Abstract: We can distinguish four historical stages of environmental problems in postwar Japanese society. Historical retrospect shows that Japan was one of the worst countries concerning environmental disruption and that it experienced various issues corresponding to the change of main investment domain. Since the late 60s, residents' movements of victims pushed the business world, the national and local governments to take more strict measures for the protection of the environment. New policy framework was defined in the beginning of the 70s. But further improvement of environment policy was not carried out under stagflation of first oil crisis. As a result of economic growth, Japanese society multiplied its demands on the ecosystem and it became a society characterized by a separate-dependent ecosystem and by one-way consumption. Disequilibrium of the power balance and defects in the decision-making process are basic social factors that have accelerated environment destruction in Japan. Despite apparent change, these social conditions continue to exist without change, and constitute an obstacle to the development of an environment-oriented technology and a transformation into a more “regenerative” society with a self-supplying ecosystem.

INTRODUCTION

Economic growth in postwar Japanese society has been accompanied by much environmental destruction. It can be said that Japan has the worst record of environmental damage among the advanced countries. What are the characteristics of these problems? In what ways have they changed, or remained the same? Faced with new global environmental concerns, will Japanese society repeat past failures? In order to approach these questions, we shall first take a brief survey of environmental problems in postwar Japanese society. We shall then examine social change concerning environmental problems and present a theoretical perspective to inquire into the meaning of the historical transition of environmental issues. Finally, we shall examine some constant conditions that deeply influence Japanese environmental damage. Through these analyses, we shall be able to obtain several viewpoints for forecasting future areas of environmental concern in Japan.

1. FOUR HISTORICAL STAGES OF THE GROWING ENVIRONMENTAL PROBLEMS IN POSTWAR JAPANESE SOCIETY

To trace the historical transition of environmental issues in postwar Japan, we can divide the problems into four periods:

1) 1945 - 63 postwar rehabilitation and the first period of rapid economic growth,

2) 1964 - 73 grand transformation of society in the late 60s and early 70s, i.e. the
second period of rapid economic growth,  

[7] 1974 - 86 stagnation and retrogression of reform under stagflation, and  


1.1 The emergence of environmental problems in the postwar period

In the first stage, economic rehabilitation and growth was already accompanied by environmental disruption. Mining industries, such as Chikuho coal fields in Fukuoka, Toho Zinc and Asio Dozan in Gunma, gave damages to neighbouring farmers. Air and water pollution began to increase in major industrial areas such as Tokyo, Osaka, Yokohama, Kawasaki, Chiba, and Amagasaki, and conflicts were caused by polluting paper companies in several districts, including Shizuoka, Hokkaido, and Kochi.

Serious damage and several bitter disputes occurred during this period. Representative cases include the Morinaga milk poisoning of 1955 (subacute arsenic poisoning), the Kumamoto Minamata disease (methyl mercury poisoning, the victims of which were officially recognized in May 1956), and the pollution of the Edogawa river by the Honshu Paper Company's Edogawa plant in 1958. In Gunma prefecture Toho Zinc was involved in a lengthy dispute with farmers living near their Annaka plant.

Although there were many victims of environmental destruction, it was very difficult to organize an effective anti-pollution movement during this period. Challenges were often quickly suppressed, with neither sufficient indemnity payments nor any considerable decrease in pollution. In several cases it was difficult to establish a causal relation between disease and environmental damage, or to achieve social recognition of the victims. For example, sufferers of SMON disease (Quinoform poisoning) were diagnosed in 1955, but its causal relation was not firmly established and they were not recognized as victims of environmental disruption during this period. Even when a causal relation could be established by researchers, as in the case of Itai-itai disease (cadmium poisoning) in 1961, it was difficult to organize an effective protest movement.

As regional pollution disturbances increased, government regulations were reinforced on national and/or local levels. In Osaka, regulations enacted in 1954 to prevent pollution in the workplace completely revised those issued in 1950. Tokyo instituted a smoke and soot prevention ordinance in October 1955. The Water Quality Conservation Law and the Factory Effluents Control Law were enacted on December 25, 1958, due to the pollution at the Edogawa plant of the Honshu Paper Company. These regulations were nevertheless unable to effectively prevent pollution, because economic interests took priority over environmental concerns; unscrupulous manufacturers continued to take advantage of the laxity underlying anti-pollution laws. National and local governments failed to actively protect the ecosystem. The conflicts remained local, and failed to change the social climate concerning environmental problems.

