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*"Hukum Adat yang dituliskan dan Berlaku di Wilayah Sumatera  
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# LEGALASPECT OF INDUSTRIAL WASTE PROBLEMS IN JAPAN

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## **Abstract :**

*This research is primarily aimed to analyze environmental-legal aspect of industrial waste problems in Japan. The first part of this study tries to explore the history and definition of waste. This can be traced from Tokugawa (Edo) era, Meiji era, Showa era and the current law. Moreover, in the second part of this study tries to explore the present state of industrial waste and industrial waste management. Finally, we will discuss and analyze legal aspect of industrial waste problems in Japan. Findings showed that there are three types of problems such as: the problem of the types of wastes, the location and waste disposal plant itself.*

*Key Words: legal aspect, industrial waste problem, Japan*

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## **A. Introduction**

Japan has significantly improved energy conservation and environmental protection in the past few decades especially since the late 1980s. Since that time, Japan has become a world leader in the development and implementation of pollution control technologies and energy efficiency innovations. It is now one of the preeminent international disseminators of environmental technology.

The environmentally friendly nature of current Japanese policies represents a significant departure from earlier periods, when the government pursued economic development without regard to environmental impact. This nearly exclusive focus on economic development led to significant public health problems like Minamata disease, Itai-itai disease, and Yokkaichi asthma have all become well-known phenomena that are serious threat to health and life, which was caused by industrial emissions released in waste water. While Japan's environmental protection efforts have improved, it is still faces a number of environmental challenges. In particular, increased energy consumption as a result of economic growth has led to increases in nuclear waste, road traffic, pollution and other energy-related environmental problems. These have offset some of Japan's environmental progress.



## B. History and Definition of Waste

It is probably very difficult to find out the exact point in Japanese history when the waste is known. However, the word waste in Japanese is called "gomi." There were many expressions of "gomi." In the Tokugawa (Edo) era (1600-1867), the people called waste as "ariakuta," or "akuta" and many other expressions. But most people used the word "ariakuta."<sup>1</sup>

At the beginning of Meiji era, Meiji 20 year (1887) the regulation concerning waste management (Ariakuta torishimari kisoku) took into effect. This followed by the enforcement of Sewage Cleaning Law (Obutsu Seisou Hou) in Showa 29 year (April 1954).<sup>2</sup> The word "ariakuta" still used until the new law (The Law concerning Waste management and Public Cleansing No. 6 of 2001) take into forced.

According to the book, Wide Garden (Koujien) published in 1955, the wastes consists of "ari" ("ant"), "akuta" ("waste"), "hokori" ("dust"), "mata" ("second hand"), "tsumaranaimono" ("worthless things"), "muyounomono" ("useless things"). The impression toward waste is that waste has small form and light. Actually the word "ari" and "akuta" comes from China. "Ari" means one per ten billion, and "akuta" means one per one hundred billion.

Nowadays, when we talk about the waste, the image of waste for people is different from the image of waste in the previous time. In the last fifty years, Japanese people have experiences the growth of economic and oil price shock, we feel that people around us have abundant many goods.

Fifty years ago, we never think or dream that a lot of endurance durability consumers goods such a car as a waste. But in some develop countries such as the United States, Japan, Germany, and Singapore, we found out in the newspaper articles that people through away the car as a waste. This action made people surprised.

Lately, when people from the developing countries see the landfill in their country, they feel that many wastes in that landfill can be used. In some articles in the developing countries, the waste hill is the valuable hill.<sup>3</sup>

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<sup>1</sup> Matsufuji, Yasushi. (1998). Gomi syori no rekishi (The History of Waste Treatment). p.3.

<sup>2</sup> WakkanaiShi no Seisou Jigyou Oyobi Resaikuru Ayumi (The Cronology of Recycle and Cleaning in Wakkanai City).

<sup>3</sup> How street Children in New Delhi, India survive by collecting the waste which give the income for fifteen rupee (¥40) perday, TBS news on 18:00 o'clock, December 15, 1999.

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If we see in the society, there is a big influence from social environment toward the wastes. For example, the total distributions of goods, economic power or purchase power, population density, the large and the price of land. The influence determines whether the waste become waste or valuable things.

From this point of view the image of waste in Meiji Era has been changed. Formerly the definition of waste is a very small object or dust becomes unconditionally difficult definition. In this case the definition of waste is the goods in which is discharge by the owner whether it is valuable or not.

