Organizational Process in Corporate Crime: A Case Study of Kumamoto Minamata Disease*

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I. Introduction

The Minamata Disease incident is Japan's largest case of pollution after the World War II in terms of the number of victims[1]. Approximately 3000 individuals in both Kumamoto and Niigata prefectures were officially recognized as Minamata Disease patients. In addition, it is assumed that more than 10,000 non-designated individuals have suffered from Minamata Disease. After the first outbreak of occured in Kumamoto, it was speculated that the waste water from Chisso factory would be the cause of Minamata Disease. But, the number of victims increased because effective measures to solve the problem were not taken in Kumamoto. As a result, the outbreak of Minamata Disease caused by another company occurred in Niigata. The president of Chisso and the director of Chisso's Minamata factory were prosecuted in 1976, 20 years after Minamata disease had been first identified. This incident implies that, in corporate crime involving production and sales processes, it is quite difficult for the society to determine causes and to make judicial judgments as crime.

Multiple cause-and-effect relationships between polluters and victims bring about such difficulties. In the case of Minamata Disease, organic mercury compounds, by-products of acetaldehyde, is discharged as the waste water into the sea and concentrated in marine life. When human beings and animals eat mercury-contaminated

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fish, organic mercury causes Minamata Disease whose symptoms include brain damage. It is not easy to prove the course of the disease in a scientific way. In this case, it did not take a long time to find out that the disease was caused by the intake of marine products and that a certain heavy metal would be the causal material. Even so, it took three years to confirm that organic mercury was the causal material after the first patients had been identified in 1956. Besides, it was in 1963 that organic mercury was proved to be a by-product of acetaldehyde production. Until then, there were various objections against research findings from the Kumamoto University research team which had examined those processes. Thus, it takes a long time to confirm the relationship between the polluter and victims scientifically.

However, it is assumed that a little suspicion about the certain problem should be sufficient to solve problems socially. After the intake of marine products from the Minamata Bay had been found to cause Minamata Disease, self-regulations of catch of fish were requested. At the end of 1956 when it was confirmed that the cause of the disease would be a heavy metal, only Chisso's Minamata factory handled heavy metals to a great degree in the Minamata Bay area. The Kumamoto University research team and individuals in general suspected that the factory would be responsible for the disease. Despite these facts, the factory continued to discharge the mercury-contained waste water until 1966. This paper attempts to discuss why Chisso's Minamata factory continued to dump the mercury contained waste water and why it could not take effective measures, focusing on the organizational processes of the factory.

In order to achieve this, I will employ the symbolic interaction theory[2]. Human beings, by nature, do not react to external stimuli mechanically. Instead human beings cognitively reconstruct external situations by themselves and determine their own behaviors. Individuals' behaviors are largely affected by their own "definitions of situations" (cf. Hewitt, 1991). Definitions of situations vary among individuals depending on social positions or careers. Accordingly, it is necessary to infer definitions of situations of the certain individual based on the social positions and careers in order to understand behaviors.

Furthermore, the degree of uncertainty is high under situations in which social problems are occurring, so that individuals need to define each situation using their own experiences in mutual relationships with other people. Also, since states of things may change drastically over time, both the definition of situations and resulting behaviors of each individual have to be changed at different times. In

other words, it is needed to explore changes in the definition of situations in order to analyze changes in individuals' reactions to a particular problem.

The distinction between two concepts, "problem" and "conflict," should be made in the analyses of definitions of situations which are related to social problems. "Problem" refers to a definition of situation with which one considers that he or she would be responsible for the cause of problem and has to make efforts to solve it. "Conflict" means a definition of situation with which one considers that he or she would be not responsible for the cause but needs to solve troubles with others. Minamata Disease exemplifies issues involving multiple cause-and-effect relationships mediated by chemical materials. In such a situation, even the polluter seems to define the situation as a conflict in which they are not responsible for the outbreak of the disease.