1.2 Grand transformation of society

The second stage was characterized by a dramatic change in the social climate towards environmental disruption. In the latter half of rapid economic growth between 1964 and 1973, unprecedented environmental damage occurred, and increased correspondingly with
augmentation of investment. Environmental destruction in Japan was so intense that the word kogai, meaning environmental disruption in Japanese, became known throughout the world.

Since 1960, air and water pollution emitted by the Yokkaichi petro-chemical complex in Mie prefecture has caused Yokkaichi asthma, and serious damage to the fishing industry. Disputes between companies, government, and residents intensified throughout the 60s. In the Niigata area in 1965 the second occurrence of Minamata disease due to waste water contaminated by methyl mercury was discovered. In 1968 the Kanemi oil tragedy in northern Kyushu became known; skin complaints and numbness were reported by families who had consumed cooking oil made from rice bran by Kanemi Soko. In July 1970 the first officially recognized incident of photochemical smog blanketed an estimated area of eleven wards and eight cities causing thousands of residents to complain of eye irritation and sore throats.

Public works have also caused environmental disruption. Noise levels at the Osaka International Airport became intolerable for neighbouring residents after the introduction of jetliners in 1964. The shinkansen (bullet express train), which has been in service since 1964, has been a source of excessive noise and vibration along its line, especially in Nagoya. These two services became bigger nuisances as traffic increased with economic growth. Finally, residents around the Osaka International Airport filed suit against the government in December 1969, and residents along the Shinkansen line in Nagoya filed suit against Japan National Railway in March 1974, demanding indemnification and the suspension of excessive noise and vibration.

Faced with so much environmental disruption, many residents had no other option but to organize protest movements for self-protection, and to engage in active confrontation with enterprises or administrations interested in pushing economic growth. In the late 60s, many social movements arose simultaneously, such as student unrest and anti-Vietnam demonstrations. These outbursts profoundly changed the social climate, and allowed incidents which had been suppressed or covered up to surface once again and attract renewed social attention. Itai-itai disease, the Kumamoto Minamata disease, and the Morinaga milk poisoning are such examples. It was in this period that Japanese anti-pollution movements began to gain momentum. In 1964 a group of residents succeeded for the first time in halting the construction of a large petro-chemical complex in Numazu, Mishima and Shimizu in Shizuoka prefecture. This first grand victory was the outcome of the battle inspired by the tragic experience of the Yokkaichi petro-chemical complex in Mie prefecture. Successive decisions for the people in four pollution trials had great impact on business and government, and encouraged many other citizens' movements: the first Itai-itai disease suit, filed in March 1969, was decided in favor of the plaintiffs in June 1971; the Niigata area Minamata disease suit, filed in June 1967, was settled in favor of the plaintiffs in September 1971; in July 1972 the Yokkaichi pollution victims won a law suit originally filed in September 1967; and finally, the Minamata patients of the Kumamoto area filed an indemnity suit in June 1969 and won in March 1973. Through these four trials, new legal theories and judicial precedents emerged which would make it easier to file suit against polluters.

The change in social climate brought an increase in the number of elected reformist governors and mayors who severely criticized the policies of the conservative government. Reformist governors were elected in Tokyo in 1967 and in Osaka in 1971. Pressured by
citizens' movements in the late 60s, some local governments began to take strict measures against pollution earlier than the national government. In July 1969 Tokyo proclaimed a new pollution prevention ordinance that was designed to safeguard the right of residents to a comfortable living environment. By January 1972, 32 of 46 prefectures had enacted pollution prevention ordinances.

The combination of progress of anti-pollution action at the local level and the persistent protest of residents' movements and public opinion pressured the government to reinforce anti-pollution measures. The business world was also obliged to change its indifferent attitude toward victims and the ecosystem, and to increase anti-pollution investment. In December 1969 the Law Concerning Special Measures for the Relief of Pollution-Related Patients was officially announced. Fourteen environmental bills were approved, including an amendment to the August 1967 Basic Laws for Environmental Pollution Control, in December 1970. The Environment Agency, Created in July 1971, Was relatively active in setting anti-pollution policy in the early 70s. In April 1973 the Nature Conservation Law was established. In May 1973 the sulphur dioxide standard was revised (to 0.04ppm for a daily average of hourly values), a standard for nitrogen dioxide was set (0.02ppm as a daily average of hourly values), and a photochemical standard was also set (0.06ppm for hourly values). In October 1973 the Pollution Health Damage Compensation Law was enacted.

