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Case Study At Tomakomai City

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POLLUTION PROBLEMS AND POLLUTION PREVENTION AGREEMENTS: A CASE STUDY AT TOMAKOMAI CITY

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Abstract : *The focus of this research mainly based on three things: pollution problems, pollution prevention and pollution prevention agreements. In the first part of this paper describes about the background of selection of research site and its condition. More over, this study tries to search the past pollution agreements and pollution problems. Finally, this paper discusses about the efforts toward pollution prevention and pollution prevention agreements in the research field.*

The characteristics of pollution of natural resources in this area are similar to the characteristics of pollution in Indonesia. Pollution problems facing this city may happen to or are facing developing countries such, as Indonesia. The findings and solutions for pollution prevention through the pollution prevention agreements' model in the study area will be very valuable and useful for Indonesia to protect the environment from pollution, such as from industry and waste disposal facilities.

Keywords: *Pollution Problems, Pollution Prevention, and Pollution Prevention Agreements (PPA).*

A. Introduction

In this study, we have selected a designated site, Tomakomai City. The selection of this city is based on many considerations. First, in Tomakomai, there are many industries such as pulp, paper, oil refining, automobile, electric power, lumber and chemical industries. Second, some pollution problems have happened in this area. Third, in this area, there are some pollution prevention agreements between the government and industries.

Tomakomai was a small, natural and clean fishing village when new Oji Paper Co., Ltd. (then Oji Paper Co., LTD) began operations in 1910. In the eighty years since then, the "city of paper" has grown into urban area with a population of 160,000. During this period, the Yufutsu Factory of Nippon Paper Industries Co., Ltd. (the Dai Nippon Paper Recycling) started operations in 1943 and later the Tomakomai Factory of Hoxy Co., Ltd. and the Shirroi Factory of Daishowa Paper Manufacturing Co., Ltd. were established. Tomakomai Region became a center for paper manufacturing factories (Anonim (1). 1996).

As mankind has progress throughout history, so has the development of paper. Economy, culture sports, and all others aspects of citizens' lives in Tomakomai have developed in close connection with paper manufacturing.

In 1963, the Tomakomai Industrial Port (West Port) was opened as the world's first man-made excavated port and the construction development of a giant industrial project at Tomakomai started. In 1969, the Hokkaido Development Agency, the supervising authority, announced the inauguration of the project. Almost ninety percent of the land for the purposed site had already been acquired and planning for the relocation of five thousand people from the Yufutsu residential district, who were caught in the middle of the industrial complex areas, had already commenced. Despite the residents' objections, the government failed to hold a single public hearing on the project. The official agency response was that the residents would be informed of the government's intention only after an environmental impact assessment on the plant had been completed (Japanese Federation of Bar Association. 1974).

Since 1964, the conflict of local communities and the government turned into confrontations that have profoundly affected the attitudes of local governments to industrial growth. Local governments previously competed aggressively to attract new industries, since industries were perceived as a lucrative additional source of property tax revenues. After this period pollution control became the dominant concern (Japanese Federation of Bar Association. 1974).

The opening of East Port in 1980 induced many firms to set up operations in the Western and Eastern Industrial Bases. Tomakomai has developed remarkably as an industrial center supporting Hokkaido's economy and also as a distribution center serving as a gateway to Hokkaido together with the adjacent New Chitose Airport (Anonim (2), 1996).

In view of the coming of the 21st century, it has also been steadily promoting the creation of comfortable community for the citizens who support the development of the city, incorporating the abundant surrounding nature.

The Tomakomai Western Port was designated as an important port in 1981. Today, it has become an important port not only for industry but also as distribution center, handling about one third of Hokkaido's total cargo volume, and is playing a great role in the development of Hokkaido's economy as the largest international trading port in northern Japan.¹

Various corporations involved in a wide range industry, such as oil refining, automobile, electric power, lumber, chemical, nonferrous metals, and assorted feed locate their operation on the waterfront of the Tomakomai West Port. The Tomakomai West Port has been improved to cope with the modernization of freight traffic, forming a large coastal industrial area.

