

The Duality of Social Systems and the Environmental Movement in Japan

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Introduction

In postwar Japanese society, incessant economic growth has caused many environmental problems. Residents' and victims' movements have fought environmental destruction and contributed greatly to its solution. What are the characteristics of Japanese social movements in this domain? What theoretical perspectives are necessary to grasp the nature of environmental problems and social movements? Under what conditions can environmental movements contribute to resolving an environmental problem?

To address these questions I will use my theoretical perspective based on the dual character of social systems. Social control in social organization involves two aspects, domination and management. Applying this theoretical perspective explains the nature of environmental problems, the role of social movements, and the potential for effective social change. I will analyze three cases of environmental problems: garbage collection issues in Numazu, the Niigata area Minamata disease, and the Tokyo "Garbage War." A brief historical overview of these environmental movements illustrates three basic problem-solving processes: creating a new system of management, reforming a system of domination, and improving both systems through "cooperative problem solving by opposing actors." These processes show the gradual penetration of the environmental control system into the economic system.

Management and Domination: The Dual Character of Social Systems

The dual character of social system (Funabashi 1980) is a perspective that regards any given society, institution, or organization as having two analytically distinct aspects, a management system and a domination system. The

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notion of management system is constructed by generalizing the relation of cooperation, and the notion of domination system by generalizing the relation of domination.

However, this is an analytical distinction. In reality, both systems occur within the same organization. Systemic functions are carried out by the same members, but each system has distinct goals, tasks, and principles of operation. In the abstract, then, management and domination can be said to constitute distinct “systems.”

Figure 1a (three-dimensional figure) presents an image of social reality that has a dual character. Figure 1b (plane figure) shows the aspect of the management system and illustrates the horizontal relation of actors. Figure 1c (lateral elevation) depicts the aspect of the domination system by focusing on their vertical relations. Table 1 summarizes the characteristics of the management system and the domination system.

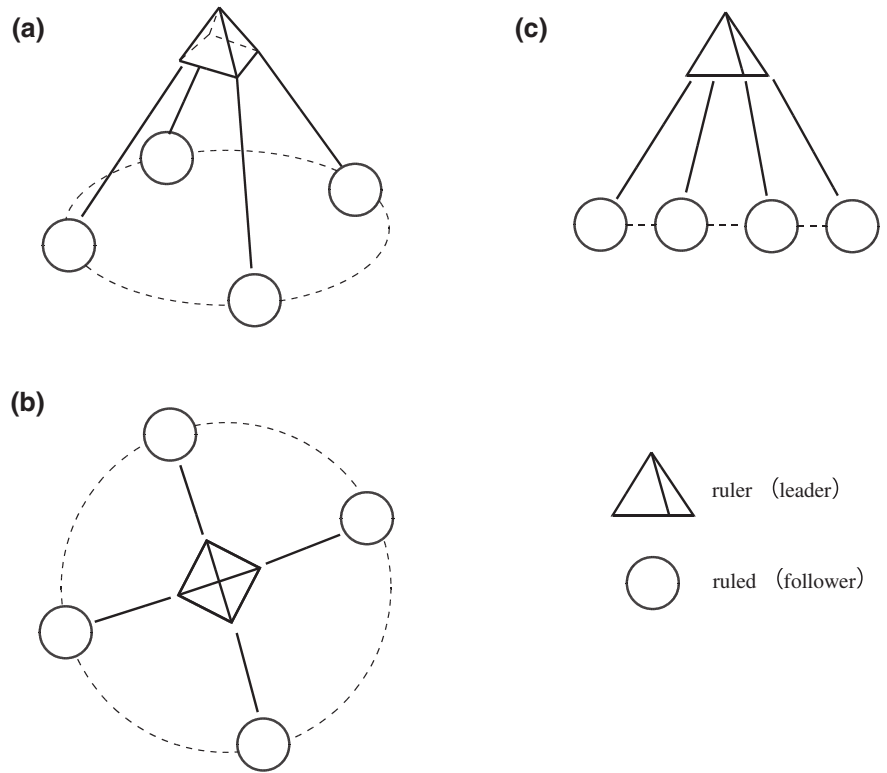


Fig. 1 Image of the duality of social sytem. (a) Three-dimensional figure, (b) Plane figure=aspect of the management system, (c) Lateral elevation=aspect of the domination system

Table 1 Comparison of management system and domination system

	Management system	Domination system
Basic actor	The leader \longleftrightarrow the follower	The ruler \longleftrightarrow the ruled
Definition of problem to be resolved	Management problem	For the ruler: domination problem For the ruled: deprivation-victimization problem
Focus of actor's attention	Better achievement of management tasks and better satisfaction of needs	For the ruler: establishment of order in vertical political system and conservation of stratified structure of closed benefit zones For the ruled: enlargement of their power and equalization of distribution of goods
Typical idea	Growth, efficiency, development, competition	For the ruler: law and order, cooperation For the ruled: freedom, liberation, justice democracy, equality
Character of conflict	Conflict between optimization effort of subsystems resulting from contradiction of multiple management tasks	Conflict between strata concerning distribution of power and distribution of goods as well as bads
Criteria of criticism	What is the optimum method for excellent management?	What is the legitimate power distribution? What is the justifiable distribution of goods and bads?

The Management System and Management Problems

If we look at social control as a management system, we focus on the mechanisms through which society (and its component institutions and organizations) fulfills its various managerial tasks. These tasks involve the allocation of finite resources to meet the functional requirements of a society and the needs of its members. Utilizing this perspective, society exists as an aggregate of numerous management systems of varying sizes. In the business world, examples of management systems include control over the business cycle through fiscal policy (at the total society level), control over-garbage collection (at the level of local society), control within private business organizations, and nonprofit organizations (at the organizational level).

The characteristic operational logic of a management system is that of homeostatic maintenance accomplished by carrying out necessary functions. As the cooperative aspect of society, the management system involves constant efforts to fulfill multiple management tasks. The business cycle management involves tasks such as maintaining a low unemployment rate, maintaining competitive prices for products, and maintaining an adequate economic growth rate. Within the realm of private businesses, (including production, marketing, and normal profit, etc), the management system strives to satisfy the needs of

various stakeholders. If a firm fails to attain a certain level of production or marketing, for example, its members will not be paid and, in extreme cases, the firm will fail.

Every management system is composed of a leader(s) and followers. The leadership, at the core of a management system, is responsible for making decisions and disposing of the resources necessary to execute those decisions. The leadership coordinates the followers by connecting their wills and actions. All systems of cooperation need leadership in this sense. In formal organizations, the chairperson, president, or CEO leads the organizational members. These roles fulfill very important management functions for the sake of the whole organization. Within national and local governments, leadership is necessary to maintain a semblance of order among citizen-based organizations. Without leadership, cooperation between various actors is much more difficult.