In this second stage, anti-pollution movements, organization of victims and residents, and a new definition of social situation emerged simultaneously. The Japanese became aware of their being excessively like economic animals. Serious doubts about economic values heightened social consciousness, and pursuit of other values became prevalent. In sum, Japanese society experienced a great transformation during this period.

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1.3 Stagnation and retrogression of reform

In the third stage, between 1974 and 1986, environmental action began to stagnate, and policy partly regressed, because of stagflation after the first oil crisis. After 1973, the Japanese economy experienced first hyper-inflation, then along depression caused by the tight monetary policy designed to counteract inflation. Investment slowed in both private and public sectors. Many large-scale development projects, such as the Mutsuogawara Petro-chemical complex in Aomori prefecture, were abandoned. Others were postponed or reduced in size. Faced with this radical change in economic circumstances, management of many Japanese firms became far more difficult. Therefore, an early control of stagflation became the government's most urgent policy goal.

On the one hand, due to the regulatory framework set up during the second stage, various pollutants diminished gradually throughout the 70s, as shown in Table 1. But on the other hand, further improvement of environment policy was not carried out. Government policy was not reinforced, and in some cases it was actually loosened. It was said that the residents' movement entered its winter season in the late 70s.

The stagnation of environmental policy was reflected in the following incidents:

- The Environmental Agency twice revised the criteria used to establish cases of Minamata disease: once in 1977 and again in 1978, each time narrowing the definition. After the revisions the number of victims unable to prove they were...
suffering from Minamata disease increased sharply.

In 1978, the business world managed to pressure the government to relax NO2 emission standards, despite much criticism from victims' groups and researchers.

Beginning in 1976, the Environmental Agency repeatedly tried to pass the Environmental Impact Assessment Law, but failed in the face of stubborn opposition from business, economic ministries and the Liberal Democratic Party. Finally, in 1984, environmental impact assessment was introduced on a government level through an administrative decision at a cabinet meeting. However, as it had not been formalized in law, environmental impact assessment was not sufficiently institutionalized.

Another important change at this stage was the increase of foreign investment by Japan, which gave rise to environmental problems abroad. In connection with the Japanese government's increased Official Development Assistance (ODA) through the 70s, Japanese businesses also spent more overseas. Foreign investment often led to environmental destruction and confrontation. In the early 80s, national finance was plunged into a crisis due to heavy national debt which had accumulated through the stagflation of the 70s. Administrative reform became the major political concern, and environmental problems faded into the background.

1.4 Revival of environmental issues

The fourth stage, beginning around 1987, is characterized by the revival of environmental issues. With the increase of public and private investment after a decline in budgetary deficit due to administrative reform, new regional problems appeared. On an international level, since 1987, global environmental concerns have attracted public attention all over the world.

With economic recovery, an increase in the international exchange and informatization, the fourth comprehensive national development plan was formulated in 1987. The construction of highway networks, airports, and several bullet express train lines was announced. The Resort Development Law of 1987 stimulated new investment in golf courses, hotels, and marinas in areas where nature previously had been well-protected. Increased investment inevitably gave rise to many citizens' movements and regional disputes. New environmental issues began to appear in response to major changes in
industrial investment. One example was the construction of a nuclear fuel cycle plant in Aomori prefecture, which the governor approved in April 1985 on the pretext of industrial reform. Citizens, farmers, organizations, labor unions, and scientists in Aomori mounted powerful anti-nuclear campaigns, especially after the Chernobyl accident in 1986.

Regional problems involving bio- and high-technology industry are also common during this stage. Despite the earlier "clean" image of this type of industry, people have become more cautious of bio-hazard and pollution due to new chemical materials.

Another feature of this stage is the involvement of ordinary people in the process of destruction. We are now aware that most global environmental problems are accelerated either directly or indirectly by the actions of ordinary people. Water pollution from household waste water has increased in many rivers and lakes. Garbage disposal has become progressively difficult and is fraught with controversy all over the country.

Thus, environmental problems have again become a major social issue in Japan and the rest of the world.

2. CHANGING SOCIAL ATTITUDES TO ENVIRONMENTAL PROBLEMS

We have seen that Japan is among the worst offenders concerning environmental disasters related to economic growth. In such tragic cases as Minamata disease, Itai-itai disease, and the Morinaga milk poisoning, many lives were lost because of pollution. It seems that these incidents would not have been tolerated in other countries. The blame lies not only with private enterprise, as both national and local governments have frequently turned a blind eye and even protected polluters.

