

ENVIRONMENTAL POLLUTION CONTROL IN JAPAN

AN INTRODUCTORY NOTE

The phenomena of environmental deterioration or disruption,¹⁾ such as air pollution and water pollution, date back several centuries in the history of man. As early as in 1273 England passed a Smoke Abatement Act in order to control the use of coal in a certain part of London. But with the progress of technology and industrialization, as well as of urban development, problems related to environmental disruption have become more manifold and intense than ever before. Pollutants, both in air and water and also in the soil, have become far more complex; noise has also become a highly disruptive element in certain areas; and in general, man's separation from nature, with all its attendant consequences on his psychological and emotional life, is becoming a matter for serious concern.

As yet, there is no single, generally-accepted, term to cover all these phenomena of environmental disruption. "Nuisance" is an old term in England; "Immission" is a legal term, narrower in scope, in Germany; "social cost" and "external diseconomies" are the economist's terms; terms such as "biospheric disruption" and "ecological imbalance" are also used in certain connections; and lately in France, a more descriptive expres-

1) I prefer to use the word "disruption" rather than "deterioration" for the reason that the latter seems to have an intransitive tone, while the former is derived from a transitive verb. I am of the opinion that the significant aspect of the environmental problems is man-made, not natural but social, in origin.

sion, "les pollutions et 'nuisance' d'origine industrielle et urbaine" has been in use. In Japan, on the other hand, a very simple term "kogai," which literally means "disamenities inflicted on public," came into use as early as towards the end of the last century,²⁾ and has come to gain wide currency, even in daily conversations, covering not only environmental pollutions of all kinds in the broadest sense but also various undesirable side-effects (or social cost) of economic activities. By now, the expression "kogai" may be said to be too broad and popular. Nevertheless, it remains to be a legal term and thus is strictly defined. For this reason I propose to use this Japanese expression throughout this paper as a convenient abbreviation, as it were, for what French experts would call "les pollutions et 'nuisance' d'origine industrielle et urbaine."

A BRIEF HISTORICAL BACKGROUND

There is a story of Ducktown, often related in connection with the multi-purpose development of the Tennessee Valley Authority in the United States, that tells of a transformation of a beautiful village perched on the western slope of the Appalachians and surrounded by stately hardwood trees into a prosperous copper-refining center just before the First World War and subsequently into a place of desolation with surrounding forest land denuded, the river water contamina-

2) The expression appears in the Rivers Act of 1896, being contrasted to "kori," or "benefits redounding to public."

ted and no longer serving as a habitat for fish and the erstwhile green pastures made bare and eroded.

Historically prior to Ducktown, however, there is a story of Ashio which is usually cited as a classical example of *kogai* in Japan. Ashio is situated along the upstream of Watarasé River, a major tributary of the Toné, one hundred kilometers directly north of Tokyo and twenty kilometers southwest of Nikko. Copper was discovered there as early as in 1610, and though with some vicissitudes the Ashio mine remained as a top supplier of copper for two centuries and half under the direct management of the central feudal government of Tokugawa. After the Meiji Restoration, the mine was transferred (in 1871) to a private firm; and from 1877 on, under the ruthless entrepreneurship of Furukawa, it was made into a modern copper-refining center. With this modernization and prosperity of the copper-refining industry there emerged inevitably spillover effects of undesirable kind, first (around 1880) in the form of damage on fish in the Watarasé River, then (from 1888 on) affecting the rice crops which depended on the River for irrigation, and soon thereafter causing ill effects on the health of the people residing along the River.

A major difference between the case of Ducktown and that of Ashio was that whereas the former was located in a sparsely populated area in any case, the latter was so close to a river which within fifty kilometers affected directly 200,000 hectares of cultivated and closely inhabited land. The protest movement against the Ashio copper-refining began at first in a somewhat timid fashion and, naturally, did not make a dent to the composure of a rising capitalistic firm. The copper-refining firm took a superior attitude by denying any causal connection between their operation and the woes of the farmers along the river. It is noteworthy that the government at

the time, by taking an attitude of non-interference, actually sided with the copper interest, for it would have been easy for the government to launch an investigation on the spillover effects of copper-refining and to establish firmly the causal connection which the protesting farmers had alleged as existing.

The protest movement, however, went on intermittently and gained momentum after Shozo Tanaka, a Diet member from the region, made it his cause and took its leadership. Tanaka's energetic activities, now dramatizing the issue in the Diet, now spending days and nights with farmers in the region for solidifying of the protest organization, and now making a direct appeal to Emperor (1901), were instrumental in wresting some concessions from the copper-refining firm and also in causing the government to establish an *ad hoc* committee for investigation. But the concessions by the firm were in the form of (1) the payment of solatium calculated more to bribe village elders than in proportion to damages suffered, and (2) the announcement that "a filtering device" would be imported from Germany and installed. This turned out to be a device for recovering of reusable waste and did not have the ameliorating effect which the protesting farmers were led to expect.

The protest movement went on, if at all, in a more violent form than before reminiscent of tenants' riot in the past. The most radical at the time were the farmers in the village of Yanaka; and the government struck a fatal blow upon the movement by designating the Yanaka area as a reserve land for emergency overflow of Toné River. Farmers were forced to give up cultivating the land there, and, with pittance as compensation, had to disperse. Tanaka fought as hard as ever against this move but could not change the policy of the Ministry of Interior. And with this episode of defeat, the Ashio protest movement

turned into a rapid eclipse.

It is characteristic of the story of Ashio that the *kogai* problem was fought mainly as a political issue and did not even become a legal issue. One would have expected that the incident as glaring as the Ashio *kogai*, with the source of spill-over so clearly identifiable, should at least serve as a stimulus to developing of a new legal framework to contain the kind of strife that was inevitable. But even to this obvious challenge there was no response from the side of legal specialists of the day. The spirit of the times was such that the engine of economic growth and prosperity should have no muffling impediment to weaken its function. It was quite natural, for example, for the city of Yawata—the first major steel center in Japan—proudly to sing in their municipal anthem.

Billows of smoke filling the sky

Our steel plant, a grandeur unmatched

Oh Yawata, Yawata, our city!