The waste is more easily recognized than defined. To individuals in Western society, the leftover blob of mustard on the rim of dinner plate, like chicken bones or unchewable bits of gristle, is regarded as "waste." They disposed them in the "waste bin," while, on completing the digestive process, our bodies emit waste matter that is flushed into the local sanitary system.

Our journey to work, our cars, buses and lorries emit waste fumes into the dust polluted air of our cities, and in our office and house the daily consignment of junk mail. Throughout the day our industries and the power stations on which they depend for energy, discharge waste effluent into streams rivers or the sea and waste emissions into the air. Farmers, using intensive methods of cultivation to maximize produce and profits, douse their vast fields with chemical fertilizers that are "wasted" when they leach beyond the intended soil, or spray their crops with synthetic pesticides in such quantities that some are invariably carried away by the wind. As the first generation of mess nuclear reactors reaches the end of its working life, we can no longer escape the problem of the radioactive waste that will remain a hazard into this century.<sup>4</sup> We see how discharges of waste gases into the atmosphere have caused acid rain and dioxin.

The more we consider the industrialized world of today, and the third world of tomorrow, the more we realize that we live in a world dominated by waste. Most of it undesirable, and that, unless we do something about it, humanity may disappear under its own detritus, and the world we know with it.

What is the waste? Is there such a thing, or are there only different wastes? Is the different in degree between a blob of mustard on a dinner plate and a worn out nuclear reactor so great (in term of size or hazard) that

<sup>4</sup> How street Children in New Delhi, India survive by collecting the waste which give the income for fifteen rupee (₹40) perday, TBS news on 18:00 a'clock, December 15, 1999.



it becomes a different in kind? Are there features common to all wastes that not only justify one designation but also suggest a common solution to the problems they pose?

The world's lexicographers and lawyers offer a little help. Under the heading "waste matter, refuse," the Oxford English Dictionary (OED) defines "refuse matter" as "unserviceable material remaining over from any process of manufacture; the useless by products of any industrial process; material or manufactured articles so damaged as to be useless or unsellable." A concept of waste, which, in its limitation to industry and omission of domestic or agricultural forms of waste, fails to reflect common usage. The first two definitions, however, view waste as part of a process, while all three direct attention to its uselessness or unserviceable.

Webster's New International Dictionary (5<sup>th</sup> Edition) echoes the OED in considering waste as "damaged, defective or superfluous material produced during or left over from a manufacturing process or industrial operation" and, having used the word "superfluous," proceeds to add, "material not usable for the ordinary or main purpose of manufacture." Webster, however, is broader in examples, which include not only "material rejected during a textile manufacturing process" but "fluid (or steam) allowed to escape without being utilized" and "worthless material removed in mining or digging operations." Finally, we reach "refuse from places of human or animal habitation," on the one hand, garbage and rubbish. On the other, excrement, ordure, and so eventually to sewage. But, like the OED, nowhere does Webster actually define the essence of wastes.

Furthermore, the World Health Organization (WHO) experts' discussion of "hazardous waste" defines waste as "something which the owner no longer wants at a given place and time and which has no current or perceived market value."<sup>5</sup> This has the merit of recognizing that waste exists in context, that it has an owner and occupies a given place and time, the essence of the definition being that the owner does not want it.

Law source in Japan concerned with precise and unambiguous instructions for particular types of waste, often describe the issue by assigning parameters to the limiting objective. According to the Waste Management and Public Cleansing Law No. 6 of 2001, waste refers to refuse, bulky refuse,

<sup>5</sup> Television News of Asahi Television on 10:00 pm. January 27, 2000. The news reported on the dead of victims of nuclear reactor accident in Ibaraki Prefecture on January 27, 2000.

ashes, sludge, human excreta, waste oil, waste acid and alkali, carcasses and other filthy and unnecessary matter, which are in a solid or liquid state (excluding radioactive waste and waste polluted by radioactive).<sup>6</sup> This law classifies the waste into two types: (1) domestic wastes or general wastes; and (2) industrial wastes.<sup>7</sup>

Waste can be classified according to the cause generating the waste as industrial waste generated by human production such as hazards and massiveness and waste generated mainly by consumption for example household waste.