A prototype image of management system is presented in Fig. 1b. A leader and sub-leaders are situated near the center. They are involved in cooperation, and they work to connect and sometimes coordinate members' activities. With a larger pool of sub-leaders, larger scale cooperation is possible and social problems can be solved. Social problem arising as a result of a poor management system can be remedied by altering the management method.

The Domination System and the Problems of Inequality and Victimization

While society can be seen as a management system, it may also be viewed as a system of domination in which one group holds power and extracts benefits from the other. As analytical roles, the ruler and the ruled in the domination system occupy congruent positions with the leader and the followers in the management system (Fig. 1a). Usually, in a given society, the actual people occupying the roles are the same. When the strata increase, sub-roles emerge, with the sub-rulers corresponding to the sub-leaders. Depending on circumstances, the same set of people can perform either domination or management relations.

The domination system consists of a vertically controlled political relationship. Within the vertical political structure, politics occurs through interactions between the ruling stratum and the ruled stratum. This sector of the domination system is the main site of tension and conflict. The key factor determining the level of tension and conflict is the degree of consensus between the two strata concerning the legitimacy of the system. Four ideal types of political relations occur between these strata: loyalty, negotiation, confrontation, and oppressive exclusion. As the degree of disagreement between strata increases, the use of power, sometimes including coercive force, becomes necessary for the maintenance of social order (see Fig. 2).

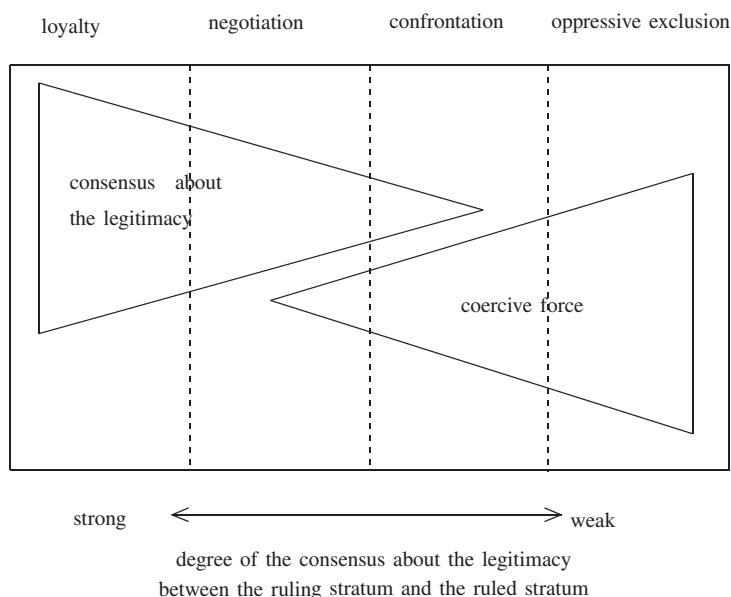


Fig. 2 Four phases of vertical political system

The domination system produces a stratified structure of closed benefit and victimized zones. A benefit zone refers to a group that enjoys consumer goods or other benefits unavailable to non-members. By contrast, a victimized zone refers to a group forced to suffer from various disadvantages, such as exposure to environmental pollution and industrial related diseases. These zones produce a stratified structure of effects. Benefit zones are characterized by the privileged who garner access to consumer goods, as well as healthy, non-polluted, and safe surroundings. These privileged zones are closed to outsiders at the bottom of the system of social stratification. Figure 3 shows four types of “stratified structures of closed benefit and victimized zones,” defined by the degree of inequality in the distribution of surplus goods produced by the society.¹ Generally, rulers garner the most benefits, while the ruled must accept much less.

The four forms of distribution of valued societal benefits (including consumer goods and a healthy and safe environment) are egalitarian, weak differences, acute inequality, and exploitation. In the *acute inequality* type, the ruler and sub-rulers monopolize surplus benefits producing an unequal distribution of various goods and chances. They create a closed zone of those with benefits and another zone of those without benefits. When the inequality of distribution

¹ A surplus good is defined as the difference between the goods produced by the cooperation of a certain number of persons ($G(\Sigma i)$) and the sum of goods produced separately by the same number of persons ($\Sigma G(i)$). $S = G(\Sigma i) - \Sigma G(i)$.

is acute, people in an unfavorable position may consciously suffer from it and judge it as unjust. On the other hand, in the *exploitation* type, the ruler and sub-rulers acquire privileged goods by extracting them from people and imposing damages on them, producing a victimized zone at the bottom of the social structure. The victory of victims is usually very difficult because the power relationship is unfavorable.

Interrelation of the Two Systems

The management system and the domination system overlap completely in an organization. But the domination system can extend further into society than the management system. The ruled (who oppose the ruler in the domination system) may be outside the management system and not participate in it (see “exploitation type” in Fig. 3). Furthermore, the two systems are not independent. The management system operates in a social space defined by the domination system.

More concretely, the domination system defines two conditions within which the management system can operate. First, many management tasks are defined through negotiations between the two political strata, the rulers and ruled. In other words, the political system transforms the demands of the ruled into management tasks. For example, 40 years ago, the prevention of environmental pollution was not a management task in Japan, it was just the object of protest by anti-pollution movements. Only recently, due to many such protests, has environmental protection become a management task within both the government and firms. Secondly, a well-functioning management system depends upon a stable social order that is assured by the domination system. Leadership requires either popular legitimacy or coercive force. Without stable social order, a management system cannot function successfully. For example, a strike in a firm may destroy the stable social order and make management impossible.

But a management system can also affect the domination system. A successful management system enhances the legitimacy of rulers. Leader failure in management tasks may reduce loyalty and produce societal instability. The flow of resources going to actors in management system roles gives them

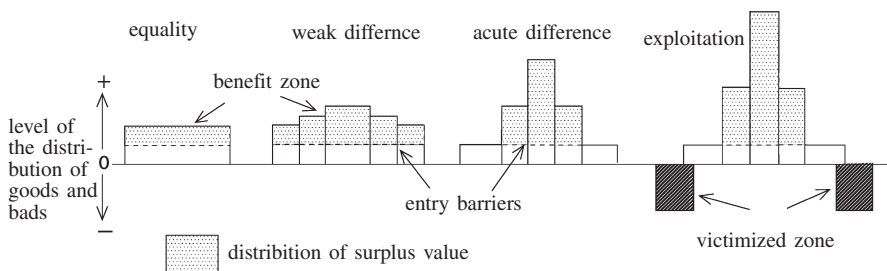


Fig. 3 Four types of the stratified structure of the closed benefit and victimized zones

exchange power in the domination system and possibility to extract privileged benefit. Also, the logic of efficiency may accelerate meritocracy in management system. This tendency may bring about unequal distribution of goods and positions, producing stratified structures with benefit zones and victimization zones.