No city today would advertise “billows of smoke” in their sky. So strong was the sense of imperative for economic prosperity and military aggrandizement in the prewar Japan that the Pigovian warning on external diseconomies remained an entirely academic matter.

POSTWAR AWAKENING

The defeat in the last war crushed the military ambition of Japan which for more than half a century had given a peculiar twist to the course of Japan's political and economic development. With the defeat, however, came a new and immediate imperative of economic rehabilitation, and at the nadir of economic activities in 1945 all other considerations appeared as secondary. Although with hindsight some of the glaring cases of *kogai* could be traced back to the immediate postwar years, it was not until around 1955

—by which time Japan's per capita income recovered to the prewar level of 1934-36—that the *kogai* problem as a public issue started attracting wide attention. Three incidents, in particular, helped dramatize the issue: the *kogai* of Yokkaichi petro-chemical center, the methyl-mercury poisoning in Minamata area, and the cadmium poisoning along the Jintsu River. We shall take up these cases in turn.

The Kogai of Yokkaichi Petro-Chemical Center

The city of Yokkaichi faces the Bay of Isé not far from the city of Nagoya in the central part of Japan. It started out as a port city in the modern Japan, combined with a scenic bathing beach. It was in 1938 that the Japanese Imperial Navy decided to set up a fuel depot there and reclaimed a portion of the bay. The city was bombed because of this during the war and was heavily damaged by spreading fire. In the immediate postwar decade rehabilitation went on more or less after the prewar pattern of industrial and residential locations. But when in 1955 the Mitsubishi-Shell interest bought the former site of Naval fuel depot and began constructing a modern oil-refining and petro-chemical complex, the city authorities were awakened to the possibility of transforming Yokkaichi into a great industrial center. A group of “regional development” experts was commissioned to draft “A Yokkaichi Master Plan” and a gigantic piece of reclamation was commenced along the scenic sea shore. The “Plan” spoke of “a birth of a new industrial city with abundant sunlight and greens”; but clearly foresight was lacking. For there was no suggestion of moving either the residential section along the sea shore or the congested urban center near the port facilities. The result was—to give only one example—that one of the best residential sections, in fact the one constructed by Yokkaichi municipality, came to lose the scenic view of the

bay and found itself separated from a huge thermal electric plant only by a narrow strip of road. So innocently unaware were the authorities concerned at the time of the inevitable spillover effects of crowding modern plants near the places people lived.

The first group of petro-chemical complex (in Shiohama area) was completed in 1960 and the second group (in Umaokoshi area) in November 1963. So confident were the municipal authorities at the time of the future of the city as that of "an industrial center with abundant sunlight and greens" that they took an initiative, and succeeded, in becoming a sister city with Long Beach, California. The ceremony for this friendly association took place in 1963. Industrial production of the city, naturally, grew by leaps and bounds, as can be seen from the values of manufacturing products shipped contrasting Yokkaichi with the country as a whole in the index form:

Value of Manufacturing Products Shipped

—Index with 1960 as 100—

	Yokkaichi	The Country as a Whole
1956	57	56
57	70	67
58	67	65
59	81	78
60	100	100
61	123	122
62	150	134
63	174	153
64	207	167
65	218	179
66	262	206

Source: *Kogyo Tokei Hyo*, Ministry of International Trade and Industry.

It is quite clear from this table that whereas manufacturing in Yokkaichi grew more or less *pari passu* with the national trend until 1962, the trend suddenly started diverging from this year on and within five years the shipment more than doubled in Yokkaichi while the national total showed a respectable enough growth rate of 70 percent in half a decade.

Meanwhile, spillover effects of industrial operation, particularly in the form of air pollution, became gradually noticeable. In 1959 already, one year after the first petro-chemical plant on the old site of Naval fuel depot started its operation, asthmatic complaints were heard in unusual frequency in Shiohama area and actually in that year the death rate of aged female suddenly soared. Soon the bronchial ailment which became common in the city came to be known as "Yokkaichi asthma" and started attracting wide attention. Citizens' woes were not of respiratory trouble only. Indeed, Yokkaichi presented an "ideal" (!) class-room case of *kogai* in a multiple form, for almost every one of the modern *kogai* phenomena — the pollution of air by sulphur oxides, smoke and various dust particles; noise and vibration; water pollution; and offensive odor — began plaguing the citizens almost at the same time from around 1960. The Municipal Health Center has kept a record of complaints received that can be tabulated as in the table below.

Kogai Complaints Received

	"Poisonous" gas*	Smoke	Dust Particles	Noise & Vibration	Contaminat- ed Water	Others	Subtotal	Offensive odor	Total
1960	8	4	6	0	0	11	29	7	36
61	8	6	7	5	2	5	33	12	45
62	11	9	9	1	2	11	43	10	53
63	9	28	8	15	11	3	74	103	177
64	29	48	15	37	13	4	146	221	367
65	27	32	20	36	6	17	138	439	577
66	72	51	51	31	4	9	218	452	670

* Apparently, this is the laymen's way of identifying the invisible but oppressive condition of air affecting the respiratory function of those who are especially sensitive for one reason or other.

The frequency of complaints shows a marked rising trend, and it is especially to be noted that complaints of offensive odor soared suddenly after 1963. For these latter complaints the sources could be identified in most cases as coming from volatile organic matters (such as butadiene, naphtha, acrylic esters, etc.) contained in the factory drainage.

In addition to these complaints by ordinary citizens, there also occurred in Yokkaichi a spillover effect damaging an industry, namely that of fishing. At the mouth of Suzuka River, south of the Shiohama industrial area, there has always been a small fishing village for which the Bay of Isé provided a good enough fishing ground. From about 1960 complaints were heard occasionally that the fish caught near the bay smelled peculiar odor; and soon the accusing finger was directed by fishermen to the Miyé Thermal Plant nearby which drained its cooling water at the mouth of the river near the fishing village. The Electric Generating Company, however, would not take any action on the matter while the stench damage on fish kept on increasing and the fishermen became desperate, and finally in June 1963 they resorted to a direct action of throwing sandbags into the drain pipe. This riotous action provided an occasion for Prefectural Governor to intervene and led to the settlement by compensation. At the same time it was made clear that the Miyé Thermal Plant was only an intermediary of the stench damage since they simply pumped up the harbor water from the other end for the purpose of cooling boilers and drained it at the other end without adding anything or otherwise changing the quality of the water. The harbor water itself was polluted and dirtied by effluents from other factories facing the harbor.