Through economic growth, Japanese society has seen a grand transformation in all sectors. Many changes involving environmental issues have also occurred, but can we say that Japanese society has completely overcome its environmental problems? Today, can we forget our tragic experiences as if they were problems belonging only to the past? Is Japanese society immune to the repetition of similar problems in the future? In order to approach these questions, We shall first clarify the characteristics of the changing environmental problems caused by economic growth. Next we shall inquire whether there existed, in Japanese society, particular factors which contributed to such violent environmental destruction, and whether they continue to exist despite society's apparently changed attitude.

2.1 Investment and environmental problems

In what way has economic growth changed environmental problems? We can point out that the transition of environmental issues corresponds to changing areas of investment. In the first stage, until 1963, the major sources of pollution were the paper, chemical, steel, and mining industries. In the second stage, in addition to these forms of industrial pollution, environmental disruption caused by the petro-chemical complex, automobile exhaust, airports, highways, the bullet train, and soon became serious. In the third and fourth stages, a new cause for concern has arisen due to resort development, nuclear energy, bio-industry, and global environmental problems.

We thus find an intimate relation between the stages of economic growth and the
transition of environmental problems. In each stage of economic growth, new technology has created new fields of investment. New investment areas often produce new environmental problems due to lack of experience and an insufficient regulatory framework. This fact

[p.10]

provides us with one useful tool for forecasting future environmental issues.

Faced with serious environmental problems, national and local governments use to take countermeasures in an attempt to attenuate acute situations, to prevent their repetition, and to settle conflicts. However, as they are a compromise between the claims of the victims and the interests of the business world, they have not necessarily provided fully satisfactory relief. In many areas pollution was not eliminated, but only lessened to ensure that conflict could subside during that time.

2.2 Increased consumption of energy and resources

The second change of Japanese society through economic growth is the multiplication of economic activity, as shown in Table 2. GNP and the production of all kinds of consumer goods has increased sharply, which means that total consumption of natural resources has also multiplied. This implies that the Japanese economy today imposes a heavy load on the world ecosystem. Even if Japan were to succeed in reducing some local environmental problems, it's role in the degradation of the global environment would continue.

2.3 Large scale investment in marginal areas

In the course of economic growth, large scale regional development plans that involve a risk of environmental disruption show a tendency to amalgamate in peripheral areas. Such areas can offer various resources at relatively cheap rates, especially vast expanses of land for development; local governments frequently allow and even desire these plans, with a view to invite economic prosperity. Furthermore, political and cultural resistance to development plans is relatively feeble, while in more densely populated regions resistance can be very intense.

Large scale regional development is often typified by a combination of government and private investment. Government builds infrastructures, such as roads and ports, while private companies build plants or factories. Many such combined investments have been made in the marginal districts of Japan; for example, the Kashima petro-chemical complex in the 60s, all nuclear power plants (the number of which increased sharply in the 70s), the eight crude oil terminal stations (CTS) started in the late 70s, and the nuclear fuel cycle plant in Aomori in the mid 80s. These investment projects were planned by administrative organizations and large enterprises in Tokyo, but the environmental problems arose in the marginal areas where the investments were implemented.

This pattern has extended even outside of Japan since the 70s. Through ODA, the Japanese government has given financial support to many developing countries, and to some extent has promoted public investment in

[p.11]

Table 2: Change of economic activity in Japanese society
these areas. But most Japanese public investments have been undertaken by Japanese private enterprise; they have frequently provided facilities for private investments promoted by Japanese companies. As a result, such development plans in foreign countries have often neglected and injured the local environment and the health and daily living standard of the local population. Regional problems of this type have already arisen in the Philippines, Indonesia, and Thailand.

2.4 Formation of a separate - dependent ecosystem

As a result of the economic growth and investment strategy as described above, a stratification or center - periphery relationship has appeared in various regions. Examples are the relation between a large city and the surrounding area, or between developed nations and the third world. In each case, central regions develop because of the concentration of political and economic power poured into them. They dominate other regions economically, politically, and culturally, and marginalize them through dependency.

In Japan, Tokyo has been the major center since the beginning of modernization in 1868. In the course of economic growth, the influence wielded by Tokyo has become greater and greater. The headquarters of many large organizations have amalgamated there, accelerating the stratification of other regions. It can also be said that Japan as a whole has become a central region, with third world countries as peripheral zones.