A general waste is the household garbage and night soil/domestic waste water. The household garbage consists of ordinary garbage and bulky wastes. The ordinary garbage separated into four types of wastes. First, recycle and reusable materials such as glasses, metals, pet bottles, and papers. Second, hazardous materials such as batteries, tires, refrigerator, television, gas tank and other items containing mercury or cadmium. Third, landfill wastes are non-recyclable, non-hazardous wastes that are also non-combustible, such as broken ceramic items: construction debris, plastic, small electric appliance and rubber. Fourth, incinerated wastes are non-recyclable, non-hazardous, combustible wastes such as soiled paper, kitchen waste, filmy plastics of mixed resin and unusable wood.<sup>8</sup> On the other hand, bulky waste consists of electrical appliances like refrigerators, television sets and washing machine, furniture like desk and drawer, bicycle and Tatami.

Industrial wastes comprise 19 categories of waste as defined below (see the chart 1).<sup>9</sup> Among the categories of industrial wastes, there are those considered as potentially explosive, toxic, infectious and hazardous to human health or living environment. They include oil waste, acid waste, infectious waste, alkali waste, PCBs waste, asbestos waste and other types of harmful waste which are designated as industrial waste under special control and require proper disposal.<sup>10</sup>

Our working definition of waste thus becomes waste is what we do not want or what we fail to use, with the proviso that "the failure to use" includes "failure to use for its proper purpose." Waste can be produced as the unwanted by product of a process, or something can become waste when it is no longer useful to the owner, or it is so used that it fails to fulfill its purpose.

<sup>6</sup> WHO UN World Health Organization. 1983. Examples of Toxic Waste in TWN 1989. P.102-10.

<sup>7</sup> Waste Management and Public Cleansing Law no 66 of 2001. Article 2,1.

<sup>8</sup> Waste Management and Public Cleansing Law no 66 of 2001. Article 2,2.

<sup>9</sup> Yoshida F. 2002.P.1.

<sup>10</sup> Herslikowitz, A and Salemi,U. 1987. P.25.



Wastes in context occupies both space and time, in terms of space its first and most obvious characteristic in Western society. The increase of consumption causes the mountains of unwanted matter pile up daily. The symbols of an affluent throw away culture. The industry discharge additional wastes into air, sea and land, and mounds of battered, rusting cars, rejected as the owner goes for a newer and bigger model, replace the slag of a defunct mining industry, now green over.

In term of time waste as we know it is essentially a modern problem. Human being always produce waste, if only the discarded bones of animals slaughtered for food, but the momentous increase in waste that characterizes contemporary society dates only from Industrial Revolution. Throughout the develop countries there are no longer enough convenient holes in the ground into which to tip unwanted matter, while developing countries, having refused to become the dustbin of the first, will, in its struggles to industrialize, exacerbate the problem by producing its own volumes of waste.<sup>11</sup>

Chart 1.

Type of Industrial Waste	Type of Industrial Waste under Special Control	
1. Cinder	Waste oil	
2. Sludge	Waste acid	
3. Waste oil	Waste alkali	
4. Waste acid	Infectious industrial waste	
5. Waste alkali	Specific Hazardous Industrial Waste	Waste PCBs
6. Waste plastics		PCB contaminated material
7. Rubber waste		Asbestos waste
8. Metal waste		Designated sewage sludge
9. Glass and ceramic waste		Slag, soot, cinder
10. Slag		Sludge, waste acid, waste alkali
11. Waste construction material (Pieces of concrete and other similar waste resulting from demolition of buildings and other structures)		Waste oil (Waste oil solution)

<sup>11</sup> The law concerning waste disposal and public cleanliness. Article 2.4.

12.Soot (Soot gathered in the soot-collecting equipment at facilities designated in the Air Pollution Control Law as soot-producing facilities as well as at facilities <sup>1</sup> that incinerate sludge, waste oil, and waste plastics)	
13.Paper waste (Paper waste from the pulp, paper, paper-processing, and paper-manufacturing industries; paper waste from the newspaper industry (including all printed matter published on newsprint); paper waste from the bookbinding industry and publications-processing industry; other paper waste dusted with PCB)	15.Textile waste (Textile waste from the textile industry (excluding the clothing and other textile products-manufacturing industries)
	16.Plant and animal matter (Solid matter from plants and animals used as raw materials in the food-manufacturing, medical goods-manufacturing, and perfume-manufacturing industries.
14.Wood waste (Wood waste from lumber-manufacturing and wood products-manufacturing industry (including the furniture-manufacturing industry); wood waste from the construction industry (only wood waste from the demolition of buildings and other structures)	17.Animal excrement (Animal excrement from livestock and agricultural industries)
	18.Animal corpses (Animal corpses from the livestock and agricultural industries)
	19.Waste that results from disposal of the Above mentioned industrial waste and Does not fall under the above categories

Source: Waste Management and Public cleansing Law No.6 of 2001.