¹ Tomakomai no Kankyou (Tomakomai Environment) 1995.

Above all Toyota Motor Corporation Hokkaido started operation here on October 1992, and is expected to grow as an extensive industry (Anonim (2), 1996).

The Tomakomai Eastern Industrial Area is a large-scale industrial base located 10 km east of the center of Tomakomai and fifteen km. away from the New Chitose Airport, with a total area of 10,620 ha, extending eight km from east to west twelve km from north to south (Interview on July 8, 1997).

The city also is developing the Kisei Light Industrial Complex of R&D type, the South Numanohata Industrial Complex and the Akeno Light Industrial Complex. According to the recent data, in 1995, the total number of enterprises in Tomakomai was about 289 companies. The total number of employees is 11,371 (Table 1) and the total value of products is 632,091,320,000 yen. In the following section we will examine the present state of conditions in Tomakomai concerning pollution prevention agreement.

Table 1.
The Total Number of Enterprises, Employees and Products

Years	The Total Number of		
	Enterprises	Employees	Products in 10,000
1986	261	9,004	52,541,321
1987	264	8,739	43,933,541
1988	260	8,697	46,751,262
1989	258	9,187	50,719,926
1990	268	9,429	56,664,709
1991	277	9,954	60,212,728
1992	274	10,460	56,177,176
1993	284	10,931	58,692,047
1994	275	10,933	60,884,868
1995	289	11,371	63,209,132

Source: Tomakomai Kanky (Tomakomai Environment) 1996.

2. General Feature of the Research Site

a. Location

The City of Tomakomai located in the southwestern part of the island of Hokkaido, the northern most island of the Japanese archipelago. The total area of 560.96 km, facing the Pacific. Tomakomai is located about 60 km south of Sapporo and 15 km south of the New Chitose Airport. On the North side of Tomakomai is Chitose City; on the East side area Atsuma Town and Hayakita Town. On the West part Shirishi Town (See map of Hokkaido). Tomakomai City is lies at 141° 36' 34" longitude and 42° 37' 53" latitude. With dimensions of 124.55 km circumference, 39.9 km east west and 23.6 km north south (See table number 2).

Table 2.
Location and dimensions

Total Area	Location		Dimensions		
	Longitude	Latitude	Circumference	East-West	North-South
560,96km	141°36'	42°37' 53"	124,55 km	39,9km	23,6km
	34"				

Source: Tomakomaiishi Shisei Youran (Tomakomai City Condition Guidebook, 1996).

a. Climate and Population

Although it is situated in the snowy and cold Hokkaido, Tomakomai has generally mild winter with little snow. Tomakomai City has a mild climate and rich nature with the vast Yufutsu Plain and Mt Tarumae. The lowest temperature rarely falls below -15°C. Summer is also moderate and the temperature seldom rises over 25°C. The average annual wind velocity is 4 meters and annual precipitation is about 1,000mm (See table number 3). According to data recently (1995) that the total population of Tomakomai are 170,376 people (See table number 4). It consists of 83,281 men and 86,675 women. The increase number of population is 1,607 people. The total number of household in Tomakomai is 68,072. Most of the people live in the western part of Tomakomai, West Port. Some of them live in adjacent area between the Western Port and eastern Port of Tomakomai.²

Table 3.
Climate

Year	Temperature (°C)		Average Humidity	Average Wind Velocity (m/s)	Total Precipitation (mm)
	Average	Highest			
1989	8.1	31.3	-12.4	77	3.2
1990	9.0	29.6	-18.8	77	3.2
1991	8.3	27.5	-15.2	75	3.1
1992	7.3	27.2	-14.2	78	2.9
1993	7.5	27.5	-12.1	75	3.1
1994	8.3	33.3	-13.7	72	3.0
1995	8.1	29.3	-14.2	76	2.9

Source: Tomakomaiishi Shisei Youran (Tomakomai City Condition Guidebook) 1996.