In this way, management systems can have both positive and negative effects upon victimization of members. A competitive executive can help his firm survive and prosper, thereby avoiding the termination of employees (one type of victimization problem). On the other hand, the firm may neglect protection of the environment in order to increase profits, and may cause a victimization problem. Generally, people who occupy both the management leader role and the ruler role tend to explain their intention and action as driven by management necessities. Managers project an image of a cooperating leader, not a dominating ruler. A leader has to coordinate the followers. When complete consensus exists among them, the leader's coordination process is purely technical. But there usually exists some conflict among them. Then the leader's coordination requires the political adjustment of conflicting interests. In order to carry out a project successfully, a leader must select optimal means in the context of a management system. At the same time, as a ruler, he must exercise his will against occasional resistance from the ruled who are simultaneously followers.

I conclude this section with three remarks about the implications of this theoretical perspective. First, this perspective can explain the ambivalent attitude of those lacking power toward those holding power. People who lack power simultaneously admire and resist those in leadership positions. Second, leaders and rulers, as well as followers and the ruled, do not exist in themselves. These roles arise as positions in systems of cooperation and domination. So, this type of role division can be found universally. Third, some sociological theories (for example, the contingency theory of organization: Lawrence and Lorsch 1967) adequately grasp the management aspect of social systems. Other theories (for example, Marxian theory) are sensitive to the domination aspect. But to fully understand a social problem and conflict related to it, we must grasp it and analyze social systems as having the dual character noted.

Such theoretical framework is indispensable for analyzing problem-solving processes facilitated by social movements. However, it is curious that most of social scientists do not explicitly refer to the dual character of the social system involved in these processes. The notion of "*la double dialectique des classes sociales*" presented by Alain Touraine (1973, 146–154) is one of the rare exceptions that are sensitive to this dual character.

Utilizing this theoretical dual system perspective I examine three cases of the resolution of environmental disputes each illustrating a different type of problem-solving process.² In each case, the environmental movement played a

² The reason I chose these three cases is simple; I have directly carried on these case studies and they are adequate for the discussion of this section. Using other cases, we can perhaps develop similar theoretical reflection.

decisive role. In this context, “movement” refers not only to collective actions that try to resolve problems in the domination system, but also those that attempt to reform the management system. After examining the three cases, I discuss their historical positioning and theoretical implications.

Three Cases of Environmental Problem-Solving Processes

The dual character of social systems explains the three types of problem-solving processes illustrated by these three cases. The Numazu case shows problem solving in the management system. The Niigata mercury poisoning case illustrates problem solving through the domination system. The Tokyo “Garbage Wars” case represents a response through the management system as well as the domination system. The last case is a model of “cooperative problem solving by opposing actors.”

The Numazu Waste Separation Case

The first case of environmental problem solving involved environmental activists’ efforts to implement a system of garbage separation in Numazu.³ With rapid economic growth in Japan during the 1960s, the amount of waste produced by households increased doubled in volume between 1965 and 1973. By the early 1970s, the garbage management systems in municipalities across Japan were overburdened by the volume of waste. In one example, the landfills and incinerators in the city of Numazu (population 200,000), located in east of Shizuoka prefecture in Honshu Island facing Suruga-bay, were filled to capacity.

Across Japan, protests erupted by local residents demanding action. By 1973, Numazu residents living near the city’s waste sites complained of the toxic odors, swarming insects, and scavenging birds surrounding the site. Local residents threatened to block the garbage trucks from entering the landfill if local officials did not respond to their concerns. By the end of 1973, after tough negotiations, a temporary settlement was reached on condition that the city office would make a new incineration plant in order to reduce negative impact. This compromise was limited, and by February 1974 another conflict broke out concerning a proposal to build a new incineration plant next to the existing plant. In September of 1974, after long and difficult negotiations, residents near the plant site accepted the city’s plan on condition that all efforts should be done to avoid possible pollution.

These two incidents clearly revealed a crisis in Numazu City’s garbage management system. Faced with this crisis, a group of workers in the sanitation section of the Numazu city office began to search for some way to improve the

³ The description of this case is based on Yorimoto (1981), Ide (1990) and my own fieldwork.

situation. The 60 workers in this section engaged in garbage collection and the operation of the incineration plant and dumping site. Through their daily work in the field, these workers knew precisely the actual composition of the waste. Some of the workers conceived a bright, innovative idea, that the public should separate recyclable material from the garbage before collection.

Until then, in Numazu, household garbage had been separated into two categories, combustible rubbish such as papers and kitchen garbage, and non-combustible wastes including metal, cans, glass, bottles, electrical equipment, and furniture. The former were burned in incineration plant and the latter were dumped in the landfill. The sanitation workers knew that if recyclable materials were separated from trash it would reduce the amount of waste and extend the capacity of the landfills. The workers proposed adding a third category of garbage separation: resource recyclable garbage including newspapers and magazines, cans, metals, glass, and bottles. They developed a slogan "Resource if separated, garbage if mixed."

Sanitation workers faced a number of obstacles in implementing this garbage separation and recycling proposal. The first barrier involved gaining the support of sanitation workers, some of whom informally profited from separating out expensive metal from the trash and selling it. This informal custom was wide spread in municipalities across Japan and was referred to as "arbeit" (part-time work) in workers' groups. The second obstacle concerned whether the citizens would be willing to take on this additional garbage sorting task. A third obstacle involved assuring end-users who would buy the recycled materials of a steady supply.

The young generation of workers overcame the first barrier. Through focused discussions at the work place stressing an image of improved future garbage collection, they persuaded the older ones to abandon this informal profit system.

Next they had to obtain public cooperation. If local residents refused to separate their trash, the program would fail. Advocates of waste recycling developed a public relations campaign, releasing data findings in June 1974 confirming that 56.5% of non-combustible garbage was recyclable materials. Based on this data, they launched a 3-month trial of the public sorting and recycling program with five cooperating residents' associations. This trial was successful in demonstrating that 64% of non-combustible rubbish could be "recycled as a resource."

Convinced of the feasibility and merits of the new separation and recycling collection system, the sixty sanitation workers worked to persuade all of Numazu's residents' associations to participate in the program. They utilized a variety of methods including face-to-face dialogues, pamphlets, lantern slides, and 8-millimeter movies to highlight garbage problems and to demonstrate the merits of the new garbage separation collection system. Workers organized over 400 evening meetings with residents all over the city in a period of 6 months. These meetings were successful in gaining public cooperation, with eleven neighborhood associations joining in the program in October, 42 in November, 91 in December, and the final 168 in March 1975. By earning the cooperation of these neighborhood associations, the sanitation workers convinced the end-users of the availability of a continual supply of recycled materials.

Based on the results of this trial program, in April 1975 Numazu city officials mandated the implementation of this collection system across the 248 residents' associations. As a result, the city reduced their garbage going into dump sites, prolonging their utility, saved resources reducing the environmental burden, and also brought financial income to the city and the residents. During 19 years from 1975 to 1993, this recycling system gave 425 million yen to the city office and 249 million yen to the residents' associations. This innovative program was quickly replicated in municipalities across Japan.