This change is already well-known. In order to analyze its implications in environmental problems, I shall present a theoretical framework concerning the four ecological types of society, as shown in Figure 1. The first axis denotes the degree of ecological independence of each regional unit. From this viewpoint, we can distinguish a self-supplying ecosystem from a separate-dependent ecosystem. The former implies ecological independence with an regional unit, whereas the latter means a particular ecological

<table>
<thead>
<tr>
<th>Year</th>
<th>GNP (real price of 1985, trillion yen)</th>
<th>Production of crude steel (million ton)</th>
<th>Production of cement (million ton)</th>
<th>Electric power generated (billion kwh)</th>
<th>Number of motor vehicles owned (million)</th>
<th>Production of refrigerator (million)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1960</td>
<td>66.8</td>
<td>22.1</td>
<td>22.5</td>
<td>115.5</td>
<td>3.4</td>
<td>0.9</td>
</tr>
<tr>
<td>1965</td>
<td>102.7</td>
<td>41.2</td>
<td>32.5</td>
<td>190.3</td>
<td>8.1</td>
<td>2.3</td>
</tr>
<tr>
<td>1975</td>
<td>215.6</td>
<td>102.3</td>
<td>65.5</td>
<td>475.8</td>
<td>29.1</td>
<td>3.4</td>
</tr>
<tr>
<td>1985</td>
<td>324.0</td>
<td>105.3</td>
<td>72.8</td>
<td>672.0</td>
<td>48.2</td>
<td>5.3</td>
</tr>
</tbody>
</table>
The appearance of a center-periphery relation means, in the ecological context, the formation of a separate-dependent ecosystem. The center depends ecologically upon peripheries for water, energy, natural resources, food, waste treatment, et cetera. The central region becomes a benefit zone which can use ecological resources offered by peripheral regions, which become victimization zones obliged to accept risk and pollution for the exploitation of these ecological resources. Thus the victimization zone and the benefit zone are separate from each other in the separate-dependent ecosystem.

A regional unit with a self-supplying ecosystem can produce and consume self-sufficiently. Materials are obtained and all wastes are treated within the unit.

The second axis of Figure 1 denotes the degree of an ecosystem’s regenerative character, and draws a distinction between a one-way consumption society and a regenerative society. A one-way consumption society is defined as one in which various material and energy resources are consumed unilaterally, and wastes and pollutants accumulate without decomposition. In other words, a one-way consumption society runs without regeneration. In such a society, natural resources inevitably will be exhausted in the long run. A regenerative society is defined by regenerative production and consumption, in which resources are used within the regenerative capacity of the society, and pollutants are dissipated within its purificative capacity. Only a regenerative society can be sustainable.

Although the two axes of Figure 1 are logically independent, we find empirically a certain correlation between these categories. One crucial correlation is that the separate-dependent ecosystem favors the one-way consumption-type society, as represented by type A in Figure 1. The other important correlation is that a self-supplying ecosystem favors a regenerative type society, as represented by type D in Figure 1. Why are there such correlations?

In a separate-dependent ecosystem, the benefit zone and the victimization zone are separate from one another; if those in the benefit zone destroy the environment, its degradation does not act directly on the beneficiaries themselves. Consequently, they can hardly feel the necessity of long-term preservation of resources and the importance of waste purification. They adhere to a lifestyle and production method which are characterized by one-way consumption, rather than to a regenerative system, which would require more private expenditure and much labor. Consequently, in a type A society, the consumption of various raw materials by beneficiaries in a central region increases infinitely, because for them ecological constraints seem to disappear, owing to the exploitation of peripheral areas.

In the self-supplying ecosystem, the benefit zone and victimization zone overlap within a regional unit. In this type of society, if one destroys the environment through increased production and consumption, one injures his own self. Therefore, faced with an ecological limit, everyone is motivated to make a regenerative society possible. In a type D society, people may have a serious concern over the limits to economic growth.

From this theoretical viewpoint, it can be said that the process of modernization since the Meiji Restoration (1868) and the rapid economic growth in the post war period have transformed Japanese society from type D to type A.
3. CONDITIONS IN JAPANESE SOCIETY FOR RESOLVING FUTURE ENVIRONMENTAL PROBLEMS

Are there in Japanese society constant conditions that influence deeply the solution of environmental problems despite other changes? I shall point out four important factors, namely:

- high technological potential,
- disequilibrium of the power balance,
- characteristics of social movements, and
- decision making process that is not sufficiently democratic.