Based on this analytical framework, the following will first delineate changes in the waste water measures taken by Chisso in conjunction with social situations which gave pressures to Chisso to take measures. Secondly, types of definitions of situations which lead Chisso to take such measures will be discussed. In doing so, testimony statements of individuals involved in a series of Minamata Disease trials, interview recordings (NHK shuzaihan, 1995), and documents will be utilized[3]. In addition, attempts will be made to explain why Chisso continue to discharge the organic mercury. Lastly, implications of the Minamata Disease incident for regulations of corporate crime will be discussed.

II. Transitions in Chisso's waste water measures

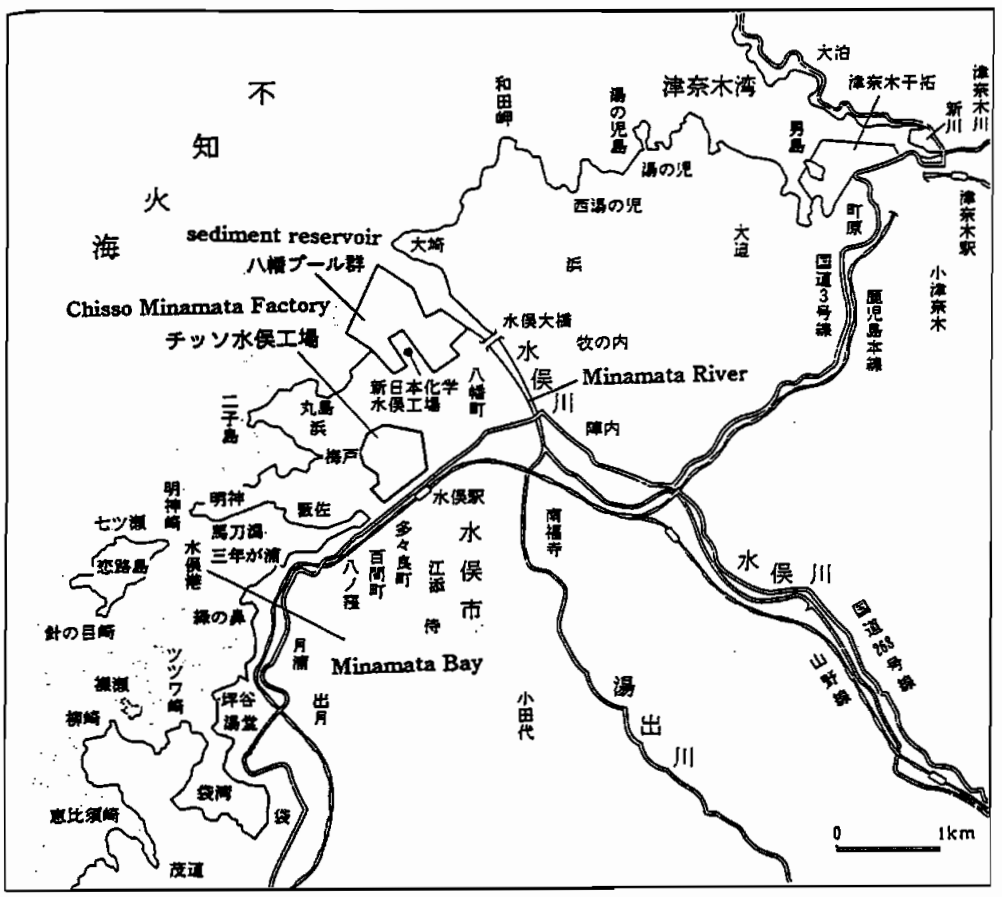
First, I will overview changes in waste water actions taken by Chisso's Minamata factory as the polluter (see, Table 1). Minamata Disease was first reported to the local authority as a strange disease in May of 1956. In the fall of the same year, researchers from Kumamoto University reported that Minamata disease was a poisoning caused by a certain heavy metal although the metal had not been identified yet. Since then, the Minamata factory have been paid attention by the society because it was the only chemical factory in Minamata area. Although Minamata Fisherman's Union and other agents first requested Chisso to halt the dumping of the waste water, Chisso did not take any particular measure, taking the position that the waste water from the factory was not the cause of the disease. However, at the Diet in June of 1958, a bureaucrat from the Ministry of Health and Welfare (MHW) stated that Minamata Disease was caused by the waste water from

