most homogeneous societies in the world, and its institutional success suffers growingly the suspicion of non-universality. The American institution may be said to be more universal in terms of the very nature of the problems it has coped with for cohabitation of many heterogeneous subcultures. Today more and more Japanese economists have come to speak of the non-universality of the Japanese model of capitalism, pointing to signs of its failures not only in meeting the requisites of international cohabitation, but also in coping with the now rapidly changing internal socio-political conditions.

The case stories of institutional effectiveness can never be free from the impact of the particular historical phases of macro-economic performances which affect both the direction and the pace of institutional adaptation. Although Japanese industrial society has long enjoyed the primacy of the long-term goals of structural

adjustment over short term economic interests, its economy has now plunged into a prolonged recession which may or may not be as transitory as many earlier recessions. It is too early to predict how quickly the on-going shift of consensualized long-term goals toward the governance of planetary environment and security will be completed. The proliferated environmental third-sector institutions, although currently suffering too low interest rates to keep up to their mandates, may serve as a useful ratchet against occasional demoralizing forces. And fortunately at this moment, the economic recession has just reached a stage where a considerable fiscal expansion will be triggered, which in turn is being accompanied by a series of radically increased allocation proposals in the domain of environment and related international cooperation for the next fiscal year.

3. Transfer of Technology for Environment and Development: - Promises and Problems

3.a An Introductory Overview

Transfer of technology to developing countries in the context of global environmental governance is an important issue, not so much in terms of the politics of foreign policy-making as in terms of practitioners' technical preoccupation at the level of policy implementation. Indeed, the subject is not many steps removed from the domain where the market has to be paved through international, rather than domestic, political transactions. But how to arrive at a judicious blending of public and private resources in the supply of what is essentially an international public good matters equally importantly for both national policy-makers and the business entities which constitute a major reservoir of the needed technical resources.

The domestic politics of foreign aid get often smeared up with the opportunist interventions from the private industry, which seeks an outlet for its surplus technological resources as the latter's natural market becomes saturated. That aspect of the picture loses importance, however, at the present stage of the evolution of international "eco-business", simply because truly "effective" demands for it is almost nonexistent as yet in most (if not all) developing countries, even around the giant smokestacks in countries like China and Russia.

Thus the subject of technology transfer may be of only secondary importance in our inquiry into the role of the private industry in

environmental policy processes. But the new industrial ethics being declared in the corporate charters on Global Environment, mentioned in the preceding section, attaches great importance to the transfer of environmentally sound technologies to developing countries. This apparently draws from the logic of efficiency in global resource allocation that the marginal cost of further energy efficiency in a country like Japan is now many times higher than that in developing regions. So, apart from the growing investment in basic and precommercial research toward new technological breakthroughs, there is a broad consensus of views that the best way to contribute to global environment problems during the current decade is to expand the ODA and ODA-like framework of development cooperation and improve the related mechanisms for technology transfer.

Almost all interviewees in the business circle confided that an ethical pressure was growing real: corporate top executives have come to encourage that the environment-related dealings with developing countries be pursued almost "with the mentality of non-profit NGOs" whenever the situation affords. But when asked if there were any sign of an international "market" emerging for environmental technology trade in the developing regions, the replies were mostly negative.

A potentially huge world market now appears wide open to a growing number of forerunners' initiatives, private or public. The world awaits a new era of organizational innovations in international business. But even the relatively "long time horizon" characteristic of Japanese big corporations does not seem long enough to make inroads into that yet uncharted ocean. Most interviewees referred to the difficulty at the working level of

shifting their able colleagues away from the business of daily importance to reap on every visible opportunity for investing in the futurity of their "corporate identity". Personnel redeployment often proves strenuous even when they wish to respond to government-channelled requests for extra-market international cooperation projects. Thus they would rather welcome some more orderly ways of collaborating with American and European suppliers in tackling the environmental requirements of developing regions, including China and CIS.