² This data based on interviewed with Tomakomai Kankyou Kansi Senta (Tomakomai Environmental Supervision Center) On July 8, 1997.

Table 4.
Tomakomai Population

Year	Population	Men	Women	The increase number	Household
1986	159,148	78,344	80,641	73	57,840
1987	159,281	78,126	80,885	26	58,199
1988	159,534	78,051	81,123	163	58,741
1989	160,311	78,301	81,687	814	59,572
1990	161,566	78,727	82,283	1,022	60,899
1991	163,121	79,399	83,078	1,467	62,172
1992	165,077	80,333	84,151	2,007	63,799
1993	167,163	81,497	85,128	2,141	65,320
1994	168,753	82,361	85,988	1,724	66,552
1995	170,376	83,281	86,675	1,607	68,072

Source: Tomakomaiishi Shisei Youran (Tomakomai City Condition Guidebook) 1996 and Tomakomai no Kankyou (Tomakomai Environment) 1996.

2. The Present State

Since the pollution prevention agreement between the city of Yokohama and industry, strategies for environmental pollution prevention have increased in several ways (Gresser, et. al., 1981). First, through negotiation, it is possible to specify in more detailed pollution controls that are more compatible with local conditions. Second, the negotiation process regarding terms of the agreements often enables the local government to assist a factory in developing and environmental pollution prevention plan (Gresser, et. al., 1981). After the negotiations are concluded, the agreement terms become a basis for administrative guidance. Third, citizen participation promotes the democratization of corporate and government decision making (Gresser, et. al., 1981).

In Tomakomai, before March 25, 1976, there were sixteen agreements of different types between the government and industries. These agreements were similar to pollution prevention agreements. At that time, there were called "memorandum" or "confirmation" between government and business. In this area, the use of pollution prevention plan started from 1973 to 1978 (Interview on July 8, 1997).

There are new big industries started operation within the area since the opening of West Port and east Port. This caused a new land plan development. There has been no serious pollution such as Kawasaki, Yokkaichi and Yamato was reported. On the other hand, there are two types of pollution have occurred in the West Port area. First, from 1973 to 1976, pollution from Oji Paper Manufacture occurred. Black

dust came out of the smokestack of this manufacturer and covered the railroad tracks. The railroad companies complained about this pollution, because of that complaint, the manufacturer raised its smokestack from forty m. to two hundred m. At that height, the black dust blows further away, and since then, there are no more complaints from the railroad companies (Interview on July 8, 1997).

Second, Pulp Companies pumped liquid waste in Tomakomai River. There were some complaints from the people who live near the river. They said that the river is polluted and emits bad odors. Because of this complaint, in 1985, the polluted river was reclaimed. The downstream of the river was cleaned out. The companies made an underground pipe to pump the liquid waste directly to the sea. Since then, there have been no more complaints from the people who live near the river. However, because of the liquid waste from the company goes directly into to the sea, when the wind blows from the Pacific Ocean, the smell of the liquid waste returns to the land area or seashore (Interview on July 8, 1997). This situation shows that the companies are only able to solve the pollution problems temporarily. In other word, they just move the pollution from one area to another area, which is very harmful for the very valuable living things around the harbor area and in the Pacific Ocean. It would be wise for the companies to solve the cause of problem by building water waste treatment facilities. In this case, the liquid waste would not directly go to the river or the sea. The liquid waste from the companies would go to the facility to be processed and, after removing harmful chemical substances or odors, be disposed of in the river. There are a lot of advantages for the industries. The industries will get popularity as being nice to the environment. It creates a good image for the consumers. In addition, the industries do not face protest and pressure from the surrounding community near the facility. This creates security and stability of the surrounding facilities, which is one of very important factors in carry out the activities and production.

Due to the many new industries, the pollution automatically increased. As a consequent of the new development of industries and the increased production, an environmental preservation plan and facility was established in March 1973 in order to monitor the pollution within the area (Table 5).