Table 1 Chronological Table of Kumamoto Minamata Disease Case and Chisso's action

Time	Social situation	Chisso's action
May 1956	First report of the patients to the local administration	
Nov.	Anouncemment by the Kumamoto Univ. reserch team that the disease was caused by a certain heavy metal	
June 1958	Statement of a bureaucrat in the MHW at the Diet that the disease was caused by the waste water from Chisso	
July		Formation of a committee for cont-roling the waste water
Sept.		replacement of the drainpipe from the Minamata Bay to the Minamata River
March1959	Discovery of new patiants near the Minamata River	
July	Anouncement by the Univ. reseach team that the cause of the disease would be organic mercury	
Aug.	Storming the factory by the fisher-men	
Oct.	Proposal by the MITI to the Chisso dealing with the waste water	Putting the drainpipe back to the Minamata Bay
Dec.		Start of operation of the Cyclator Reconciliation with the fishermen and patients
Aug. 1960		Operation of the waste water recy cling system
Feb. 1962		Verification of the production of organic mercury in the acetaldehyde plant by in-house research team
May 1965	The outbreak of Minamata Disease in Niigata Prefecture	
April 1966	MITI's direction to improve the disposal of the waste water	
June 1966		Storing all the waste products from the plant

the Minamata factory. This statement compelled Chisso to take certain measures. Chisso formed a committee to regulate the waste water in the factory, having a vice-chief of technical department, Mr. K. as the chair, and started to implement the purification of the waste water. As a part of a purification action, Chisso moved the drainpipe from the Minamata Bay to the Minamata River because Minamata disease had been more prevalent around Minamata Bay area than other areas (see, Fig.1). Testimony of Mr. K. indicated that this action had two purposes. The replacement of drainpipes intended to settle sediments in the waste water and to divert the dumping of the waste water from Minamata Bay to the mouth of Minamata River and to diffuse drainage. Whereas Minamata Bay is geographically closing and the waste water tends to stay around, the Minamata River was considered to bring the waste water to the open sea.

Fig.1 Map of Minamata Area



(Miyazawa, 1997)

However, this change brought an unexpected result. The outbreak of Minamata Disease occurred near the mouth of the Minamata River and in areas apart from Minamata City. The people, particularly fishermen, advocated to halt the dumping of the waste water again. The Kumamoto Prefectural Assembly and the National Diet started to raise this issue. In July of 1959, The Kumamoto University reseach team concluded that organic mercury would be the cause of Minamata Disease. In August, members of Minamata Fishermen's Union stormed the factory. Since then, accusation toward the waste water from the Minamata factory had expanded. Finally, the Ministry of International Trade and Industry (MITI), the supervising government office, had a talk with the president of Chisso named Mr. Y. and proposed that Chisso should take appropriate steps to deal with the waste water.

In response to the proposal from MITI, the Minamata factory implemented two projects to treat the waste water. First, the factory stopped discharging the waste water into the Minamata River at the end of October and resumed releasing it through sediment reservoir into the Minamata Bay. Secondly, Chisso hastily completed the installation of "Cyclator", which purified the waste water, in December of 1959 although they had initially scheduled it in March of 1960. In December of this year when the installation of Cyclator was completed, Chisso established reconciliation with Kumamoto Prefectural Fisherman's Union Assembly and Minamata Disease patient group, mediated by the governor of Kumamoto Prefecture. However, the document of reconciliation did not include statements indicating that the waste water from the Minamata factory was accountable for Minamata Disease.

Another on-going project was suggested by the director of the factory immediately after the statement postulating the responsibility of organic mercury for Minamata Disease was released. This project intended to reform an equipment which would recycle the waste product of acetaldehyde. It was reported that the director N. implemented the project despite objections from employees who were in the division of aldehyde production and were concerned for the decline of aldehyde products. The recycling of the waste product started when the reform of the equipment was completed in August of 1960. However, the waste product was still discharged outside of the factory when they inspected the equipment and the equipment was out of order. Also, it is possible for organic mercury to penetrate into the ocean from the ground of the sediment reservoir.