Implications of This Case

This problem-solving process is situated in the management system. The workers' movement for change achieved a reorganization of the garbage management system. Their efforts redefined management tasks by introducing new tasks such as the separated collection of garbage, recycling of various materials, organization of residents' cooperation, and arranging for sales of the recycled materials to end-users. This redefinition of management tasks led inevitably to a series of changes on the level of instrumental action, such as the actions of households in separating out their recyclables. In addition, it is notable that the reorganization of the management tasks was guided by the redefinition of the values guiding the management system. It can be said that the workers tried to search for an authentic form of a rubbish management system. In sum, this reform of a management system by solving a management problem included three dimensions: the redefinition of values, the redefinition of management tasks, and the reorganization of instrumental actions.

This problem-solving process indicates one type of innovative power that enables social change. I call it innovative power based on *inspired resonance*. In that inspired resonance diffuses by willing adoption, it contrasts with an innovation that can only be spread by manipulative or coercive force. Innovative power based on inspired resonance means that an innovative practice provides an excellent new solution with universal validity to a difficult problem which is shared widely. Due to its resonance with, its capacity to solve, a widespread problem, the innovation diffuses rapidly and is adopted by many others, producing an immense influence.

At the starting point of this process, only a few workers took initiative to improve the garbage management system. However, support for and cooperation with this system increased step by step as follows: the 60 workers in sanitation section agreed to support the idea, the five residents' associations accepted a trial of separated collection, during the next 6 months cooperating residents' associations increased continuously, comprehensive adoption of new system in whole Numazu city from April 1975, rapid spread to other sensitive municipalities after 1975, and further vast spread into other municipalities in general. At last, the National Government adopted the idea of separated collection as a policy principle in the amendment of 1991 to the Waste Disposal and Public Cleaning Law.

Conditions That Enable Change

What Factors Enabled This Reform?

First, the workers who tried to introduce the new system adopted effective measures to bring about change. When faced with crisis, they clearly defined the problem, then collected information through research, created an innovative idea, ran a small scale trial, and gradually expanded the number of users based on the successful model.

Second, the workers tried to construct a cooperative network with citizens through persuasion based on sufficient data. They succeeded in reaching consensus with a vast number of residents. Third, actors who had promoted the reform had excellent personal qualities such as intensive effort, sensitivity that enabled problem definition, creativity that produced a new idea, and moral sentiment that enabled them to abandon informal “arbeit” practices.

Fourth, the new recycling system spread widely to other municipalities because it was universally adoptable and did not require any large scale investment, special technology, or extensive land. The new system could be realized in any municipality where residents and the municipal office had a common will to reduce the amount of garbage and improve the environment by recycling.

Problem Solving in the Domination System: The Case of the Niigata “Minamata” Disease

The Original “Minamata” Disease

The tragic environmentally induced disease called the “Minamata Disease” first appeared in the city of Minamata in Kumamoto Prefecture in the early 1950s.⁴ The second instance later appeared in the Niigata prefecture. The disease is caused by methyl mercury condensed in fish and shellfish through the food chain. Patients of this disease showed a variety of symptoms including sensory disturbance, tremors, auditory disturbance, constriction of the visual field, and finally convulsions and paralysis leading to death (Iijima 1979). Today, it is clear that two chemical enterprises, the Chisso Company in Minamata and the Showa Denko company in Niigata, caused the disease.

Minamata disease was first officially recognized in May 1956 at Minamata City in Kumamoto Prefecture. By December of 1956, with 52 victims and 17 deaths, the cause of the disease remained elusive. But in the spring of 1957, it came to light that cats that had eaten fish from Minamata Bay contracted the disease. People soon started to suspect that the Chisso Minamata chemical plant, the only large chemical factory in the area, had contaminated the fish by dumping its waste water into the bay. The waste water contained various heavy metals. A group of victims and their families attempted to get compensation

⁴The description of the two Minamata disease cases is based on Ui (1992), George (2001), Harada (2004), Iijima (1979), Iijima and Funabashi (1999) and my own fieldwork.

and good care for the patients, but in vain. In July 1959, Kumamoto University researchers released a report identifying the cause of the Minamata disease: organic mercury poisoning. By the fall of 1959, as the disease spread and the number of victims increased, a vocal anti-pollution movement arose in fishery associations across the Kumamoto region. Fishery associations and a patients' group demanded that the chemical plant stop releasing harmful waste water and provide compensation to the victims. In spite of repeated protests by the two groups, the Chisso chemical plant, claiming the cause of the disease was still not known, refused to accept responsibility or to compensate victims. Local and national governments joined in defending the chemical industry and ignoring the victim's demands.

In December 1959, faced with lack of political support from government officials and continued economic difficulties in marketing contaminated fish, the prefectural Cooperative Fishing Alliance accepted a proposal made by the arbitration committee.

According to the proposal, the alliance would receive 35 million yen from Chisso. This settlement implied a direct payment of only about 5000 yen (about US \$50) per family.

On the other hand, at the end of 1959, the patients' group was obliged to sign the "solatium contract" that did not admit the responsibility of Chisso with regard to the cause of Minamata disease and gave a certain amount of sympathy money, not compensation.

Assuming that the cause of the Minamata disease was unknown, this agreement granted only 300,000 yen (about US\$3000) for the dead victims. The agreement contained the provision that additional claims could not be lodged against the Chisso Minamata chemical plant, even if it was later proved at fault for the disease. This agreement stifled future protest actions aimed at gaining compensation for victims of the Kumamoto-area Minamata disease. But one group of victims turned to the courts and filed suit against the Chisso Company in 1969.

Niigata Area Minamata Disease

The second outbreak of Minamata disease occurred in 1965 at the basin of the River Agano in Niigata prefecture.⁵ The Niigata mobilization process differed from that in Kumamoto in its supporters and tactics. A group composed of doctors, labor unions, local residents, and political parties calling itself the Niigata Prefecture Council of Democratic Groups for Minamata Disease Countermeasure (*Niigata-ken Minshu Dantai Minamatabyo Taisaku Kaigi*, abbreviated *Minsuitai*) organized in support of the Niigata Minamata disease victims. On the victims' behalf, this group initiated court litigation over the Minamata disease.

⁵ Iijima and Funabashi (1999) presented the first systematic sociological study of the Niigata area Minamata disease.

On June 12th, 1967, victims of mercury poisoning filed a damage suit with Niigata District Court against pollution from a Showa Denko plant. The group consisted of thirteen members of three families. This lawsuit was the first of the big four cases against pollution in Japan and it encouraged other groups of victims to file legal cases. The three other big cases included the Itai-itai (“ouch ouch”) disease caused by cadmium poisoning (Toyama Prefecture), the asthma disease in Yokkaichi City (Mie Prefecture), and the first Minamata disease in Kumamoto Prefecture. By 1971, the number of plaintiffs in the Niigata Minamata disease suit reached 77. Jun Ui, an engineer and researcher (*joshu*) at Tokyo University who had investigated the Kumamoto-area Minamata disease, cooperated with the victims’ lawyers to support the Niigata victims’ suit.