At any rate, the stench fish incident of the summer of 1963 attracted so much publicity throughout the country and added oil to fire on

other more wide-spread complaints by citizens over *kogai* in general that the central government finally decided in the autumn of that year to appoint a special committee (the so-called Kurokawa Investigation Team) to look into the entire range of *kogai* phenomena in Yokkaichi. The Committee began its investigation in November 1963 and submitted to the government their "Final Report with Recommendations" in March 1964. Nationwide concern was naturally heightened with this intervention by Tokyo and was further aroused by the coincidental death, in early April that year, of a certain Mr. Furukawa, aged 63, who had been known as one of the victims of air pollution in Yokkaichi. Pathological autopsy of Mr. Furukawa's body revealed a great deal and became a focus of more than purely scientific interest. Yokkaichi came to be known throughout the country from around that time as "a city of *kogai*," the reputation which made the city start wrestling with the problem in dead earnest and at the same time an object lesson from which the central government and other regions were forced to learn.

Methylmercury Poisoning in Minamata Area

Yokkaichi is a typical case of *kogai* in the sense that sources of spillover are plural in number and that although the causal connection *in macro* could easily be established the specific responsibility *in micro* is impossible to pin down upon. Compared with the problem which Yokkaichi presents, the old story of Ashio, briefly touched upon earlier, was technically an extremely simple one. If the Ashio copper-refining company had a modicum of socialmindedness, they would have admitted in a much earlier stage the causal connection between their operation and the pollution of the river water and might have taken steps either to lessen the emission of pollutants or to compensate for the damage done. We

would like to have thought that the Ashio became a classical case in Japan because it occurred in the early stage of her industrialization when the imperative of production took precedence over the welfare of public at large. Therefore, it is something of a shock to realize that a case quite similar to the classical example of Ashio—in the sense that a specific source is related to a particular damage through a causal connection that can be scientifically established—has occurred in the present-day Japan, again the victims, rather than the offender, shouldering the burden of proof and the government not so eager to side with the victims at first. It is the case of Minamata Disease.

Minamata is a small city (pop. 50,000) on the western coast of Kyushu Island, a city which is dominated by one factory, namely, that of New Japan Nitrogen Company which produces, *inter alia*, aceto-aldehyde through catalytic hydration of acetylene with sulphate of mercury. As early as in 1953 there were reported in a certain section of the city incidents of convulsive death of some animals such as cats, dogs and crows. Soon afterwards, however, some of the residents of the city showed symptoms quite similar to these victimized animals and upon examination were found to suffer from impairment on their central nervous system. The death rate was as high as 40 percent and the disease was concentrated among poor fishermen residing in a certain part of the city. No one knew at first what caused this lethal disease; but medical specialists of the region began tackling with the problem immediately and the first hypothesis advanced (in November 1956) was that it had something to do with heavy metal, manganese for example, that was found in fish and shell-fish in the Bay of Minamata.

It must be pointed out that the scientists' group investigating the disease were seriously

handicapped in their work above all by the lack of cooperation by the Nitrogen Company. The latter simply commented on the above hypothesis by saying that they had ceased using manganese in 1953, and they refused either to have the factory drainage tapped directly or to respond to the scientists' request of obtaining chemical materials used in the process of production. But the research went on; and by the summer of 1959 a new hypothesis came to be advanced by the scientists' group connecting the disease with methylmercury. Just around the same time, though it came to be known much later, a certain Dr. Hosokawa attached to the Company Hospital confirmed, through experiments on cats, that the factory drainage contained some elements which could cause Minamata Disease. This invaluable research was kept secret by the Nitrogen Company, but apparently prompted the Company to settle the question of compensation once for all by proposing to pay to the victims the condolence money of 300,000 yen for each dead and the annual stipend of 100,000 yen for each adult patient, etc. The document containing these proposals was signed on 30 December 1959 by the Mutual Aid Society of Patients' Families; and it is highly significant that the Company, which at that stage denied any connection between the factory drainage and Minamata Disease, insisted on adding a clause in the document saying that "even in the event that the Company's factory drainage should in the future be found to have had a causal connection with Minamata Disease the Mutual Aid Society of Patients' Families shall not make any new demand for compensation."

The Nitrogen Company's attitude made the task of the scientists' group extremely difficult. For even after they succeeded in confirming the methylmercury hypothesis, they had an additional, more difficult, task of proving that the

methylmercury compounds found in fish and shell-fish originated in the production process used in the Nitrogen Company. This task was not made any easier by the attitude which the central government took. The Ministry of International Trade and Industry, in particular, mobilized an authority from Tokyo Institute of Technology who maintained that methylmercury was not the culprit, and apparently made its influence felt in the interministerial *ad hoc* committee on Minamata Disease to bring about the decision of discontinuing beyond 1959 any further direct investigation by a central governmental body on the cause of Minamata Disease. Needless to say, however, research by the scientists' group was continued with the little fund that was available to them. Ironically enough, they were assisted indirectly by the Nitrogen Company whose decision to change the draining site after September 1958 provided an objective possibility of unintended experiments. Close observation on the geographical distribution of new patients as well as the analysis on dirt bed near the new and old draining sites helped confirm the earlier suspicion that the effluents from the Nitrogen Company were responsible for the methylmercury compounds found in fish and shell-fish. Rigorous scientific studies were pursued on a number of fronts, and by 1964 practically all the links in the causal connection—including the process through which inorganic mercury used as a material by the Company transformed itself into organic mercury—were scientifically established. This, indeed, was a long history that can be told almost like a detective story where the perpetrator was known from the outset but the proof was difficult without his cooperation.