Since then, any of new measures to treat the waste product were not taken for a while. By February of 1962, the research group of the Minamata factory had found

that organic mercury was produced in the course of aldehyde manufacturing. Regardless of their findings, Chisso did not take any measures. In May of 1965, the second outbreak of Minamata Disease occurred in Niigata Prefecture, which lead MITI to advise to intensify measures to treat the waste products. In response to the guideline from MITI, Chisso installed a tank in the basement of the Minamata factory which enabled them to store all the waste products from the aldehyde production process in April of 1966. Chisso could not halt the dumping of organic mercury until they took this measure.

Ⅲ. Waste water measures and definitions of situations of the factory executives

As reviewed in the above section, executives at the factory made decisions in taking measures to treat waste water in response to external pressures. The manner was rather passive than voluntary. Why did they only passively take measures? The following section will discuss this question, focusing on definitions of situations about the Minamata Disease issue.

First, one can point out that the factory executives involved in the Minamata Disease issue did not recognize desperate situations of Minamata Disease patients, their families, and fishermen who could not catch fish. Factory executives did not have opportunities to know residents in Minamata area, particularly fishermen. The majority of factory executives came from areas outside of Minamata. Before the end of the World War II, they had worked at Chisso plants in the Korean Peninsula. They began working at the Minamata factory after Japan's defeat in the World War II because Chisso gave up all the plants in Korea. Factory executives lived in company housing located in the upper-class area in Minamata and commuted to their workplaces. On the other hand, most of the fishermen and Minamata Disease patients belonged to the lower class and lived in areas apart from factory goers. Therefore, employees of the factory did not expose themselves to lives of Minamata Disease patients who had suffered and fishermen who encountered financial hardship due to a ban of fish catch. Because factory employees obtained information on the Minamata Disease issue only through media, they did not realize the seriousness of the situation. As a result, they did not take sufficient measures until external pressures became strong.

Another reason why factory executives did not pay much attention to the Minamata Disease issue was related Chisso's direct goals at that time. The factory was compelled to increase "octanol" products, the major products of Minamata

factory, in order to improve the declining business of Chisso. Because octanol is made from acetaldehyde, the production of acetaldehyde had to be increased in order to produce more octanol. This resulted in increased amount of mercury-contained waste water from the factory. Chisso was also attempting to extend its business to a petro-chemical industry and searching its possibility. Because of these two immediate goals, Minamata Disease was not their primary interest. Therefore, the company did not intend to take any measures unless they were given external pressures.

These attitudes were stronger in Tokyo headquarters than in the Minamata factory. In those days, it took the whole day to travel between Tokyo and Minamata by train. Also, given the pre-advanced mass media, Minamata Disease was rarely reported in Tokyo area. Accordingly, executives at the Tokyo headquarters were not at all interested in Minamata Disease, feeling that the disease was something out there. An executive stated that the executive meeting had never talked about Minamata Disease. Therefore, measures for Minamata Disease issues were mandated to factory executives in Minamata.

The first major pressure to Chisso was made by a statement of a bureaucrat from the Ministry of Health and Welfare (MHW) at the National Diet in June of 1958. In response to this, the Minamata factory diverted its acetaldehyde waste water from the Minamata Bay to the Minamata River and installed a purification facility called Cyclator. However, according to the director of the waste water controlling committee, diverting the acetaldehyde waste water to the river actually intended to make the waste water look better by settling the insoluble solids in the acetaldehyde waste water. He presumed that the waste water was thought to be responsible for the disease by people in general because of the dirty outlook of the waste water. Also, Cyclator was primarily designed to filter solids but not to remove water-soluble organic mercury compounds. Thus, both of measures proposed by the waste water controlling committee did not remove the causal materials but only attempted to improve the outlook of the waste water. In other words, measures for the waste water were projected with an aim of relieving a trouble rather than getting rid of causes of a problem.