On September 29 of 1971, the Niigata-area Minamata disease suit ended with a decision in favor of the plaintiffs. The district court established the epidemiological cause and effect relationship, declared that the defendant Showa Denko was guilty of professional negligence, and attached responsibility for the disease to the company (Iijima 1979). Following the verdict, both government and business were forced to acknowledge the problem of pollution that was tied to rapid economic growth. But victims of the disease were disappointed when the total amount of the settlement was reduced to half. The group of victims began to negotiate directly with Showa Denko officials to obtain more compensation.

On March 20 in 1973, the indemnity suit instituted by the Minamata disease patients in Kumamoto was decided in favor of the victims. The defendant, Chisso Corporation, was found to have been responsible for dispersing industrial wastes that caused this disease. After this decisive judgment, Showa Denko officials were obliged to accept the victims’ demand in Niigata. On June 21 in 1973, Showa Denko officials and the Niigata-area victims of Minamata disease signed a damage settlement. The company agreed to pay a lump sum of 15 million yen (about US\$150,000) to each deceased and seriously ill patient, 10 million yen to other patients suffering from the disease, and an additional 500,000 yen annuity (US\$5,000) for each living victim.

Despite this legal settlement, new conflicts arose between the victims and government officials. The Showa Denko Company agreed to pay compensation only to qualified Minamata victims, certified by an official committee whose members were appointed by the national and local government. With the favorable legal settlement, the number of patients who applied for certification increased sharply. The burden of compensation became very heavy for both the Showa Denko Company in Niigata and for Chisso Company in Kumamoto. Moreover, due to corporate profit shortfalls associated with the 1973 oil crisis, the Committee of Certification and the Environment Agency responded by scrutinizing and increasingly rejecting Minamata victim’s applications. The Environmental Agency revised the criteria used to certify people as victims of Minamata disease in 1977 and again in 1978. Each time they narrowed the definition of a victim, making it more difficult to obtain certification.

In the Niigata case, by 1980 the number of residents suspected to be victims who had been refused official certification reached 1200. In 1982, 94 of these refused victims filed the second Niigata-area Minamata disease trial, seeking compensation from the company and also claiming government responsibility. Victims in the Kumamoto then living in various regions filed similar law suits in several district courts such as Kumamoto, Tokyo, Fukuoka, Kyoto, and Osaka. By 1989, the number of victims who joined in these suits increased, and the total number of plaintiffs reached more than 2000 (including 234 Niigata patients).

The courts ruled in favor of the uncertified victims. In March 1992, almost all members of the first group of Niigata victims won an indemnity suit. The majority of uncertified Kumamoto victims also won their suits. But both were considered partial victories because the responsibility of the government was not decided, and the Showa Denko and Chisso companies appealed the decision. Finally, in 1995 in Niigata and 1996 in Kumamoto, the victims and the companies arrived at compromises (except one group of victims in Osaka). The Showa Denko and Chisso companies agreed to pay 2.6 million yen (at 100 yen to the dollar, \$26,000) to each patient who had been refused official certification.

After the Niigata and Kumamoto settlement, the Osaka group of victims continued their lawsuit and won a victorious ruling in the Osaka High Court in 2001, and finally in the Supreme Court in October 2004. The Supreme Court ruling recognized most of uncertified patients as victims of the Minamata (mercury-poisoning) disease. The ruling determined that the Central as well as Kumamoto Prefectural Governments bore responsible for spreading Minamata disease. However, after this ruling, negotiation between uncertified patients and the Environment Ministry still dragged and remained unsettled even by 2010. Despite these sporadic favorable legal settlements, the problem of Niigata Minamata disease as well as Kumamoto Minamata disease lingers in Japan 50 years after its discovery.

Implication of This Case

The legal suits associated with the Minamata disease victims were examples of an environmental issue, handled within the context of a domination system. The victims were in a position of subordination relative to the chemical industry as well as the government, and experienced a victimization problem. The victims protested against this system of domination, but their demands were ignored by both company and government officials. Victims later sought monetary compensation for their injuries and challenged officials. Filing the first damage suit demonstrated a transition from a stage of oppressive exclusion to a confrontation phase. The court victories represented a great deal of progress for the victims. The judgment of the first suit in favor of the victims enabled them to further move from confrontation to negotiation. But another obstacle in the oppressive exclusion phase appeared when the government refused to certify

more patients. The second damage suit instituted in 1982 implied another transition stage from oppressive exclusion to confrontation.

The Minamata disease cases occurred within a stratified structure of closed benefit and victimized zones; domination and exploitation created a victimized zone at the bottom of this stratified structure. The court victories brought some victims limited monetary settlement for the disease, but for many victims, their suffering remains unrecognized and uncompensated. Victims' movements have demanded adequate compensation, but two factors hindered their efforts: concealment and discrimination, and power inequality.

Concealment and Discrimination

The first political obstacle facing the Minamata victims' movement was the concealment and denial of the chemical industries' role in the release of dangerous chemicals into the environment. A second obstacle was the tendency of victims in the Minamata cases to conceal their illnesses. This pattern of concealment was evident in past cases of pollution. For example, in the Meiji period (1868–1912), Shozo Tanaka, an eminent leader of the anti-pollution movement in the Ashio Copper Mine case, noted the tendency of victims to conceal the damage they have suffered. The threat of stigma, isolation, and discrimination were key factors in pushing victims to conceal their illness when it appeared among family members. The victims lived in fear that if Minamata disease appeared in a family, the remaining members would be viewed by the community as unsuited for marriage and employment.

For example, in Matsuhama, a fishery community in Niigata City at the mouth of the Agano River, the residents formed a conspiracy of silence about the Minamata disease in spite of widespread illness and damage. Residents were fearful that they could not sell their fish if the existence of Minamata disease patients in their community became widely known. This concealment of illness was a rational strategy for a fishing community protecting its interests in the face of industrial and governmental disregard of the problem. However, this concealment prevented the clarification of the firm's responsibility for victims and it has hindered a complete solution of the problem. Today, many victims in the basin of the Agano River who concealed their illness in fear of stigma and discrimination regret their actions. In Japan, any social movement against pollution-borne illnesses must overcome this deep fear harbored on the part of victims of stigma and discrimination.

Inequality of Power

Another obstacle in challenging a system based on domination is the imbalance of power between the dominant and subordinate groups. In the Minamata mercury-poisoning cases, the responsible firms (Chisso and Showa Denko) utilized considerable economic and political power in mobilizing experts with

technological knowledge in defending its interests. On the other hand, specialists in Kumamoto University investigated independently and identified organic mercury compound as the cause of Minamata disease, thus contributing greatly to the victims. However, they were hampered by a lack of information from the factory and by other experts' objection defending Chisso.