All told, the number of those who have been diagnosed as Minamata Disease victims has reached 116 by the end of 1959 of whom 45 have already died. And more than ten of the victims

apparently were affected by the disease in their fetal stage. So far as the Minamata area is concerned, occurrence of new patients has been drastically reduced ever since 1960 when the Nitrogen Company installed a special sewage facility. The case of Minamata Disease, however, still lingers on in the form of litigation which is currently in the court; and more important still, it has been repeated in another area (along the lower stream of Agano River in 1964-65) and has revived all the interest and fervor on methylmercury poisoning.

As one records the history of the Minamata incident, one is struck by the fact that workers employed by the Nitrogen Company, though apparently aware in the early stage of what the Company was trying to conceal, did not come to the aid of the victimized fishermen. It was only in a much later stage that some of them wrote in their own union publication (in 1967) repentent words of self-admonition. Why such had to be the case is a problem requiring the scrutiny into the relation between management and labor in an enterprise like the New Japan Nitrogen Company. The role played by Mayor of Minamata, who at the time had the support of the so-called "progressive wing", is also somewhat enigmatic. All in all, the Minamata incident poses an extremely interesting social scientific problem arising out of an impact of present-day *kogai* upon the complex of social and political relations in a rural industrial city.

Cadmium Poisoning along the Jintsu River

What is now known as cadmium poisoning apparently existed even before the war in a certain region along the Jintsu River and was called "itai-itai disease" (meaning "aching disease") by the local people. Until the cause of this ailment was traced to effluents of metal mining in 1957, common diagnosis was the diatetic

deficiency and cases were reported of patients who regained strength after taking heavy doses of vitamin D. Symptoms of the disease are grinding pains all over the body, especially around the pubic bone, and vulnerability to fracture of bones anywhere including ribs. Incidence appears to be especially heavy among fecund women; and according to one medical practitioner, who treated 260 cases of *itai-itai* disease since March 1946 to date, death due to this ailment was as high as 50 percent.

Here again, as in the case of methylmercury poisoning in the Minamata area, it was through the most patient research by a few private citizens that the culprit was traced to cadmium contained in the effluents of a zinc-refining plant on the upstream of the Jintsu River. The original hypothesis that cadmium had something to do with the *itai-itai* disease was advanced in 1960; and once this was suggested, the local prefectural government came into the picture with a program of research (in 1961) and two years later the central government, too, decided to allocate funds for joint investigation by various bodies concerned. It was not, however, until May 1968 that the Ministry of Welfare came out with an official announcement identifying the *itai-itai* disease as cadmium poisoning due to the effluents of a particular zinc-refining plant and designated it as a "*kogai* disease." Although the company concerned in this case did not in any way obstruct the research by scientists, as was the case with Minamata Disease, one cannot refrain from recording the fact that the early stage of the research by several devoted scientists received cold reception from most quarters and that the major financial assistance at the time came from the United States.

The causal connection, as we know it now, between cadmium and the *itai-itai* disease is as follows: Firstly, there is no question but that the

unusual amount of cadmium found in the Jintsu River is due to the effluents of zinc-refining plant located at Kamioka on the upstream. The river flows very rapidly towards north up to a certain point, and over the stretch of about 15 kilometers to that point the river bed is not higher than rice fields on both sides through depositing of earth which has flowed with the rapid stream. Because of this alluvial fan formation, the river floods almost every year, and whenever it does, dirt and sand from the river, and with them cadmium also, overflows onto the adjoining fields. This explains the fact that the *itai-itai* patients are found only in the neighborhood along this 15 kilometer stretch. It is in this way that the rice produced in this area habitually contained excessive concentration of cadmium in it. Here again is an example, widely observed nowadays, of an extraneous element in the ecological cycle becoming concentrated in a certain link in the chain (in this case, in kernels of rice) instead of undergoing decomposition or dilution.

All the three cases—the Yokkaichi *kogai*, methylmercury poisoning and cadmium poisoning—are now contested in courts for damage suits. In the postwar decades up to 1967 there are recorded in Japan 35 cases of the so-called *kogai* litigation, of which more than half (20) were related to noise and vibration, seven to water pollution, another seven to sunshine amenity, and one to offensive odor. But in none of these cases the damage claim amounted to very much, and legal framework in which they were handled was quite traditional in the sense that the general law of torts was expediently applied. The new suits involving the above three cases, however, have come up in the social atmosphere of heightening interest in *kogai* problems among general public and present a new dimension of legal problems which challenges the adaptability of law to a new

industrial state of today. In particular, the Yokkaichi suit provides in many ways a test case, for both plaintiffs and defendants are plural in number and the specific causal link between the damage suffered by any one of the former and the action of any one of the latter is practically impossible to prove even by the lenient criterion of "preponderance of evidence." Furthermore, the legal basis on which the plaintiffs are claiming compensation is the Article 709³⁾ and the Paragraph One⁴⁾ of the Article 719 of the Civil Code both of which were never intended to cover the case like the Yokkaichi pollution damage; and therefore, the court faces a difficult task of handling a case without a legal framework pertinent to the purpose.

LEGISLATIVE INNOVATIONS

Early postwar efforts for legislative innovations on *kogai* problems can be traced to a recommendation in 1949 by Resources Research Commission, then attached to the Economic Stabilization Board (now renamed as Economic Planning Agency), proposing to enact a legislation on the prevention of water pollution. No action, however, was taken by the government at the time. Then, in 1958, almost ten years later, there occurred an incident, right near Tokyo, in which 700 fishermen rioted against a paper mill whose drainage was held responsible for the damage on the fishing industry. The paper mill called in 1,000 policemen and altogether 64 were injured. The

3) "Whoever has infringed on another's rights by intention or negligence shall be held responsible for compensating the damage thus incurred."

4) "When several persons jointly caused a damage on another through wrongful acts, they shall jointly and severally be held responsible for paying compensation for the damage done. This responsibility cannot be waived even when it is not feasible to establish who among those several has caused the particular damage."

incident was not a sudden, spontaneous affair, but it was a culmination of a series of negotiations in which the company, the fishermen's association and the Metropolitan government of Tokyo had been involved and the fishermen's impatience, as is now admitted, had been strained to the utmost. The incident was settled through the enforcing of an injunction order on the company's operation; and somewhat hurriedly within that year the government enacted two new bills related to water pollution control—the Water Quality Conservation Act and the Drainage Regulation Act—which became harbingers of *kogai*-related legislations in the following decade.