This fact indicates that factory executives considered the issue of Minamata Disease as a conflict to treat rather than a problem to solve. It is not yet clear how much they suspected that the waste water from the factory was the cause of the disease. However, it is certain that factory executives did not trust findings from the Kumamoto University research team indicating that organic mercury was the cause of the disease. Kumamoto University claimed different chemicals as causal

materials of Minamata Disease at each time; manganese in November of 1956, selenium in June of 1956, and thallium in May of 1958. However, their conclusions were doutful because the Minamata factory had stopped the use of manganese in 1951 already and both selenium and thallium could be observed in the natural world and could not be considered the cause of Minamata Disease. Furthermore, research findings from in-house research group were not consistent with ones from the university research team. The research facility of the Minamata factory was ranked at the top of Japan and was much more well-equipped than that of Kumamoto University. Because the Minamata factory recruited researchers well trained in engineering and science, factory executives tended to look down the university research team consisting of professors at the medical schools, who had less knowledge in chemistry. Additionally, researchers at the Minamata factory, with training in natural sciences and extensive research experiences at Chisso, were inclined to make conclusions based on ample scientific evidence. Therefore, factory executives did not trust the university research team which had presented their conclusions without sufficient empirical data. Possibly, factory executives did not even assume that the waste water was the cause or did not expect that the university research team would prove their hypotheses. It is concluded that factory executives also recognized the Minamata Disease issue as a conflict to cope with rather than a problem to resolve.

It is quite natural for one to react to external pressures passively if he or she recognizes the issue as a conflict rather than a problem. External pressures toward the Minamata factory became most powerful late in 1959. The outbreak of the disease expanded to other areas, so that protests, particularly among fishermen, against the factory became more intensive than before. This caused heated debates at the Kumamoto Prefectural Assembly and the Diet. Finally, MITI advised Chisso to take measures. What the Minamata factory did for such external pressures was twofold: transferring the dumping of aldehyde waste from the Minamata River to the Minamata Bay; and hastening the completion of a purification equipment called Cyclator. However, the first project was only to change the route of the waste water. And, the persons concerned at the factory knew that the purification facility could not effectively remove organic mercury which had been considered to be responsible for the disease. In this sense, these two measures were taken with an intention of relieving external pressure or avoiding the conflict.

As carrying out these projects, Chisso agreed to sign on the consolation contract with the Fishermen's Union and the patient group, which once ended the conflict

on Minamata Disease. The conflict was thought to fire again if the outbreak of the disease continued. However, the number of Minamata Disease patients officially reported to Kumamoto Prefecture drastically declined during that time. When Minamata Disease was first recognized in 1956, some people suspected that the disease was infectious and discriminating attitudes toward patients expanded. So, being afraid of discrimination, patients did not register their disease to the prefecture. As a result, many of new cases were not uncovered. In fact, although desperate symptoms observed earlier were not found, the number of new patients continued to increase latently. Because of such situation, the society had an impression that the purification facility of Chisso stopped the outbreak of the disease. Although executives of Chisso did not believe the effectiveness of the purification facility, they also thought that the expansion of the disease was terminated.

What effectively reduced the amount of organic mercury was the recycling of the acetaldehyde-contained waste water inside of the facility. This idea was believed to be suggested by the factory director, Mr. N. But, Mr.N. , who implemented an effective measure, was promoted to the Tokyo headquarters and another person took over his position. Because the successor came from other factory and was not well acquainted with various issues concerning Minamata Disease, the waster water controlling committee came to take the initiative for treating the waste water. It was the director of the committee, Mr. K. was the person who had suggested an idea of improving the outlook of the waste water in order to relieve conflicts with fishermen and patients. Under the situation in which the reconciliation with fishermen and patient had been achieved, conflicts ended and the outbreak of the disease was not observed. There were not external pressures to demand Mr. K. to take new actions. However, regular examinations constantly detected a very small quantity of mercury and the drastic increase was recognized during the time of breakdown or inspection. Futhermore, according to the persons concerned, it was thought to be possible that the waste water might leak into the sea through the bottom of the sediment reservoir or overflow into the ocean during the flood. However, no preventive measures for the flow were not taken. Even after the factory research group identified organic mercury in the aldehyde waste water and confirmed that organic mercury was the cause of the disease, the factory did not take any measures. The situation in which the outbreak of the disease looked to end did not motive the factory to take new measures urgently.