In the following, we will dwell firstly on the question of transfer of environmental "experience" or how the lessons from the historical processes of environmental policymaking in Japan can be made useful to today's developing countries. Secondly, the state of the art of the evolving international eco-business will be briefly commented on. Thirdly, we look into the current developments associated with the concern about the "acid rain from China" and the transfer of clean coal technologies. Then, along with the Chinese landscape, some remarks will be in order about the current standstill in the Japan-CIS relations - the issue which can hardly be dissociated with that of planetary environmental governance.

3.b Transfer of Experience:

- How Relevant Could the Lessons from the Stormy Period Be for Today's Developing Countries ?

A best-seller at the London Summit ?

Ryutaro Hashimoto, former Finance Minister and one of the leading figures in the LDP "environment zoku", took the initia-

tive in having an economic staff group of the Environment Agency compile a booklet reviewing Japan's experience in pollution abatement and arranging for the dissemination of its English version at the 1991 London Summit. The study seems to have been well received there. Its main thesis rests in demonstrating analytically how costly the earlier negligence of environmental hazards on the part of legislative and administrative authorities proved in terms of the amount of reparations made for the affected people in the subsequent years. The latter is compared with the costs of investments needed for successful pollution abatement.

Three historical cases are taken for the purpose of analysis: the air pollution (SO_x) by the Yokkaichi heavy industrial complex, the water pollution (organic mercury) by a nitrogen fertilizer factory at Minamata, and the soil pollution (cadmium) by Kamioka mining operations. The total cost of the effected abatement measures compared to the total value of reparations for health and farm hazards is revealed to have been (in terms of annual average at 1989 prices) around ¥ 14.8 billion to ¥21.1 billion (1 to 1.4) in terms of annual average in 1989 prices in the Yokkaichi case; ¥ 0.12 billion to ¥12.6 billion (1 to 105) in the Minamata case, and ¥0.6 billion to ¥2.5 billion (1 to 4) in the Kamioka case. The lesson therefrom is an unexpectedly high cost-effectiveness of environmental investment. The developing countries ought to be assisted sooner in order not to replicate the Japanese historical experience.

This negative lesson is certainly well intended. But, as Ichikawa suspects, the cost-effectiveness analysis may have grossly overestimated the benefit side in view of the possibly much lower value of reparations conceivable under the developing

country conditions [Ichikawa 1991, pp. 79-84]. Besides, the study leaves an important question totally untouched: Who could take initiatives most effectively for decisive environmental action, and how, when government and industry feel still comfortable with a tacit collusion for evading the issue as it was the case in Japan before the mid-1960s ?

In fact many developing countries have enacted more or less severe environmental laws after the developed country exempla, but they are mostly not effectively implemented. The lack of economic resources is an important reason. And the deceptiveness of the declared political primacy is another equally important reason.

The latter is alluded to in the aid policy circle (e.g. OECD/DAC) as a facet of the problems of "poor governance" in many aid receiving countries. Certainly it is not just a matter of ethic or ideology. (Should one believe that it is one, it is not a sort of thing that one could transplant overnight from one place to another.) The physiology (or ways in which given mechanisms function actually) of governance is an output of a historical process of social decision-making. As we saw in Section 2 above, environmental policy processes do not only entail industry and government but also the local science community and the citizens' movement. And dedicated personal leaderships would be essential, be they in political, bureaucratic or scientific organizations.

Local autonomies' initiatives in transfer of experience

In the matter of technical cooperation with developing countries in pollution abatement technologies and administrative procedures and devices, a growing number of initiatives being taken by local autonomies and industrial communities deserve particular atten-

tion. These are among the cities and towns which once experienced a stormy period of civil litigation, massive efforts of pollution abatement, and progressive enforcement of assessment procedures for regional development projects. Many of the once export-gearred small-industrial establishments having moved out overseas, and also the tradition of local autonomies' fiscal dependency upon central government having been increasingly challenged ever since the fiscal reform fever of the first half of the 1980s, the movement for rebuilding local livelihood has set in throughout Japan. Many regions have adopted "internationalization" among their policy agenda, although success is yet limited except in a few cases.