Really serious efforts toward legislative innovations on *kogai* problems, however, began around 1963 when the then Minister of Welfare, Mr. Kobayashi, after visiting the city of Yokkaichi, broached the subject of drafting an umbrella legislation on pollution control in general. In the following year, the Japanese Bar Federation proposed to the government submitting of a new legislation to the Diet on "Environmental Pollution Control"; and the government decided to appoint in 1965 a commission composed of experts (the *Kogai* Commission) to deliberate on that subject. The Commission submitted their interim report in August 1966 in which for the first time in Japan a systematic philosophy dealing with the *kogai* problem was spelled out. Its highlights could be summarized as follows :

- (1) Responsibility for *kogai* in the light of private law resides, in principle, in source-agents.
- (2) Such responsibility in the light of private law is not affected by the question of intention or negligence.
- (3) Cost of prevention and elimination of *kogai* shall be borne by the source-agents concerned.

(4) The setting up, for example, of a buffer zone for the purpose of preventing the effects of *kogai* should be an integral part of any urban planning and the responsibility for such zoning arrangement, including the shouldering of its cost, should be shared by the central government and local autonomous bodies.

(5) Pollution control should be in terms of ambient quality standard rather than in terms of specific effluence limitation.

(6) Compensation for damage should be based on offensive excess beyond the tolerance limit as commonly understood.

Practical consequences of these ideas could be quite far-reaching, and some of the members of the Commission representing industries put up a strong resistance against a number of specific points. But when the Commission submitted its final report to the government in October 1966, the basic philosophy remained more or less intact and became the basis for a new legislation—The Basic Law for Environmental Pollution Control (*Kogai Taisaku Kihon-ho*)—which passed the Diet in July 1967. Because of the importance of this legislation we shall append the full text of this law in English translation at the end of this survey.

The Basic Law is a kind of charter which sets out a general program of action but leaves the matter of concrete application of that program to specific legislations and administrative actions. These latter, therefore, might be said to be more important for the parties concerned—such as enterprises, inhabitants, etc.—who are affected by the *kogai* problem. But an explicit phrase in the Basic Law can always be appealed to for the justification of a certain line of action; and for this reason it is quite significant that the final wording in the Basic Law contained a compromise with the interests of private industries. There are

two places in the Law where consideration for “harmony with sound economic development” is indicated: firstly in Article I where the purpose of the Law is spelled out, and secondly in Article XI where the prescribing of ambient quality standards is specified. In both places the unmistakable implication is that the need for environmental pollution control is not absolute but might, in certain cases, yield to the interest of promoting economic activities. This compromise, which was the product of the “growthmanship” atmosphere of the decade of 1960’s in Japan, nevertheless invited a great deal of criticism from various quarters; and the Diet, in passing the Law, was constrained to supplement it by a rider, in the form of a resolution of the Diet, in which the major purpose of the legislation was reiterated to be that of “protecting the health of nation.” In fact, the rider was the form in which lip-service was paid to active protagonists of *kogai* control for those issues on which conservative interests resisted explicit commitment by the Law. Thus, another controversial issue—that of holding enterprises responsible for indemnification even when non-negligence can be established—was left outside the text of the Law and was mentioned in the rider as a question to be explored in the future. Another question, namely that of integrating administrative organs for *kogai* control, the need for which was admitted by every one, was also shelved in the face of resistance by bureaucracy and found an explicit reference only in the rider. Since a rider to a legislation has no force of law in the legislative practice of Japan, one cannot expect very much to materialize out of the clauses contained in such a rider.

The first major attempt at implementation of the specific clauses of the Basic Law was in connection with Article IX which provides that “National Government shall prescribe, with respect to air pollution, water pollution and noise,

the ambient quality standards that are deemed desirable to maintain for the protection of people's health and the conservation of their living environment."

In the dynamic world of rapid economic growth one can easily see that specific effluence limitation on each enterprise does not guarantee the maintenance of a certain quality standard for the region concerned. When the threshold value of a certain pollutant is 100 and there is only one firm emitting such pollutant, the specific effluence limitation for that firm could be 100. But when the number of firms emitting the same pollutant increases, let us say, to 5, the specific effluence limitation has to be made proportionately severer and it will now be 20. In other words, specific effluence limitation on each firm has to be made dependent on the number of firms in the area concerned, and the starting point for any environmental pollution control has to be the specifying of ambient quality standards. Naturally, therefore, it was the first item on the agenda of the government to implement Article IX of the Basic Law. The procedure for this was for the Minister of Welfare to request deliberation on the subject by the Commission on Living Environment, a consultative body to the Minister, and on the basis of a recommendation by this Commission, for the Environmental Pollution Control Council (see the Basic Law, Article XXV) to review the question and to propose a particular set of standards to the Cabinet meeting for the final decision.

The first of such decisions by the Cabinet was that of February 1969 on the ambient air quality standard as regards sulfur oxides, and the process through which a certain set of standards was decided upon is sufficiently interesting as an illustration of political adjustment that we shall recount the story in some detail. The organizational hierarchy is somewhat complicated, but the Commission on Living Environment,

referred to above, had a sub-committee on environmental pollution control which in turn set up a technical committee on ambient air quality standard which drafted the original recommendation on the subject in January 1968. This technical committee, composed mainly of medical and engineering specialists, refrained from setting an ambient quality standard as such, but instead limited itself to giving suggestions on technical guidelines for any decision one may make on such ambient quality standard. Their technical conclusion is summarised in the following words :

"As far as we can rely on the data that have been collected till now concerning the influence of SO₂, especially the relation between the index of SO₂ concentration and its influence, the threshold values expressed in the form of an index of SO₂ concentration will be as follows: In the case of the measurement made by hourly sampling of the air for an hour,

0.05 ppm for the 24-hour average of hourly values, and

0.1 ppm for the hourly value.