Ⅳ. Deficiencies in the administarative direction from MITI

Executives of the Minamata factory considered the Minamata Disease issue as a conflict to deal with rather than a problem to solve. When social pressures to Chisso became very strong, measures were taken to relieve conflict but not to remove a material accountable for Minamata Disease except recycling the aldehyde waste water. In 1966 the Minamata factory began storing the aldehyde waste water, which was a fundamental solution, because the outbreak of Minamata Disease occurred in Niigata Prefecture and MITI requested the Minamata factory to intensify measures to treat the waste water.

As this fact implies, MITI was the most influential organization to Chisso as a private company. However, despite frequent contacts between MITI and Chisso, no guidances but the one in the fall of 1959 were given to Chisso by MITI until 1966. According to the director of the factory, Mr. N., the Minamata factory reported all the actions to MITI whenever the factory took new waste water measures. Also, the Minamata factory regularly sent the waste water to the subsidiary organization of MITI in order to measure the density of heavy metals including mercury. Why did MITI take any effective action for resolving the disease despite those efforts?

MITI was taking initiatives to promote a chemical industry as a driving force of high economic growth. It is inferred that the MITI's policy was to fail if the waste water was proved to be the cause of Minamata Disease. Particularly, two problems were going to obstacle the achievement of the policy. First, the production of octanol, a necessary material for the plastic process, was monopolized by Chisso. It was possible that the suspension of acetaldehyde operation would stop the supply of octanol and affect the production of plastic to a great degree. Secondly, if the waste water issues became evident at many manufacturers in Japan and consequently prevented their operations, it was possible that MITI would fail to promote the chemical industry. Therefore, it was considered that MITI could not give any direction implying the guilt of Chisso waster water for the disease. In fact, a person who was temporarily transferred to the Economic Planning Agency from MITI was forced to make efforts to continue the operation of Chisso.

Thus, the influence of Chisso's operation on the chemical industry policy was a major concern for MITI. On the other hand, the urgency of taking measures to treat Minamata Disease was not well recognized. The director of the division concerned at that time stated that Minamata Disease was only recognized as a local problem in a small town far from Tokyo because mass media and traffic were not as

advanced as now.

Officers in the division concerned at MITI, a supervision ministry, frequently contacted with people at Chisso. However, they rarely met patients, fishermen, and researchers from Kumamoto University who assumed that Chisso would be responsible for the disease. Because MITI did not conduct investigations by itself, they needed to rely on the information from Chisso. Therefore, it is possible that MITI's decision was influenced by information from Chisso and MITI did not necessarily judge that Chisso's waste water was accountable for the disease.

If the above speculation was correct, officers at MITI also recognized Minamata Disease as a social conflict rather than a problem which Chisso or MITI needed to solve. If so, MITI would take actions only when they recognized external pressures. The situation in the fall of 1959 may explain this assumption. The Kumamoto Prefectural Assembly and the National Diet eagerly cross-examined Minamata Disease issues. The MHW claimed that organic mercury was accountable for the disease. Finally, MITI directed Chisso to take measures to treat its waste water even if it was perfunctory. The content of the direction was to hasten the completion of Cyclator and to collaborate with Kumamoto University researchers. It was evident that Cyclator was not effective to remove organic mercury to those who had sufficient knowledge in chemistry. Examinations on whether Chisso's waste water measures would be effective were not conducted before MITI's direction was conveyed to Chisso. In other words, what the direction intended was to relieve conflicts rather than to solve Minamata Disease problems.