Table 5.
History of Tomakomai Environment Supervision Center

Years	Occasion
March, 1973.	Tomakomai Anti pollution Center was established.
June, 1973.	Air pollution Monitoring Telemeter System was installed

at the Tomakomai Anti-pollution Center and began operations.
Tomakomai Anti pollution Center was put under the supervision of the city of Tomakomai.

April, 1980. Tomakomai Area Environmental Supervision Center was established, Tomakomai Area Air Pollution Monitoring Telemeter System began operations.

1981-March 1985. The Telemeter System for factories was established
1982-March 1985. Electrical Board was built on the streets in Tomakomai.

June, 1988. Airplane Noise Monitoring System was established.

October, 1989. Air Pollution Monitoring System was updated.

August, 1991. The CRT replaced Electrical Board Display on the street.

March, 1994. Telemeter System for factories was updated (lines were) changed to general lines of Nippon Telegraph and Telephone Corporation).

April, 1994. Air Pollution Emergency Reporting System was updated simultaneously reporting by facsimile).

June, 1994. Areas covered by Airplane Noise Monitoring System were expanded.

October, 1994. Air Pollution Monitoring System was updated.

Source: Tomakomai Chihō Kankyō Kanshū Center (Tomakomai Area Environmental Center), Hokkaido Government.

The local government thinks that the quality of life and environment of the community is very important (Interview on July 8, 1997). The city government has tried to handle the societal complaints appropriately (Interview on July 8, 1997). In this area, there are a number of complaints from the city's communities concerning their living conditions. Recently, the main complaints concerning the industrial operation are in wide scope and include health, social and environment problems. People complain that the neighborhood has become overcrowded and about the resulting changes in life style. The administration thinks that is not only his responsible to find the solution, but also everybody is responsible for preserving the environment (Interview on July 8, 1997).

In 1995, the city received 80 complaints from the communities. Those complaints concerned such problems as water pollution, air pollution noise-vibration and odor. The majority of complaints were about noise-vibration (fifty two percent). Air pollution (twenty five percent) and odor (16.2 percent) and water pollution (6.3 percent) follow this complaint (Chart5 (Anonim (2). 1996).

Noise, vibration and odor pollution have a direct impact on the community. This pollution makes everyday life in the community uncomfortable. "Sense pollution" as it is called in the community is become a big problem in Tomakomai City.

3. Classification and Process

In Tomakomai, pollution prevention agreements fall into one broad category of agreements between administration and business (Interview on July 8, 1997). The following points need to be noted regarding the agreement types in connection with a discussion of the typology of pollution prevention agreements.

First, in agreements between an administration and a business, most often cities or towns are one of the parties. Even when the prefecture government is a party, it may only be there to back up the city or town and the area of prefecture that is included. There are five agreements, which have been seven parties' agreements among industry, Hokkaido government, Tomakomai City, Chitose City, Hayakita Town, Asunara Town and Mukawa Town.

Second, there are twelve agreements that have been three parties' agreements among industry, Hokkaido government and Tomakomai City. In this case, Hokkaido government usually supports Tomakomai City.

Finally, there are eight agreements that have been two parties' agreements between industry and Tomakomai City. In this situation, sometimes the municipality acts on behalf of the interest of community groups to protect the environment from pollution (Table 5).

Tabel. 5
Type Pollution Prevention Agreement

The Number of		Percentage
Parties	Enterprises Agreements	
7	5	20
3	12	48
2	6	32
Total	23	100

Source: Tomakomai no Kanky_ (Tomakomai Environment) 1996.

It is unusual for a local government or the Environment Supervision Center in Tomakomai to include individuals or a group of community in pollution prevention agreements. Because the community groups think that the methods of government and industry for preventing the pollution do not meet their expectation (Interview on July 8, 1997).

On the other hand, in Industrial Land Council and Pollution Counter Measure Council, a representative from community groups, members of the city assembly and academics are able to argue about and criticize proposals from industry (Table 4). This means that the community groups indirectly participate in the pollution prevention agreement.