These threshold values are suggested on the basis of the studies that have shown that within these values (1) ingravescence of patients cannot be proved epidemiologically, (2) the increase in the death rate cannot be proved, (3) the increase in the prevalence of those who have symptoms of obstructive respiratory diseases cannot be proved, and (4) the undesirable reaction or impairment in the respiratory functions of the young cannot be proved epidemiologically. Thus we recommend these threshold values as practical targets in an effort to reduce the pollution of air by sulfur oxides in any local environment,"

This recommendation by the technical committee formed a basis for the decision taken by the

next echelon above it, namely the sub-committee on ambient quality standard, to recommend the exactly same threshold values on sulfur oxides as above and to add extenuating provisos to the effect that :

the hourly value of 0.1 ppm can be exceeded during 7 percent of the total of 8,760 hours in a year; and

the 24-hour average value of 0.05 ppm can be exceeded during 20 percent of the total of 365 days in a year.

Medical and engineering specialists felt that these were the maximum concessions that can be made in consistency with the overriding principle of the "protection of people's health." But when the matter was finally placed on the table for deliberation by the Commission on Living Environment, some members of the Commission representing industries succeeded in having the phrase on "harmony with sound development of the economy" put on the record as one of the basic principles guiding the decision on ambient quality standards and thus in modifying the extenuating provisos to read that :

the hourly value of 0.1 ppm or less shall be maintained for more than 88 percent of the total hours within a year ; and

the 24-hour average value of 0.05 ppm or less shall be maintained for more than 70 percent of the total days within a year.

In other words, the allowance for exceeding the threshold values was widened from 7 to 12 percent and 20 to 30 percent, respectively.

The Cabinet decision was handed down on 12 February 1969, and for the first time in Japan an ambient quality standard was specified on the national scale as regards one air pollutant, namely sulfur oxides. This decision, however, has no force of law by itself and the enforcement will

have to rely on the legal provisions of the Air pollution Control Act which can regulate specific effluence limitations on each plant. It is also to be noted that the Cabinet decision on the ambient quality standard for sulfur oxides contained a provision for years of grace for those areas where the pollution is at present excessive. Thus, Tokyo and Osaka areas are given ten years' time to attain the standard and some of the other industrial areas are given five years' grace. On the whole, the Cabinet decision of February 1969 was criticized for being too lenient; and some of the local autonomous bodies, such as Tokyo Metropolitan government, proceeded on their own to map out a plan of air pollution control, a plan which is severer than the ambient quality standard of the central government indicated.

In any case, it was only in the summer of 1967 that the Basic Law for Environmental Pollution Control was promulgated in Japan. Although there existed a number of legislations before that time that could be applied for controlling of environmental pollutions, a new era of legislative programs on environmental problems was ushered in after the promulgation of the Basic Law. Thus, the old Smoke, etc. Control Act was replaced in 1968 by the new Air Pollution Control Act, and also in the same year the Noise Abatement Act was newly enacted. Process of rounding out related legislations is still going on. And at the same time, it must be added, some of the local governments are exploring, most energetically, their own ways of tackling the *kogai* problems in their regions. All in all, one can be certain that the decade of 1970's will begin in Japan with a crowded schedule of legislative proposals and regulatory measures designed to deal with various aspects of environmental disruption.

A METHODOLOGICAL REMINDER

In a Japanese dictionary compiled in 1955 and intended to cover exhaustively all the words currently in use in Japan there was not even a mention of the word "kogai." But in the latter half of 1960's *kogai* has become one of the most widely discussed issues in Japan, and it could even be said that capitalizing the issue for political purposes tends to run ahead of the patient efforts for accumulation of knowledge and of the day-to-day observance of existing laws and regulations. In fact, it was quite interesting to note that when a daily newspaper of wide circulation in Tokyo asked all the candidates in Tokyo area for the general election of December 1969 what each of them felt to be most lacking in Tokyo practically all of them responded by naming "clean air and clear sky." The very fact of extremely rapid rate of growth of the economy during the past decade and half has created no doubt spillover effects of all kinds in the manner an automobile speeding on an unpaved road splashes pedestrians with mud. In a sense, therefore, keen awareness which has been suddenly and widely aroused on the *kogai* problem has been a concomitant of an exceptionally high rate of growth of the economy. But it cannot be denied that the geographical peculiarity of Japan with urban and industrial concentrations in narrow plains and along the sea shore aggravates external diseconomies of enterprise activities. Thus Japan's recent experience constitutes a test case for various aspects of *kogai* problems offering object lessons to others and challenging the ingenuity of social engineers concerned with the subject.

One thing, however, has to be mentioned by way of a reminder. The question of spillover effects or external diseconomies is not independent of the institutional characteristics of the

particular economy concerned. Japan's economy is that of capitalism where private capitalistic firms constitute the basic autonomous units of economic activities. In the early days of capitalistic development private firms enjoyed the double privilege of internalizing all the external economies without the payment of *quid pro quo* and of not being called upon to compensate for external diseconomies which they caused. In other words, the principle of "as one sows, so shall he reap" prevailed, as it were, "inside the fence of a factory," and any nuisance effect "outside the fence" was considered "external" from the standpoint of the cost accounting of a firm. If and when the "external" effect acquired a proportion large enough to cause damage to a third person, or to the general public, one kind of legal action or another was taken. With the advent, however, of modern technology and the tremendous increase of scale in the operation of a single firm, coupled with urban development, the "external" effect has acquired a new dimension and at the same time has made it quite clear that the old principle of "as one sows, so shall he reap" cannot be encompassed within the narrow cost accounting of an individual firm. In a word, the social character of production process has become so extensively heightened that the freedom of private enterprise can no longer remain unqualified. Thus here arises a conflict between the traditional institutional arrangement of the Japanese economy on the one hand and the consequences of the development of productive forces on the other, and this conflict creates tensions and problems peculiar to the present stage of Japan's socio-economic development. Although it is quite true that there are aspects, in the phenomena of environmental disruption, which are common to many societies, we must also be aware that social scientific approach to this problem requires directing our attention to

the complex interaction between the disruptive elements in our environment and the institutional characteristics of that society. Japan's recent experience should be studied with this warning in mind.