A final obstacle confronting the powerless in a system characterized by domination is the lack of neutrality in the governmental administrative organizations. The Ministry of International Trade and Industry (MITI) defended the chemical firms against the protest of the victims in a one-sided fashion. MITI attempted to deny the report presented by the Food and Sanitation Investigation Council in November 1959, that identified organic mercury as the cause of Minamata disease, and succeeded in perishing its influence. At that time, there were few laws and regulations that could effectively prevent pollution. Even if some applicable laws exist, their interpretation is deeply influenced by unequal balance of political power. As a result, administrative organizations failed to respond to this environmental disaster in a timely fashion. Deeply influenced by the interest of business world, in the 1950s and the first half of the 1960s, Japan's governmental organizations always gave priority to the economic growth policy, neglecting cases of environmental pollution associated with Minamata diseases.

Conditions Facilitating Change

Comparing the mobilization processes in the Kumamoto and the Niigata mercury-poisoning cases indicates conditions facilitating the power of victims' movements. Several important factors helped the victims' movement in Niigata attain greater success. First, a support organization formed soon after the discovery of Minamata disease victims in Niigata. Members included professionals in engineering, medicine, journalism, and law who investigated the cause of the pollution. Second, several other social movement organizations such as labor unions and leftist political parties in the district joined in coalition with the Minamata victims. These organizations provided a favorable basis for the construction of a victims' support coalition. Third, unlike Kumamoto, in Niigata there was a geographical distance between the major group of victims and the responsible firm. This served to insulate the community from pressure by the company. Unlike Kumamoto, most of the victims did not work at the chemical company and were not subject to its direct political and economic influence. Fourth, in the initial phase of the Minamata mercury poisoning the Sanitary Bureau of Niigata Prefecture helped identify the cause of the pollution. Fifth, the victims' movement chose the correct strategy, by filing a damage suit and achieving a judicial victory. These factors facilitated victims' organizations and enabled them to challenge the system dominated by industrial interests.

The case of Niigata Minamata disease provides an example of how environmental victims' advocacy organizations can successfully challenge a domination system, stop the pollution, and provide compensation for the victims. In

the domination system, the essential factor that influences the outcome of conflict is the power relationship between the dominant and subordinate groups. In order to resolve the victimization problem, it is necessary that the relationships transit from a phase characterized by oppressive exclusion to a phase in which the victims confront the vertical and unequal political system. Finally, with confrontation, the structure of benefit and victimized zones of environmental pollution can be altered, resulting in environmental justice.

Cooperative Problem Solving by Opposing Actors: The Case of the "Garbage War" in Tokyo

The Tokyo "Garbage War" from 1966 to 1974 involved three major actors: the Tokyo prefectural office, the residents of Koto Ward, and the residents of Suginami Ward (two of Tokyo's 23 wards [*ku*] or subdivisions).⁶ Koto Ward, situated in the marginal areas of Tokyo facing Tokyo Bay, had a garbage incineration plant and a landfill for waste, both of which accepted trash from all of Tokyo's 23 wards. Combustible trash was burned in the incineration plant and noncombustible trash was dumped into the landfill. In the course of rapid economic growth after 1955, the quantity of garbage increased sharply and became more diverse, including various kinds of plastic waste. By the early 1960s, hundreds of garbage trucks flowed into Koto Ward daily, overwhelming the ward's garbage processing capacity. The Ward had to dump combustible trash into the ocean because its incineration plants could not burn it all. The unsanitary dumps let off odor and attracted insects that assailed the residents. Angered, the residents demanded that the Tokyo prefectural office reduce the volume of garbage brought to Koto Ward by constructing more incineration plants in other wards.

In response to the concerns of the Koto Ward, in November 1966 the Sanitation Bureau of the Tokyo prefectural office proposed a new incineration plant in the Takaido area of Suginami Ward. But Takaido residents raised concerns surrounding the impact of pollution on this residential community, and organized protests in opposition to the plant. Landowners of the plant site refused to sell their lands. The project reached a deadlock. The Sanitation Bureau's efforts to persuade the residents of the safety of the Takaido incineration plant failed repeatedly.

When the efforts to slow the volume of garbage failed, in September 1971 the Koto Ward Assembly passed a resolution halting the flow of other wards' garbage into the Koto system. The resolution stated that every ward should dispose of its own garbage, and that the Koto Ward would refuse the import of garbage from other wards. It stipulated that the reduction of the flow of garbage into Koto should be achieved in a timely fashion.

⁶ Description of this case is based on Suginami-shouyoukinen-zaidan (1983) and my own fieldwork.

The Koto resolution created a crisis for the disposal of garbage in Tokyo. The reformist Governor Minobe declared combat against waste in Tokyo and set up a special office called the Headquarters for Waste Combat. In neighboring Suginami, residents opposed incineration and declared they were ready to use force if the Tokyo prefectural office expropriated Suginami land for an incinerator. Faced with two powerful residents' movements opposing incineration or dumping site, the Tokyo prefectural office introduced a radically new philosophy of waste management, namely "waste disposal in one's own ward," and a new decision-making method that assured the participation of residents. It went back to the old drawing board. With residents' participation, it reset the procedure to choose the site of Suginami incineration plant. It declared also to take all possible measures to prevent pollution by incineration plant.

However, during a period of difficult negotiation from 1971 to 1974, Tokyo Prefecture had difficulty in obtaining the needed agreement and social consensus. In December 1972 and in May 1973, enraged by stubborn oppositions on the part of Suginami Ward, assembly members from the Koto Ward blockaded the import of waste from Suginami Ward, aiming to push forward the construction of Suginami incineration plant. In May 1973, a special committee including residents of Suginami Ward decided to choose once more the Takaido area as adequate site for Suginami incineration plant. After one and a half years of conflict and negotiation, an agreement was reached in November 1974 between the Governor of Tokyo and the association of Takaido area residents in Suginami Ward.

The solution to the waste disposal impasse was beneficial to all parties involved. Residents of Suginami Ward agreed to sell land for the construction of the Suginami garbage incineration plant. However, they obtained the right to participate in the decision-making process at meetings concerning the construction and the operation of the incinerator. Through inclusion in decision-making process residents' of the Suginami Ward radically altered the original plan. As a result, strict environmental standards protecting neighborhoods were instituted and the incineration plant was partially constructed underground. As a result of these resident's demands, the construction cost increased several times.

The results were also beneficial for the Tokyo Sanitation Bureau. The bureau increased its waste disposal capacity, established a new policy principle of "waste disposal in one's own ward," and elevated the overall public priority of the sanitation system.