The following points need to be added in connection with the types of pollution prevention agreements in Tomakomai. First, the administration is defined as the part of the administration responsible for pollution. The government may be seen as representing community groups or individuals. Second, there are also agreements between some local governments and industry such as Hokkaido government, Tomakomai City and neighboring towns.

This type of agreement may include both those between parts of administrations responsible for coping with pollution and administrations as polluters, and between two administrations or more in charge of pollution control. In the previous case, the agreements resemble those between administration and business, while in the later

Table 6.
Tomakomai City Pollution Counter Measure Council Members

Classification	The Number of People	Percentage
Academics	10	50
Community	6	30
Member of City assembly	2	10
Government Official	2	10
Total	20	100

Source: This based on interviewed with Tomakomai Kanky_eq \o(s\sup 7(_))_ Kansi Senta (Tomakomai Environmental Supervision Center) On July 8, 1997. case the agreements can be described as agreements to work together.

The process of concluding a pollution prevention agreement varies from one type of agreement to another. It depends on the size of industry itself. In case of small industry, it probably takes two to three months from the submission of a land proposal to the signing of the agreement (Interview on July 8, 1997).

In the case of a big company, the process of pollution prevention agreement may take about one year. The process consists of four parts. Each part has three or four steps. For example, Company A concluded an agreement with seven parties. First, on June 1, 1981 this company submitted a land proposal. In the same year, it submitted a construction proposal to the section in charge. Moreover, it consulted with Industrial Land Council. In the second part, in the following year, on January 20, 1982, it submitted the company's preparation work toward a pollution prevention agreement. In addition, it submitted data to the section in charge. This submission was followed by negotiations with the section in charge. This part ended with negotiations with six local governments. Third, on March 1, 1982, the company received construction permission approval from the government. In this part, the company once more negotiated with the six local governments. The purpose of this negotiation is to confirm the basic problem and the articles in the agreement. Finally, on June 1, 1982, the pollution prevention agreement was signed and the company could start operations (Table 5).

Table 14. The Process of Pollution Prevention Agreement of Company A (Seven parties' agreements)

Date and year	Process
June 1, 1981	<ol style="list-style-type: none"> 1. Land Proposal Submission 2. Construction Proposal Submission 3. Consultation with Industrial Land Council
January 20, 1982	<ol style="list-style-type: none"> 1. Company A's preparation for a pollution prevention agreement. 2. Submission of data to the section in charge 3. Negotiations with the section in charge 4. Negotiations with six local governments
March 1, 1982	<ol style="list-style-type: none"> 1. Construction permission approval 2. Negotiations with six local governments 3. Negotiations started, the basic problem was recognized and articles in the agreement were confirmed
June 1, 1982	<ol style="list-style-type: none"> 1. Pollution Prevention agreement was signed by the parties 2. The Industry started operations.

Source: This table is based on an interview with Tomakomai Kankyo_Kansi Senta (Tomakomai Environmental

Supervision Center). On July 8, 1997.

D. Conclusion

Perhaps most compellingly, the pollution problems may be genuinely "new" problems that call for new solutions. Their impacts are so widespread and potentially devastating that arguably the public can not be excluded from their resolutions.

The issues are rarely broader than just "what is acceptable pollution? Rather, it becomes "on this issue, what broad right does the public have to make decisions which affect their lives?" Perhaps the only comparable issue is the threat of nuclear holocaust, whose peculiar characteristics enabled it to be sheltered and contained from public debate by political and military considerations. However, the environmental problem, with no less frightening implications, is different. It surrounds us and permeates our lives, especially people in Tomakomai. Attempts to deal with it through the usual channels have been unsuccessful and have been seen to be unsuccessful by the people who live in Tomakomai.

The process lacks legitimacy and credibility. Meaningful public participation, wars and all, may be the only way to make the process legitimate and achieve the goals. It seems to have work in Japan.

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