APPENDIX

The Basic Law for Environmental Pollution Control

Chapter One General Provisions

Article I (*Purpose*)

1. This Act is enacted for the purpose of clarifying the responsibilities for environmental pollution control on the part of enterprises, the state and local public bodies and of specifying the basic matters related to their control, thereby promoting in a comprehensive manner counter measures against environmental pollutions, thus protecting the health of nation and conserving their living environment.

2. In conservation of the living environment provided in the preceding paragraph, harmony with sound economic development should be considered.

Article II (*Definition*)

1. When used in this Act, the term "environmental pollution" (*kogai*) means the condition of causing damages on human health and living environment over considerable range of area by air pollution, water pollution, noise, vibration, ground subsidence (excepting the one caused by digging for mining works) and offensive odor as brought about through enterprise activities or other human activities.

2. The term "living environment" in this

Act includes all the properties closely related to man's life and also animals and plants having intimate relations with human living as well as their own ecological environment.

Article III (*Responsibility of the Enterprise*)

1. Enterprises shall be held responsible for taking necessary measures to prevent and abate environmental pollutions, caused by their enterprise activities, and for cooperating with the measures taken by the state or local public bodies for the purpose of controlling such environmental pollutions.

2. Those who manufacture and process goods and materials shall make efforts to contribute towards prevention and abatement of environmental pollutions arising in connection with the use of the goods they manufacture or process.

Article IV (*Responsibility of the State*)

1. The state has the responsibility to establish basic and comprehensive policies and execute them with regard to environmental pollution control, in view of the fact that it has the mission to protect nation's health and conserve their living environment.

Article V (*Responsibility of Local Public Bodies*)

1. For the purpose of protecting the health of local population and conserving their living environment, local public bodies have the responsibility not only to take measures based on the policy of the state but also to establish and execute their proper policies for environmental pollution control to meet local needs, based on specific natural and social conditions.

Article VI (*Responsibility of the Inhabitants*)

1. The inhabitants shall endeavor to contribute to prevention and abatement of environmental pollutions through cooperating with control measures taken by the state and local public bodies.

Article VII (*Annual Reports, etc.*)

1. National Government shall submit to the Diet every year a report relating to the current status of environmental pollutions and the measures taken by the government in order to control them.

2. National Government shall submit to the Diet every year a document detailing those measures which the government proposes to take in the light of the current status of environmental pollutions as described in the report mentioned in the preceding paragraph.

Article VIII (*Prevention of Air Pollution, etc., Caused by Radioactive Substances*)

1. With regard to the measures to prevent air pollution and water pollution caused by radioactive substances, the provisions specified in the Atomic Energy Basic Law (Law Number 186, 1955) and other laws related to that Act shall be applied.

Chapter Two Fundamental Policies for the Prevention of Environmental Pollutions

Section One Ambient Quality Standard

Article IX

1. National Government shall prescribe, with regard to air pollution, water pollution and noise, the ambient quality standards that are deemed desirable to maintain for the protection of people's health and the conservation of their living environment.

2. Among the standards mentioned in the preceding paragraph, the one concerning the living environment shall be prescribed with due consideration to the harmony with sound development of the economy.

3. The standards provided in paragraph 1 should be reviewed regularly in the light of relevant scientific progress and revised when-

ever deemed necessary.

4. National Government shall use its endeavors for securing the observance of the standards provided in paragraph 1, through the execution of environmental pollution control policies and measures in a comprehensive and effective manner.

Section Two Measures to be Taken by the State

Article X (*Emission Control, etc.*)

1. National Government shall enforce, for the purpose of preventing environmental pollutions, regulatory measures regarding emission, etc., of air and water pollutants, by setting the standards to be observed by enterprises, etc.

2. National Government shall use its endeavors, for the purpose of further preventing environmental pollutions, for taking necessary measures against noise, vibration, ground subsidence and offensive odor in the manner similar to the provision in the preceding paragraph.

Article XI (*Control of Land Use and Siting of Establishments*)

1. National Government shall take, for the purpose of preventing environmental pollutions, necessary measures of control on land use and further shall regulate the siting of establishments with the possibility of causing environmental pollutions in those areas where such pollutions are already flagrant or threaten to become extensive.

Article XII (*Promotion of Public Works for the Prevention of Environmental Pollutions*)

1. National Government shall take measures to promote public works deemed necessary for the prevention of environmental pollutions, such as the establishment of buffer zones, sewage facilities, and other public facilities which contribute to the pur-

pose envisaged in this Act.

Article XIII (*Establishment of Inspection and Monitoring Systems, etc.*)

1. National Government shall use its endeavors for installing systems of monitoring, measurement, testing and inspection which will be needed for obtaining thorough grasp of the conditions of environmental pollutions and for executing enforcement measures of control with fairness.

Article XIV (*Research to be Done*)

1. National Government shall carry out a program of research related to the forecast of environmental pollution risks and also such researches as needed for planning of policies on environmental pollutions.

Article XV (*Promotion of Science and Technology*)

1. National Government shall take, for the purpose of promoting such science and technology which would contribute to the prevention and abatement of environmental pollutions, necessary measures as regards the development of facilities for applied scientific research, the encouragement of new lines of research, the dissemination of fruits of such research, and the training and cultivation of research workers concerned.

Article XVI (*Propagation of Knowledge, etc.*)

1. National Government shall use its endeavors for propagating general knowledge on environmental pollutions and also for heightening the awareness of people on the need to control environmental pollutions.

Article XVII (*Need for Care for the Prevention of Environmental Pollutions in connection with Regional Development Policies, etc.*)

1. National Government shall pay special heed to the prevention of environmental pollutions in planning and executing regional development policies relating to urban devel-

opment and industrial location.

Section Three Measures to be Taken by Local Public Bodies

Article XVIII

1. Local public bodies shall take not only those measures which correspond to the ones taken by the state as provided in the preceding section, in consistency with other laws and regulations, but also are to carry out other necessary measures for environmental pollution control which meet their local needs in the light of their natural and social conditions. In this connection, prefectural governments are expected mainly to execute those measures covering wider areas and also to play the role of integrating and co-ordinating the measures to be taken by municipalities.