The Koto Ward received public approval for reducing the volume of garbage disposed within the ward's boundaries and for pushing other wards to construct incinerators. As a result of the Koto waste reduction effort, the Tokyo Sanitation Bureau set up a new sanitation policy that would avoid the over-concentration of garbage in Koto Ward. By battling against environmental inequality, Koto Ward achieved success in equalizing the social costs of waste disposal.

Process of Cooperative Problem Solving By Opposing Actors

These reforms brought about a radical transformation of Tokyo’s sanitation system. Utilizing the theoretical framework of the dual character of social systems, the case of the Tokyo Garbage War illustrates the process of cooperative reform-oriented problem solving. Koto Ward and residents of Suginami Ward tried to solve a problem of deprivation and victimization; the Tokyo Government approached this as a management problem. The outcome demonstrates the increase of capacity of the management system on prefectural level for resolving conflicts.

The Tokyo prefectural office, as leader of the management system, was sensitive to the management problems of waste disposal. The Koto Ward was the first group to recognize the unequal impact of waste disposal on their neighborhoods as a problem of inequality and a problem of victimization, and demand solutions to the problems of the garbage disposal system. Next, the residents of Suginami Ward criticized the undemocratic decision-making process of the Tokyo prefectural office and organized to resist the degradation of their environment. They experienced a fear of the victimization problem. Figure 4 presents the structure of opposition between them. In this situation, the management leader had to achieve three management tasks: (1) dispose of the city’s garbage (Tgd); (2) protect the environment in Koto Ward (Tpk); and (3) protect the environment in Suginami Ward (Tps).

The obvious and intended or manifest demand (Dmk) of Koto Ward was to reduce the garbage carried in from other wards and to improve the quality of its environment. The manifest demand (Dms) of the second contestant, Suginami

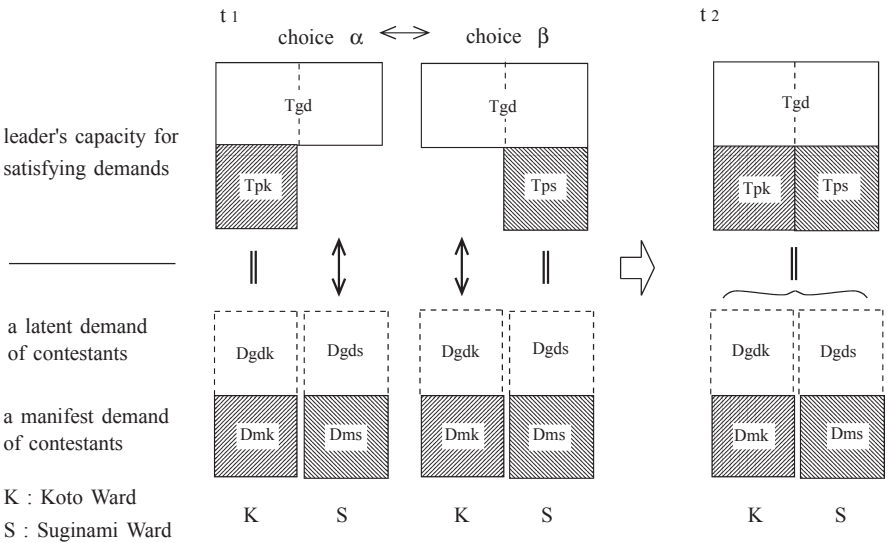


Fig. 4 Structure of opposition in the “cooperative problem solving by opposing actors”

Ward, was to protect its environment by stopping the construction of a Suginami garbage incineration plant. But these two wards had hidden or unintended latent demands including the demand for regular garbage disposal in their area (Dgdk, Dgds). These three demands correspond to three management tasks for the government leadership.

At the initial stage (t_1) the leader has two choices, alpha and beta. If the leader chooses either one, it will not accomplish all three of its tasks. If the leader chooses alpha, Koto Ward will be served but Suginami Ward neglected. If the leader chooses beta, the latter will be satisfied, but the former refused. The conflict culminated in the final stage (t_2), and led the Tokyo prefectural office to alter its sanitation system so that it could satisfy all three necessary management tasks. This type of conflict proved fruitful in addressing the environmental problem of waste disposal in Japan and satisfying all of the stakeholders.

Implication of This Type of Problem Solving

Cooperative problem solving by opposing actors implies innovation in the governmental management system. When citizens actively demand changes, an enlightened leadership may respond innovatively. The political process of protest demands and systematic reform demonstrates a viable approach to solving social problems through social conflict. The conditions necessary to enable creative problem solving include: (1) the contestants must present their demands effectively to the leader-ruler and impose new constraints on management; (2) the leader-ruler must be sensitive to the demands of its contestants and be willing to redefine management tasks and to reform the management system; (3) open dialogue between the leader-ruler and the contestants must continue in spite of the opposition between them.

Comparison of the Three Problem-Solving Process

The three types of problem-solving processes were situated in different social contexts. In the case of garbage separation in Numazu, the garbage workers tried to resolve a management problem within the management system on municipality level. The role of the workers' movement was to redefine cultural values surrounding garbage collection, to trigger changes in garbage management tasks, and to provide adequate measures for attaining these changes. In the case of Niigata Minamata disease, the conflict situates entirely in the domination system. In this context, the social movement demanded that the system be more democratic, egalitarian, and responsive to the needs of the victims. In the case of the Tokyo Garbage War, the conflict surrounded a prefectural management and domination system. Here, the role of a residents' movement was not only aimed at reforming the domination system but also to stimulate innovation in the management system by imposing new constraints on it.

Furthermore the scope of the problems and solutions varied. The Niigata Minamata disease case was characterized by inequality of power in a domination system between a perpetrating firm and victims, requiring that the victims also use power to solve the problem. On the other hand, the garbage separation case in Numazu demonstrated innovation in the management system. Innovation was achieved because Numazu municipal office was willing to redefine management tasks, and to be persuaded by research findings. The municipal office as leader in the management system effectively garnered social acceptance and public cooperation, successfully achieving reform. In addition, as demonstrated in the Tokyo Garbage War case, the following factors were also important: adequate constraints posed by the contestants on the management system, the ability of the leader to mobilize resources and reorganize the system, and opportunity for dialogue between opposing actors.

Finally, the structure of conflicting interests differed in the three types of problem-solving processes. On the one hand, in the Niigata Minamata disease case, a victory in one camp meant a loss for the other. On the other hand, behind the Numazu garbage collection reform, as well as the Tokyo Garbage War, the actors shared a common interest surrounding the need for environmentally sound waste disposal management. This common interest provided the basic condition enabling cooperation between residents and sanitation workers in Numazu and facilitating cooperative problem solving between opposing actors in Tokyo.

Setting the Three Cases Within the Longer Historical Transformation

The history of postwar Japanese environmental problems can be divided in four periods, further dividable into two grand periods (Funabashi 1992) (Table 2).