Among the autonomies which have been particularly active with programs of technical cooperation with developing countries in environmental matters are:

- Yokkaichi City, with the *International Center for Environmental Technology Transfer (ICETT)*, operational since since 1991, majoring in environmental management of petrochemical and other heavy industries;
- Kitakyushu city, with the *KITA* foundation (since 1980) which has just incorporated in it an *International Center for Environmental Cooperation* as of August this year, which majors in the steel industry and small industries;
- Osaka and Shiga Prefecture, with the secretariat of the *International Lake and Environment Committee (ILEC)*, an international NGO since 1987, and a couple of UNEP-affiliated *International Centers for Environmental Technology* (to be established soon);
- Kobe City, with an International Center specialized in harbour

management and dredging being now in the pipeline;

- Hokkaido, with increasingly active technical cooperation activities for Korea, Malaysia, Brazil, etc. since 1989 mainly in environment assessment;
- Kyoto City, with the *Research Institute of Innovative Technology for the Earth (RITE)*, a national establishment since 1990 supported by the Keidanren and the Kansai Economic Federation (though specialized in future-oriented environmental R & D and related international cooperation rather than technology transfer);
- Yokohama City, which has housed the International Tropical Timber Organization since 1986, along with own active programs for acid rain research and environmental education.

While it may be still too early to attempt at a full evaluation of those local programs for international cooperation, we take the ICETT (Yokkaichi) as an example for illustrating certain kinds of problems being encountered in the transfer of experience and technology for developing countries.

The case of Yokkaichi

A 660 ha wide coastal area in Yokkaichi, which had once been a naval fuel stockyard, was transferred to a group of private firms in 1955 for construction of a giant "oil combinato" - a heavy industrial complex centering around oil refineries. Asthmatic and other respiratory complaints emerged soon after 1959 as the complex entered a full-scale operation. By 1962 the SO₂ density in the area reached a peak no lower than 1 ppm per hour, a level ten times higher than the then established standard. The central government responded first in 1963 by dispatching an air pollution

survey team, whose recommendations led to a series of area-specific regulatory measures. Meanwhile the City had organized its own municipal committee (in 1960) to step up air surveillance and provided a special medical facility with a 100 % subsidy to the committee-acknowledged patients out of the municipal budget.

The media reported about the suicide of some of the acknowledged patients and the climbing death rate among teenster patients. In 1967 the residents in the most seriously polluted district of Isozu filed a suit at the local district court against the six companies involved in the complex. A verdict of joint illegal action was returned in 1972 against the accused. The news gave rise to waves of citizens' movements in many other industrial regions in the country. By 1974 the national law on the reparation for environmental health hazards was enforced, obligating the pollution-source firms to pay for the medical service and other due opportunity costs incurred to the affected citizens.

The abatement measures taken on the part of the firms concerned first concentrated on the use of low-sulfur oils, followed by a five-year plan for further desulfurization measures. The prefectural government ordinance, introduced in 1970 ahead of the national enactment, included a quantity regulation of SO_x per factory. The targetted standard of annual average of 0.017 ppm was achieved by 1976, with a rapid reduction in the total quantity SO_2 emission in the Yokkaichi area from a little over 100 thousand t/year down to 20 thousand t/year between 1971 and 1975. By 1989 the figure has been reduced to 3.3 thousand t/year in spite of a larger quantity of fuel in use than 20 years before. Now 28 flue gas desulfurization apparatus are in place in the area.

ICETT's program: a tentative evaluation

The process of establishment of this Center was synchronized with the first serious effort of MITI to formulate a global environmental policy action in its annual budget request for fiscal 1991. By that time the Mayor of Yokkaichi had put into operation his long-cherished plan to utilize the local technical resources and administrative experience in air pollution abatement for the benefit of interested developing countries. The joint municipal and prefectural initiative with a ¥500 million fund received a first group of trainees from Mexico already in January 1991.[ICETT 1992]

MITI and Keidanren gave warm blessings and the latter urged the Chubu and the Mie Economic Federation members to contribute to an enlarged scheme of ICETT. The new fund-raising for a total of ¥ 6 billion has been positively responded to by some 200 companies, which are willing to share 50 % of it while the remainder is to be supplied by the Mie Prefecture and the Yokkaichi City. MITI's contribution has taken the form of enabling the Center to take up JICA (ODA)-funded training projects and an access to the MITI-subsidized AOTS program which accommodates the in-firm training activities of Japanese firms' developing-country counterparts.