Section Four Prevention of Environmental Pollutions in Specified Areas

Article XIX (*Drawing up of Plans for Prevention of Environmental Pollutions*)

1. For either of the areas specified below, the Prime Minister shall indicate basic policies relating to plans for the prevention of environmental pollutions to be executed in that area (hereafter in this Act to be called "plans for prevention of environmental pollutions") and shall instruct prefectural governors concerned to work out specific plans for that area.

(1) The area in which environmental pollutions are already extensive and in which it is deemed that prevention of environmental pollutions will be extremely difficult unless control measures are put into effect in a comprehensive manner.

(2) The area in which environmental

pollutions threaten to become serious on account of rapid concentration of population and industries and in which it is deemed that prevention of environmental pollutions will be extremely difficult unless control measures are put into effect in a comprehensive manner.

2. When a prefectural governor concerned receives the direction specified in the preceding paragraph, he shall draw up a plan for prevention of environmental pollutions, based on the basic policies provided in the preceding paragraph, and shall obtain an approval on it by the Prime Minister.

3. Before issuing the direction under paragraph 1 and the approval under the preceding paragraph, the Prime Minister shall submit the matter to the deliberation of the Environmental Pollution Control Council.

4. Before issuing the direction under paragraph 1, the Prime Minister shall consult with the opinion of the prefectural governor concerned.

Article XX (*Expediting of Execution of Plans for Prevention of Environmental Pollutions*)

1. The state and local public bodies shall use their endeavors for taking necessary measures to execute the plans for prevention of environmental pollutions.

Section Five Settling of Conflicts Connected with Environmental Pollutions and Redress on Damages

Article XXI

1. National Government shall take necessary measures for establishing a system of settling conflicts connected with environmental pollutions whether in the form of mediation or arbitration.

2. National Government shall take necessary measures for establishing a system for

making redress smoothly on damages arising from environmental pollutions.

Chapter Three Sharing of Cost and Financial Measures, etc.

Article XXII (*Sharing of Cost*)

1. Enterprises shall bear whole or part of the expenses necessary for the activities executed by the state or local public bodies to prevent environmental pollutions arising out of their enterprise activities.

2. The scope of the cost which enterprises are to share under the preceding paragraph, the scope of enterprises concerned, the method of calculation of the amount to be levied to enterprises and other necessary matters connected with the sharing of cost shall be provided by another law.

Article XXIII (*Fiscal Measures for Local Public Bodies*)

1. The state shall use its endeavors for taking necessary fiscal and other measures in connection with the cost needed, on the part of local public bodies, in taking environmental pollution control measures.

Article XXIV (*Aid to Enterprises*)

1. The state and local public bodies shall use their endeavors for providing necessary measures of various kinds, such as financial, taxation and otherwise, for facilitating prevention and abatement of environmental pollutions performed by enterprises.

2. In providing these measures, special consideration should be given to small and medium enterprises.

Chapter Four The Environmental Pollution Control Council and the Central Advisory Commission for Environmental Pollution Control

Section One The Environmental Pollution Control Council

Article XXV (*Establishment of the Organization and its Functions and Responsibilities*)

1. There is hereby established the Environmental Pollution Control Council (hereafter in this Act to be called "the Council") as an agency attached to the Prime Minister's Office.

2. The Council shall be responsible for the following functions.

(1) To administer, in connection with plans for the prevention of environmental pollutions, the matters provided in paragraph 3 of Article XIX.

(2) To discuss, besides the matter specified in the preceding paragraph, on the planning of basic and comprehensive policies and measures related to the prevention of environmental pollutions, and also to promote the execution of such policies and measures.

(3) Other business matters which belong to the competence of the Council as provided by other laws and regulations.

Article XXVI (*The Composition, etc.*)

1. The Council is to be composed of a chairman and council members.

2. The Prime Minister shall hold office of the chairman.

3. The council members shall be appointed by the Prime Minister from among the heads of ministerial organizations concerned.

4. There are to be managing secretaries in the Council.

5. The managing secretaries shall be appointed by the Prime Minister from among the officials of ministerial organizations concerned.

6. The managing secretaries shall assist the

chairman and the council members in the matters belonging to the competence of the Council.

7. Administrative routines of the Council shall be managed by the Bureau of Environmental Sanitation in the Ministry of Welfare.

8. Other necessary matters, other than those provided in preceding paragraphs, with regard to the organization and the management of the Council shall be provided by Cabinet Orders.

Section Two The Central Advisory Commission for Environmental Pollution Control

Article XXVII (*Establishment of the Organization and its Functions and Responsibilities*)

1. There is hereby established the Central Advisory Commission for Environmental Pollution Control (hereafter in this Act to be called "the Advisory Commission") as an agency attached to the Prime Minister's Office.

2. The Advisory Commission shall be responsible for the following functions.

(1) To investigate and discuss, in response to requests made by the Prime Minister, on the basic matters related to the environmental pollution control.

(2) Other business matters which belong to the competence of the Advisory Commission as provided by other laws and regulations.

3. The Advisory Commission may make representations to the Prime Minister on the matters provided in the preceding paragraph.

Article XXVIII

1. The Advisory Commission is to be composed of the maximum of 20 members.

2. The members shall be appointed by the

Prime Minister from among those who are experts on the question of the prevention of environmental pollutions.

3. The members will serve as part-time.
4. Administrative routines of the Advisory Commission shall be managed by the Bureau of Environmental Sanitation in the Ministry of Welfare.
5. Other necessary matters, other than those provided in preceding paragraphs, with regard to the organization and the management of the Advisory Commission shall

be provided by Cabinet Orders.

Article XXIX (*Local Advisory Commissions for Environmental Pollution Control*)

1. Local public bodies may, by issuing enabling ordinances, establish Local Advisory Commissions for Environmental Pollution Control whose functions will be to investigate and discuss on the basic matters related to the environmental pollution control in each of the local public bodies concerned.

【Shigeto Tsuru】

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