These four periods have seen an evolution of the environmental control system in Japanese society (Funabashi 2004). The environmental control system consists of government offices charged with environmental policies and various environmental movements that also have influence. In contrast, the economic system consists of the market system and the governmental agencies that control economic activities. In my view, the macro trend of contemporary social change consists of the deepening intervention of the environmental

Table 2 Historical periods of Japanese environmental problems

I Period of pollution caused by economic development (1945–1985)
1. (1945–1963) postwar rehabilitation and the first period of rapid economic growth
2. (1964–1973) establishment of effective anti-pollution policy in the late 60s and early 70s, i.e. the second period of rapid economic growth
3. (1974–1986) stagnation and retrogression of reform under stagflation
II. Period of universalization of environmental problems (1987–)

control system into the economic system. I distinguish four logical stages of this intervention, namely, (A) Lack of constraints on the economic system, (B) Imposition of constraints on the economic system, (C) Incorporation of environmental concern as a secondary management task, and (D) Incorporation of environmental concern as a primary management task.

In order to resolve various environmental problems and to construct a sustainable society, it is necessary to push our society from stage A to stage B, to stage C, and finally to stage D. One crucial task for environmental sociology is to clarify the channels and factors that can push society from one stage to the next. From this viewpoint, we should analyze how environmental movements can contribute to foster these transitions.

In 1950s and 1960s, Japanese society was in stage A. Despite the outbreak of environmental problems caused by the rapidly growing economic system, there were no effective anti-pollution constraints on economic system. In this stage, the production system produces the deprivation and subordination of pollution victims, as shown by the two Minamata disease cases discussed in this paper.

In order to resolve environmental problems in stage A, effective environmental regulations which prohibit environmental destruction must be introduced and imposed on economic activities. Imposition of such regulation indicates transition from stage A to stage B. In Japan, this transition occurred in early 70s. Fourteen environmental laws were enacted in December 1970 and the Environment Agency was founded in July 1971. Anti-pollution movement played a definitive role to push this transition.

Stage B results from the demands of anti-pollution movement to control and reduce pollution. It is in stage B that a governmental office charged with effective environmental regulation begins to work for the first time and imposes constraints on the economic system. The main character of transition from stage A to stage B is a change in the domination system. As the victims' movement in Niigata Minamata disease case shows, the aim of the environmental movement in this transition is defined as problem solving in the context of domination system. In this type of problem solving, success depends on the power relationship between victims and perpetrators.

In Japan, transition from stage B to stage C began in the 1970s. The case of separated collection of waste in Numazu and the case of the "Garbage War" in Tokyo occurred in this period.

Transition to stage C implies that not only a change in the domination system but also a change in the management system is necessary to resolve environmental problems. In stage C, faced with intervention by an environmental control system, economic ministries and firms begin to incorporate environmental concerns as a secondary management task in the economic system. They mobilize resources and innovate technologies to accomplish new tasks posed by the environment. Typical action is an increase in anti-pollution investment. This situation implies that the environmental problem not only constitutes the focus of conflict in domination system, but also becomes a management problem in the management system. The introduction of separated collection system of garbage

in Numazu as well as the case of Tokyo Garbage War imply innovations in the management system and are situated in this stage.

Since the mid 80s, Japanese society entered into a new period, the period of universalization of environmental problems. The fundamental factor that opened this period was appearance of various global environmental problems such as climate change by greenhouse effect, depletion of ozone layer, desertification, decrease of rain forest, international transportation of harmful wastes, creeping exhaustion of various natural resources, etc. Universalization of environmental problems means that all kinds of production and consumption must be reexamined from the viewpoint of their environmental burden and their long-run accumulative effect, which will be catastrophic. This situation requires a deeper intervention of environmental control system into the economic system, namely stage D.

Stage D is characterized by incorporation of the environmental concern as a primary management task. It is distinguished from stage C by giving primacy to environmental concern. In stage C, environmental concern is incorporated only as a secondary position. For a firm in stage D, economic prosperity can coincide with action for the protection of the environment. Typical practices in this stage are introduction of renewable energy such as wind power plant, organic agriculture, and zero-emission project in certain group of firms. Actually, it is only limited part of firms that reach stage D. However, in order to construct a sustainable society under universalization of environmental problems, it is necessary to push the society as a whole into stage D.

In the 1990s, efforts to seek the way toward stage D appeared clearly in various domains. In Japan, the Basic Environment Law enacted in 1993 is the first step toward stage D. Transition to stages C and D implies the redefinition of the management task in the economic system and consequently reorganization of management system on the level of the firm as well as on the level of economic control system. This viewpoint has an affinity with "ecological modernization" theory (Spaargaren et al. 2000). When universalization of environmental problems appears and transition to stages C and D become necessary, not only countervailing power in the domination system but also innovative efforts in the context of management system become important for the environmental movement.

As to the relation between environmental movements and business world in the course of transition to stages C and D, we find a general tendency from conflicting relations to more cooperative ones. In stage C, the two camps can share environmental value at least to certain degree. In stage D, two camps can have a more totally shared environmental value and a common policy goal priority. Dialogue and partnership became possible when environmental values are shared among different actors. However, transition to stage C and D can be possible only when the pressure toward a sustainable society surmounts the resistance derived from vested interests in the economic system. For example, introduction of ecological tax can become possible only as a result of power struggles in the domination system.

Although the theory of ecological modernization may be persuasive when it explains changes in the context of management system, we must point the importance of changes in the aspect of the domination system. As Garbage War in Tokyo shows, demand, confrontation, negotiation, and countervailing power can redefine the framework for functioning of the management system. These processes in the domination system ultimately define the possibility of a society's transition to stage D. So, the model of "cooperative problem solving by opposing actors" is very important to bring about stage D.

Conclusions

We can analyze the characteristics of the Japanese environmental movement from our theoretical viewpoint of the dual character of social systems. The various environmental problems in postwar Japanese society exhibit three basic types of problem-solving processes: reform in the management system, change in the domination system, and cooperative problem solving by opposing actors. These three types are represented by three typical cases: the separated collection of garbage in Numazu, the Niigata Minamata disease, and the Tokyo Garbage War. These three cases represent the difference between and the interrelation of change in the domination system and management system.

In order to grasp social change concerning environmental problems, the theory of environmental control system presents four stages model. This article showed how the relationship between environmental movements and authorities differed by historical stage. We are now in the period of universalization of environmental problem, which requires total reorganization of our system of production and consumption to attain the sustainability. The progress toward a sustainable society can be defined as the deepening intervention of the environmental control system in the economic system, which leads finally to stage D, namely "incorporation of environmental concern as a primary management task."

This four stages model give us useful framework to understand characteristics and historical change of diverse environmental movements as well as the position of various environmental policy. Environmental movements and environmental policy must push the transition of whole society to stage D through all effective channels. This situation requires that the Japanese environmental movement promote changes in the domination system as well as in the management system.

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