The ICETT has received thus far 55 trainees from China, Southeast Asia and East Europe for its five specialized courses (in-plant flue gas treatment, heat utilization, air and water pollution abatement systems). It has also sent Japanese expert teams to organize training workshops overseas in China, Thailand and Indonesia, the number of participants in which has totalled about 250 as of July 1992. It also administers a part of the MITI subvention program for environment-related industrial R & D in

order to stimulate work by local firms and research facilities for the development of "appropriate technologies" for developing country conditions.

The firms in the region have been extremely cooperative in making contributions in kind in the form of providing lecturers and undertaking in-plant sessions for the Center's training program at their own costs. Participants appear very much pleased with their efforts. The Chubu Economic Federation has recently completed its survey on the in-firm anti-pollution equipment and related facilities currently available in its member firms (83 establishments for air pollution abatement and 71 establishments for water pollution abatement). The computerized data base compiled thereof is now accessible to the ICETT trainees as well as to the public in general.

By way of an interim evaluation, the following three points may be in order.

(1) The JICA-funded part of the training program suffers from the difficulty of matching the course contents to a great diversity of interests and backgrounds mixed into each group of trainees it sends in. It provides, however, for almost 90 % of the costs of individual training operations and thus poses little financial problem to the Center.

In contrast, the AOTS-based courses allow the Center to select and group participants at a time according to their substantive preoccupations and thus to conduct training more effectively, but the prevailing financing arrangement tends to incur 80 % or more of the actual operating costs to the Center's own responsibility. This threatens the Center's financial viability particularly during periods of low interest rates like today.

Furthermore, it would be almost absurd to try to entice up private industrial laboratories to undertake developing country oriented appropriate technological development with just a 50 subsidy while no domestic market exists for its output.

(2) Both the software and the hardware sides of existing Japanese technology turn out all too often too advanced to meet the current technical interests of the participants. Japanese lecturers can talk less effectively on the abatement techniques applicable in a society living to much lower environmental standards. All too often the participants are not yet actively engaged in environmental assignments at home. These weakpoints having been revealed from the participants' "country reports" (the preparation of which is an integral part of the training activities), the Center's staff cries out for a far more serious scheme of survey and analysis of the current needs in specific developing countries.

(3) The kind of technical expertise, technological or administrative, which would match the currently prevailing environmental preoccupations of developing countries, is becoming less and less readily available within Japan. Those engineers and public administrators who were actively involved in the combatting of the 1960s and 70s phase of industrial pollution are now mostly retired. One possible way of coping with this dilemma would be to "internationalize" the very concept of ICETT in the earliest opportunity so as to establish a system of joint planning and implementation of training and research programs with the authorities and staff from developing countries.

In this conjunction it would be worth noting the recently born

organization called *Overseas Environmental Cooperation Center* (OECC, since 1989/90). This association-type non-profit institution owes to the initiative of a former Environment Agency personel (Mr. Michio Hashimoto whose memoire was cited in Section 2 above) who cuurently directs it. Its primary members consists of engineering consultants (both firms and individuals) who are currently active in environmental planning and engineering services for overseas projects. This Center is thus intended to be an action-oriented professional organ. It is hoped that this will serve as a sort of self-replenishing depository of Japanese environmental experts for international cooperation. The Center's work program stresses surveys and policy-oriented research to identify country-specific environmental needs in the developing region.

3.c Corporate Initiatives:

- *Bewteen an Ethical Push and a Realist skepticism*

How can private firms contribute best to the cause of global environmental governance within the framework of the normal rules of the game for market competition ? How can consumers' tastes be altered more quickly than they are now in favor of environmentally sounder products and the prices which duly internalize the value of environment ?