All these factors except the first are intimately related with the tragic history of environmental destruction in Japan.

3.1 High technological potential

Japanese society shows some excellent indicators concerning environmental problems. For example, from the first oil crisis to 1986, energy consumption per unit of GDP decreased by 32 per cent in Japan, compared with only 22 per cent in other advanced countries, and with 8 per cent in the world as a whole. In 1986, Japanese energy consumption per unit GDP was about 50 per cent that of the U.S.A., and was one of the lowest among the advanced countries (p.4). In the steel industry, energy consumption by other advanced countries was 1.2 to 1.4 times that of Japan, and in the cement industry it was 1.5 to 1.6 times (p.5). Also, in some areas of environmental protection, Japanese technology has shown excellent results. For example, the Japanese automobile industry has succeeded in decreasing pollutant levels in passenger car exhaust to one tenth of what they were in the early 70s (p.6).

It can generally be said that Japan has a high technological potential to secure the protection of the environment. Despite this positive aspect, Japanese society has experienced many environmental disasters, as described in section 1. Therefore, we must examine social factors which prevent the realization of our technological potential in eliminating pollution.

3.2 Disequilibrium of the power balance between two camps

First we must point out as a major factor behind Japanese environmental destruction the disequilibrium of the political and economic power balance between two camps; namely, the business world and the government, which have successfully promoted economic growth, have nearly always had overwhelming superiority over victims’ groups.

Japanese postwar economic growth has been called the Japanese miracle. This extremely rapid growth implies that growth leading organizations have had enormous political and economic power. In fact, the conservative Liberal Democratic Party, always supported by the business community, has been in power for over thirty years.

During the period of rapid economic expansion, various resources available to Japanese society and the government have been unswervingly given priority in order to achieve economic prosperity. When cases of environmental destruction appeared in the 50s and 60s, the government’s primary concern was not the protection of the environment and support...
of the victims, but the protection of the industrial companies.

Local governments are also dependent on the national government, and are controlled by its subventions. Many have tried to encourage economic prosperity in their own region by promoting the construction of factories, granting special privileges, building roads and ports for industry, and by reducing taxes for enterprises. It was only in the late 60s that strong criticism of this regional development policy arose, and local governments in large cities began to define more strict policies than the national government to prevent environmental disruption.

3.3 Characteristics of social movements in environmental issues

How can we characterize the social movements which have fought against Japan’s polluters? The main catalyst in Japan has been the residents’ movement ( jyumin undo). In other words, the movement of ecologists plays a secondary role here. A residents’ movement can be defined as one that is organized by local citizens in order to protect or improve their local life conditions.

A typical condition for the formation of a residents’ movement is a structural strain in a community that is caused by private and/or public investment. Japanese residents’ movements are characterized by loco-centricism, which is a fundamental aspect of Japanese culture. When environmental destruction appears imminent in a community, a movement can be organized, but once the problem is resolved, there is a tendency for the movement to disappear. Most often they remain local; quests for permanent and national level federations seldom prove lasting.

Most residents’ movements are troubled by a lack of specialists, as well as a lack of financial support. Specialists working in administrative organizations and in private enterprise generally hesitate to participate in or even to establish contact with residents’ movements. This is due in part to the self-sufficient and exclusive nature of Japanese organizations, which makes it difficult to operate outside an official framework. Non-profit corporations offering financial support for citizens’ movements have rarely germinated in Japan. Consequently, independent research groups or institutes which can offer expert knowledge to social movements have not developed sufficiently.

In many communities, residents’ movements have succeeded in sending representatives to the local assembly. However, attempts to obtain a seat in the National Diet by a federation of groups all across the country have repeatedly failed. Despite many efforts to construct a political party of ecologists, a national level Green Party that would exercise an effective influence on the government has not been organized. As a result of these factors, Japanese NGOs capable of participating in international networks are not so powerful as those in the United States and Europe.

While it is true that the residents’ movement played a decisive role in solving specific environmental problems, and was effective in pushing the government to change its environmental policy in the early 70s, it has not been able to exert a great influence on the national power structure. Thus the weakness of the social movements constitutes an obstacle to their effective participation in administrative and political decision-making. This difficulty is reinforced by a fundamental defect in the decision-making process.