Since then, conflict concerning Minamata Disease came to the end after Chisso had reconciled with the Fishermen's Union and patients and the number of designated patients declined. MITI did not convey any advising statements to Chisso until the outbreak of Niigata Minamata Disease occurred.

In short, MITI did not advise Chisso to deal with Minamata Disease issues except the fall of 1959. The only advice was actually approval of the waste water measures proposed by Chisso. As stated above, the fact that MITI seldom took actions about the waste water measures despite frequent reports from Chisso, gave Chisso an impression that their measures were sufficient.

V. Implications for the regulation of corporate crime

In sum, the following statements can be made. Executives at Chisso's Minamata factory who sought the benefit were primarily interested in expanding the production

of octanol and extending their business to a petro-chemical industry. For them, Minamata Disease was something out there and their secondary interest. Because they did not expose themselves to patients and fishermen, they did not recognize the seriousness of the situation.

Second, since Minamata Disease had not been recognized before, the etiology of the disease was not well explored. The Kumamoto University research team was investigating the cause of the disease by a process of trial and error. On the other hand, the factory executives who were confident with their own research facility and only trusted claims drawn from ample scientific evidence. Therefore, the company executives could not trust findings demonstrated by researchers from Kumamoto University. Because of these attitudes, the factory executives did not consider that their factory was causing problems and they defined the Minamata Disease issue as a social conflict.

As a result, the factory executives passively reacted to external pressures. Even MITI which was considered to be the most influential to Chisso, did not instruct Chisso to take effective measures. Therefore, the factory mainly attempted to improve the outlook of the waste water, but did not take sufficient measures to halt the dumping of organic mercury accountable for the disease. When the Fishermen's Union and the patient group accepted conditions of reconciliation and sufferers wanted not to register their disease to local authorities, the executives judged that the conflict was ended. Consequently, the factory did not take new measures to treat waste water until MITI conveyed advice to intensify those measures because of the outbreak of Niigata Minamata Disease.

As the Minamata Disease incident illustrates, companies and the administrative bodies tend to delay in taking measures in corporate crime involving chemical materials. There are complex cause-and-effect relationships between the polluter and the victim in such incidents. Because it is difficult to prove all the links, it is easy for companies to make good reasons which reject the possibility of their guilt for the phenomenon. So, it is problematic that a person who is in a division of production or sales holds a supervising position in a section dealing with problems concurrently. With this kind of placement, one tends to take priority for the production over the regulation and to make good reasons because one does not want to be accused for what he or she has done. Therefore, they tend to define the situation as a conflict and to react to external pressures passively. Chisso's case illustrates that the loss of the company becomes large if they do not take measures earlier. Therefore, from a perspective of fail-safe, companies need to hold organizations

to treat problems independently from divisions of production. In such a case, a problem-solving organization should be a direct subordinate of the company head. Because, if the production division is very influential to other sections, the problem-solving organization may be suppressed by the pressure from the production division and cannot take effective measures.

External pressures also help companies to take urgent actions. In the Minamata Disease incident, it took 20 years to resort to judicial procedures since the first patient had been recognized. This fact illustrates that judicial procedures only function after incidents ended. Therefore, regulations from the governmental sectors are considered to be effective. In the Minamata case, MITI could not take effective controls over Chisso because a division of MITI both supported manufacturing activities of private companies and dealt with resulting problems. A similar situation was found in the AIDS issue which involved the MHW in the 1980s. Reflecting what had happened, the MHW transferred the authority of the judging and approving of new medications to an independent organization in the midst of 1990s. Thus, two different functions, support for production and regulation, have to be separated from each other. A regulating agency has to be placed so that the company can take an urgent action from the viewpoit of fail-safe.

Notes

1) For the details of the Minamata disease case, see Ui (1992).
2) For the analytical framework of organizational process from the symbolic interaction perspective, see Silverman (1970). And, Blumer (1971) first advocated to analyse social problems as a process of collective difinition from the interaction theory.
3) Most of the material in this paper is drawn from Minamata Kenkyukai (1996) and the documentary evidence in a series of Minamata disease trials. I am indebted many lawyers in copying these documents freely.

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