And in the absence of as powerful consumers' organizations as existent in the United States, how far should industry, along with government, remain responsible in Japan for prompting an effective value change throughout the consumers' community

Such questions kept haunting in major corporate executives' mind when they engaged in mutual brainstorming at a recent plenary session (2 September '92) of the *Green Forum*, organized by the Nikkankogyo (Daily Industry) Newspaper Co.. While Japanese industrialists feel that they should endeavor to be far more "progressive" than in the past in "corporate philanthropy", they are not certain about how farther they can go beyond the Keidanren-initiated "One-Percent Club" type of commitment even in normal years of business. Between an ethical push and a realist skepticism are their soul-searching efforts still continuing.

At the Green Forum, when asked whether they feel their own companies to be doing better than American and European ones in environmental matters, most participating corporate executives stated that they were doing generally better than their foreign competitors in their efforts of clearing "domestic" standards (which could be considered the world severest in most respects). But as far as the "global" environmental issue was concerned, they could scarcely claim to be playing first fiddle, the greatest hurdle being possibly the limit to the internalization of the new noneconomic ethic into the iron rule of competitive efficiency, - a limit now revealing the weakness inherent in the very model of "Japanese capitalism". Its would-be merits had owed so much to the particular (lucky) international environment in the post-war decades which had helped shielding economics from politics.

Promises through multinational businesses

There has thus been a renewed interest in the issue of technology transfer through private direct foreign investment, as witnessed in a recent BCSD forum. True, no more than one-third of

LDCs (about 50 countries) seem to possess a political-social-and-economic capacity to benefit direct from commercial-level technical cooperation. And new "exemplary actions" would be needed to combat the already broadly spread suspicion of Japanese "pollution exports" to Asian countries during the 1970s: the often cited cases include the *Kawasaki Steel* in Mindanao; the *Asian Rare Earth* in Malaysia (even though its Japanese counterpart in the founding stage might claim no direct managerial responsibility for its recent scandalous incident); the once massive timber imports by Japanese trading firms accompanied by rampageous styles of felling, etc. [The Lawyers' Association of Japan, 1991, Chapters 1 and 2]

There are a few exemplary cases that may be worth citing in the scene of Japanese firms' international operations. For example, Usiminas, Brazil, which was founded with *Nippon Steel's* direct assistance in the 1950s, is known for a relatively large proportion of its total investment having gone into environmental affairs (7 % of the 1962-91 cumulative total investment). *Nippon Steel* was called upon for environmental partnership services from the late 1970s, which included even the construction of green belts around steel mills.

The *Mitsubishi Heavy Industry* once put much energy in the transfer of technology to its Brazilian affiliate producing electrostatic precipitators. Its five-year efforts (from 1978 to 83) succeeded in complying with the Brazilian government's foreign exchange and import-restraining policy by achieving a 100 % local content. However, that effort on the part of the Tokyo headquarters was a virtually non-profit undertaking and made possible by the very fact that the recipient was a 100 %

affiliate. Apart from that, the then yet less than fledgling environmental regulations are cited among the serious problems encountered by the company in its technology transfer operations in developing countries.

The *Mitsubishi Trading Company's* initiative in the forestation in Malaysia are almost as well known as the unfortunate indictment on an ad page of the New York Times (Aug. 1989) (issued by an American environmental group which had erroneously believed that the big Mitsubishi should have been behind every major Japanese timber importing trader). The company was the first to institute a "Global Environment Office" for in-firm environmental audit, and has mounted an active long-term forestry program for Malaysia which includes a \$ 2.3 million (four-year) experimentation in the utilization of endogenous tropical species for sustainable reforestation. Many other trading companies and paper manufacturers have followed suit by stepping up their respective forestry regeneration projects to Brazil, Chile, the Philippines, Papua New Guinea, etc. [Nihonkeizai Shimbunsha, 1991, pp. 20-29]

However, these and other anecdotes combined may not quite add up yet to anything like a global tidal wave. The Japanese electronics industry has not yet enjoyed an international government-industry cooperation scheme like the *ICOLP-Northan Telecom* partnership for CFC reduction in Mexico (the first developing country that has declared to abolish the use of CFCs by 2000). The stubborn insistence of *Smith & Hawken*, Calif. to source its teak procurement only from confirmed "sustainable rainforest" management, sounds awe-inspiring to Japanese timber traders and users.