3.4 The decision-making process is not sufficiently democratic
Another factor which has accelerated environmental destruction in Japan is the defective decision-making process. Many regional development plans have been undertaken without sufficient assessment of their social and ecological influence. The Environmental Impact Assessment Law has not yet been enacted at the national level, although several local governments have introduced the idea through their own ordinances. However, the procedure of environmental impact assessment in Japan is completely devoid of the idea that a rational choice can be achieved by a comparison of several alternatives under the condition of citizens' participation. Certainly there exist, in the domain of regional development and city planning, many administrative procedures that present

Institutions for direct democracy have not yet been fully developed. National and local referenda happen only under very exceptional conditions. This situation is linked to the lack of information available on a national level. Information disclosure is generally necessary for democratic decision making, especially when assessing environmental impact, but Japan lags far behind in this area. Since the early 80s a few local governments have instituted information disclosure policies, but there is no national government policy.

As the four grand pollution trials have shown, Japanese courts have repeatedly found the polluters to be responsible for their damages, and have ordered them to make indemnity payments. Thus, they have played an important role in offsetting the defective administrative and political decision-making process. But the times involved are too long (occasionally more than ten years), and Japanese courts become very circumspect when administrative organizations oppose a group of victims (they frequently refuse to honor the victims' claims in the name of public interest). These tendencies discourage victims from filing suit in an attempt to resolve environmental problems.

3.5 The capacity of Japanese society for solving future environmental problems

We shall now inquire whether Japanese society can resolve present and future environmental problems.

As a result of economic growth, Japanese society today shows two basic characteristics which promote the degradation of the environment, namely

- the formation of a type A society (shown in Figure 1), and
- an increased load on the world ecosystem.

For long-term sustainability, we must transform our society from type A to type D. That is, we must establish a more regenerative and self-supplying society. Japanese high-technological potential is useful and even indispensable in order to change our society in this direction. But technological potential can be actualized only under social incentives and constraints. For example, the technology of automobile exhaust purification was developed under exceptional restraint (an external pressure created by the Muskie Act in the U.S.A.).

This change from type A to type D depends, therefore, on social conditions. The crucial factor seems to be the claims of the peripheral areas, domestic as well as foreign. When peripheral areas criticize the separate-dependent ecosystem and refuse to become a victimization zone, central regions will be forced to create a more self-supplying and-regenerative system.
Here we find the importance of three social conditions, as analyzed above, which were unfavorable to the protection of the environment in past Japanese society, and which exist today in spite of apparent social change. These are:

- the overwhelming power of growth-leading organizations,
- the limited power of residents’ movements, and
- defects in the decision-making process.

These conditions make it difficult to change our society into a self-supplying and regenerative one. They also prevent us from creating appropriate constraints and incentives for an environment-oriented technological development. For example, these social conditions promote an exclusively hard energy path. Nine large electric power companies have a monopoly and promote the construction of nuclear power plants and the nuclear fuel cycle plant. These companies, together with the government, discourage the diffusion of soft energy which has been carried out in other countries through small-scale investment and by various less centralized organizations. Consequently, the Japanese energy system is typically characterized by one-way consumption (a separate-dependent ecosystem), lacking appropriate social conditions for the diffusion of soft energy.

We must keep a vigilant watch on the future of Japanese society to see that these particular conditions shall not continue to prevent us from contributing to the resolution of future global environmental problems.

CONCLUSION

In the postwar period, Japanese society experienced the worst record of environmental destruction among the advanced countries. Through successive conflicts instigated by residents’ movements, we gradually succeeded in resolving or attenuating much acute environmental damage in the 70s. Japan’s highly advanced technology also contributed to any amelioration. But as a result of economic growth, Japanese society multiplied its demands on the ecosystem, and as we extended investment into foreign countries, new problems developed. We became a society characterized by a separate-dependent ecosystem and by one-way consumption. Consequently, today we face global environmental problems and protest movements both within our own marginal areas and in other countries. Disequilibrium of the power balance and defects in the decision-making process are basic social factors that have accelerated environmental destruction in Japan. Despite apparent change, these social conditions continue to exist without change, and constitute an obstacle to the development of an environment-oriented technology and a transition from a type A to a type D society. Therefore, we cannot be optimistic about the outcome of future environmental problems in Japan.

NOTES

3. This theoretical framework is presented more precisely in Funabashi (1992).


*7. The notion of loco-Centrism is inspired by Nakane (1967).


REFERENCES


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