*The acid rain from China ? - Struggling for sensible projects
for environmental cooperation with China*

The possibility that the acid rain falling over Japan should be at least partly attributable to the enormous cohort of smokestacks in China may be undeniable, although the causality is not yet scientifically established. Besides, the visiting Japanese experts awed at the scenes of Chinese industrial districts, return home with an added personal enthusiasm about helping China not to repeat the mistake Japan once committed. Yet China as a whole still suffers from a general shortage of electricity supply. And as has been revealed through the UN- and World Bank-sponsored study missions and fora pointing to the basic institutional deficiencies in the country (especially the electricity tariff system, and the underlying principles of production and investment management), the hardcore of the Chinese environmental problem does not rest so much in the country's technological capability as in its economic capability.

Mr. Sawamoto, director of the International Policy Office of the Mitsubishi Heavy Industry Co., estimates that, were the heat efficiency increased from the present level of around 32-33 % up to a 40 % level (if still lower than the Japanese standard) in all the existing power plants in China, then the resulting SO_x reduction would be no less than the total annual SO_x emission in today's Japan; and that would be a technically very easy job. The *Mitsubishi Heavy Industry* has been very active in R & D geared to three priority goals: (a) the diversification of energy sources, (b) greater efficiency in energy conversion and (c) reduction of noxious wastes (such as SO_x and NO_x).

The company responded positively to the the request for techni-

cal cooperation in installing a full-fledged model of desulfurization in the new Luohuang power station near Chongqing. The license agreement included a maximum feasible extent of local procurement of hardwares (40 % in terms of weight if only 10 % in value terms), and payment in terms of running royalty. The desulfurization apparatus, capable of removing 95 % of SO_x from the flue gas, and producing ammonia sulfate as a by-product, was developed specifically for that contract. It took two years to build and the total cost is reported to be around ¥ 5 billion - a very expensive venture for China but still 50 % cheaper than the much more advanced models being marketed in Japan. More than a year having elapsed since its completion, it still remains untested there, owing to the delayed delivery of boilers and turbines from a French supplier with which the Chinese authority has had a separate contract. The Chinese authority appears rather unflappable, possibly with its primary objective being to get a useful "model" for desulfurization installed for self-learning, and certainly not to keep alive the business partnership with the Mitsubishi.

The JGC Corporation (*NIKKI*), one of the oldest standing engineering firms in Japan, stresses the far greater cost-effectiveness of desulfurization and other waste treatment in the upstream (e.g. crude oil) than in the downstream (e.g. flue gas treatment). Its business in China includes the transfer of coal cleaning techniques, with payments for engineering services being effected mainly through the import of the products of the improved production process: coal slurry. As for cooperation with China in flue gas treatment, the company staff views it to be useless to help build desulfurization apparatus where an effective market is absent, both economically and politically, and recommends that

greater weight be put on training of Chinese technicians and exposing them to great many other facets of environmental measures (which may well range from the use and development of alternative energy sources and the improvement of energy efficiency all the way to soil and water preservation).

The *Tokyo Electric Power Co.*(TEPCO), with its generation capacity accounting for about one-third of the nine regional monopolies' total supply, may be looked upon as a sort of Stackelberg leader in the game of oligopolistic competition in the Japanese electricity business. Mr. Hiraiwa, currently president of the Keidanren, and known for having brought a new breed of ethical catalysis into the Japanese industrial community, comes from this company. While the company is an important reservoir of technical expertise for international cooperation in energy and environment, the Electricity Business Act (intact since 1952) prevents it from engaging directly in international business. This institutional constraint has been circumvented by the establishment (in 1989) of the International Cooperation Center within the Japan Electric Power Information Center, Inc. (ICC-JEPIC), a legally independent private organization. This has facilitated to put on a more continual basis the company's exchange program with the Chinese energy authorities.

The program has recently resulted in a concrete bilateral agreement for training Chinese managerial personnel (a planned total of 100 for the coming three and a half years, all at the level of power plant and distribution station directors). The training is to be focussed on management knowhow, including cost-price management and forward investment planning. No ODA is involved. The company is to bear about a half of the training

costs and trainees' living expenses in Japan.

Incidentally, the recent inter-governmental talk about Japanese contribution toward an improved security of nuclear power stations in the CIS has also led to a potential bilateral agreement with ICC-JEPIC for training some 1,000 Russian specialists and managers over the coming ten years. Under the circumstances the Japanese authority is as yet reluctant to put it on an ODA basis. So this project, too, if partially subsidized, is likely to proceed mainly at the company's own expenses.

Now, there have been a growing number of business missions visiting China during the past years. Many of them are "study missions" in nature, organized privately by industrial associations and third-sector technical and policy research organs. Almost every study mission has returned with a huge list of specific requests for cooperation from a variety of Chinese institutions, not at all mutually pre-coordinated, and seldom backed up by the central government's political and financial commitment. Besides, many of the requests appear even to be "personalized" at the level of individual Chinese officials - a culture that is rather unfamiliar in Japan. Thus, the wide gap between perceived intrinsic needs and "effective demands" is so discomfoting, and very few concrete results have emerged in terms of action on the part of Japanese business concerns. An ever haunting question is how those hodge and podges of requests can ever be fused into a coherent set of national priorities that would promise a real impact on the country's environmental policy.

The *Foundation for Advanced Study on International Development* (FASID), a two-year old third-sector institution (under the aegis of the Foreign Ministry) specialized in ODA policy matters, is

collaborating with the Keidanren secretariat to work out a new approach to project development in China. The idea consists in an application of the "Stakeholders' Dialogue" procedures and techniques for aid planning to the energy and environment administration in China. The Japanese interests participating in the exercise will be limited to technological and economic exports to start with. The FASID method is a variant of the German (GTZ's) ZOPP method. It concentrates for the moment on the phase of consensualization of knowledge about complex cause-and-effect relationships underlying a given complex problem of political importance. It is too early to judge what are the chances for the idea to be duly put in action. A joint effort with interested U.S. parties would certainly be a great help.

MITI's Green Aid Plan versus the U.S. DOE's CCT program

Japanese industry is currently equipped with 1,800 flue gas desulfurization plants and about 400 denitrogenization plants in total. According to the staff of the *Ishihari Heavy Industry*, only Japan and Germany are in a position to export these kinds of high-quality plants, although domestic demands for them have already been saturated. But the story turns quite different when simpler, lower-function, and lower-cost devices matter in the context of cooperation with developing countries.

In Japan, there exists virtually no domestic demand for such devices, and even testing pilot plants would be illegal on account of the domestic air standards. MITI's Green Aid Plan takes note of this situation, and proposes an official cooperation of limited scale for China to develop and test a few low-cost defulfurization plants with Japanese technical assistance. If these may not be

diffused too quickly in China, it is hoped that the prototypes may possibly be diffused via China to other Asian developing countries.

The situation appears radically different in the United States, where the recently revised Clean Air Act is to generate a domestic demand for anti-SO_x and anti-NO_x plants of an order of \$100 billion by 2000. Reportedly [Tamanuki, 1992], the U.S. DOE's Clean Coal Technology program adopts the Japanese MITI-like subvention approach for stimulating private sector R & D since 1985, and the Federal Government's contribution to it will be expanded to a cumulative total of \$2.7 billion by 1997 (as per the January 1986 plan), with the matching contribution from the private sector expected to run some 30 % higher level than that. The DOE anticipates an accelerated diffusion of the wet-style FGD as well as SCR (selective catalytic reduction of both SO_x and NO_x) by 1995, and thereafter of the more reliable and less costly versions of AFGD (atmospheric FGD), AFBC (atmospheric fluidized bed combustion), PFBC (pressurized FBC), IGCC (integrated gasification combined cycle) and so on being developed under the CCT program. The advanced versions along similar lines are also being tackled in Japan (through NEDO - *National Energy Development Organization* and CCUJ - *Center for Coal Utilization*, a sort of private-sector counterpart of NEDO), as well as in the UK (the National Coal Board, now renamed British Coal Corporation).

Leaving aside the outlook for possible technological competition and cooperation in these advanced coal technology areas, Japan seems to be just about the most handicapped in the transfer of clean coal technologies to the developing countries which rely on local low-quality coal for thermal electricity generation. The

CCUJ originates from the coal miners' preoccupation about mining safety and coal utilization (initially instituted as a Coal Mining Research Center in 1978). Coal mining itself having dwindled through the structural adjustment process, its coal utilization department has survived to get merged with a Coal Cartridge System Promotion Association in 1982-83, with its preoccupation shifting to problems of the environmentally sound coal utilization system, which includes ash collection and utilization. Contributing to sustainable development via a more efficient and comprehensive use of coal in Japanese industry and society is the major goal of today's CCUJ. The Center is now increasingly active with its newly assigned function to promote international cooperation. The gravity of its work thus seems to lie more in public service-oriented, than in competitive business-oriented, affairs. Mr. Takagi, the Center's managing director, fears lest this divine goal should make the Center less, rather than more, attractive to many of its member firms which are busy trying to fight back against the prolonged business recession.

4.c The CIS-Japan Relations Almost at a Standstill

Presumably overwhelmed by the sheer size of the economic problems being faced in the CIS, Japan has invoked the principle of non-separation of politics and economics - a tactic rarely seen in the post-war Japanese diplomacy. Even the globally-oriented Japanese firms which once had active dealings with the Soviet economic entities have now scaled down their intelligence outposts there (while Americans and Europeans are increasing such activi-

ties). Deeply immersed beneath the deadlocked Northern Territorial issue lies the wilderness of uncertainty about a would-be Russian model of capitalism - an institution historically yet unprecedented.

Among the interviewees, even those responsible for long-term scenario-writing and strategic planning for their corporations, spoke less than indeterminately of the scope for private-sector leadership toward cohabitation with the fledgling Russian market economy. It should be recalled that Japanese industry was never a self-propulsive imperialist throughout its history, not even in the advent of the pre-war colonialization drama: private businessmen had taken advantage of the semaphore from (then somewhat delirious) political arithmetics, rather than maneuvering the latter to its own economic calculus. The very notion of "industry-led diplomacy" where no promise of reward but risks is visible may be just delirious. The standstill option may be only hardened with the news that IMF plans to warn Russia at its September assembly about the country's persistent failure to implement the agreed economic adjustment policy package.

The wilderness of uncertainty is not just a matter of industrial psychology. Hanging over it are the thick clouds enwinding the grand international strategic issue: how to go about the security regime in the Asia and Pacific Region. This is not a place for discussing that issue per se. But we all know that there stretch several alternative roads possibly leading to something like a *Conference for Security and Cooperation in Asia* (CSCA), a notion proposed by the Australian Foreign Minister at the 1990 Expanded ASEAN Meeting of Foreign Ministers. Prime Minister Miyazawa has just established (April 1992) his private advisory council on

"Japan's role in Asia in the 21st century" (chaired by Prof. Ishikawa), with a view to evolving a grand-regional framework of political dialogues including China and CIS.

Notwithstanding this dull background, the political standstill does not imply discouraging exploratory missions at informal levels. In fact, a number of pre-investment study missions continue to shuttle to the Continent, with a degree of added seriousness during the latest months. Some of them are backed up by within-Japan collaboration agreements among interested firms.

Recent examples include: a 43-firm survey mission, administered jointly by Keidanren and NEDA, and aimed for development of commercially feasible projects on coal and other energy resources in Siberia; also, the Agricultural Machinery Industry Association, is reported to be responding positively to the MITI-channelled request from the western regions of Russia to the effect that Japanese small-size tractor manufacturers might be able to assist in the conversion of the military tank producing industry in Russia. And MITI on its part is reported to be working out a some ¥ 10 billion special fund for technical cooperation with Russia, in conjunction with its preparation of a 1992 supplementary budget.

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