### C.The Present State of Industrial Wastes

Japanese pollution control law have been much applauded in recent years.<sup>12</sup> The country has "moved rapidly from being the most polluted nation on earth to being the nation most committed to environmental clean up and the most advanced in pollution control technology. Japan enacted some of the world's strictest environmental protection measures," possessed by the mids 1970s "one of the most complete statutory frameworks for environmental law in the world," and

<sup>12</sup> The Japan Times. Waste Manila sent back offloaded. January 12, 2000.



developed what "must be judged the world's most successful pollution abatement program." As a result, according to its own officials, "the quality of Japan's environment is steadily improving."<sup>13</sup>

These plaudits are not undeserved, if the focus is, as it tends to be, on traditional air and water pollution control measures.<sup>14</sup> With industrial wastes, on the other hand, the picture is less clear. It is widely accepted that European countries, having started earlier, are generally the world leaders in this area. Japan, on the other hand, rarely figures in comparisons. There is very little analysis of Japanese industrial wastes management in Western or English language sources. There is similarly little information about whether the siting of industrial wastes treatment and disposal facilities is as much a matter of controversy in Japan.

It should come as no surprise that Japan has some industrial waste problems to deal with. The country's recent economic history has created an industrial structure where by products and industrial wastes are inevitable. Japan experienced extraordinary economic growth over the 1950's, 1960's, and 1970s, averaging 8-9% per year. Although GNP growth rates eventually slowed down somewhat in the wake of the 1973 oil crisis, they remained relatively high. Industrial production increased 8% per year between the mid-1950s and the mid-1970s. Beginning in the 1960s, Japanese economic planning shifted from the development of light industry to heavy industry, especially steel and petrochemicals. These developments vastly increased the demand for energy and spurred a construction boom of thermal power stations.<sup>15</sup> Production of steel and electricity increased nearly fourfold during the 1960s alone. Automobile manufacturing rose almost twentyfold (1800%), and plastics by a factor

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<sup>13</sup> Interview with the Hokkaido Government, Department of Environmental and Life style Official, Takasu Town Official and Wakkanai Municipal Official on June and November 1999.

<sup>14</sup> McKean, Margaret A. (1981). *Environmental Protest and Citizen Politics in Japan*. Berkeley: University of California Press. P.141.

<sup>15</sup> The successes detailed by the Organization for Economic Cooperation and development (OECD), for example, are all in conventional areas of air and water pollution control of SO<sub>2</sub>, NO<sub>x</sub>, BOD, etc. Among the specific areas where less progress has been made is the low percentage of Japanese homes served by sewer systems (OECD 1977). The OECD also notes that "other types of pollution appear to have been comparatively neglected" (p.21). Industrial wastes appear to be one of these "other types."

offifty. Production of ethylene, a useful indicator of petrochemical output, increased tenfold just in the period 1959 to 1965<sup>16</sup> and another seven times by 2003. This generate more industrial wastes.

This phenomenal postwar growth can be seen as the contemporary manifestation of a drive to develop Japan that began with the Meiji restoration in the late 1800s. The high rates of growth and industrialization are the most dynamic economy in the world were the necessary conditions for the emergence of the industrial waste problems. Some would argue that they were also sufficient conditions, given the lack of environmental consciousness of the government as well as industrial waste business. "Japanese industrial policy after World War II," one observer notes, "was pursued with disregard for human health and environmental needs."<sup>17</sup> The extent and pace of industrialization, however, is only part of the waste story.

The elementary fact of Japan's national life, as Chitoshi Yanaga suggests, is "too many people on too little land".<sup>18</sup> Japan has thirty five time as many people as the United States on every square kilometer of habitable area (about 1400/km square as compare to 40/km square when mountainous regions, etc. are excluded). It has about three times as many as densely populated Germany and the Netherlands. Japan also has, by far, the industrial world's highest ratio of GNP per unit area.<sup>19</sup> Even more striking is the density of the Tokyo, Yokohama, Osaka and Nagoya areas. They amount to only about 1 percent of the area of the country but held one-third of its population and fully three-quarters of its manufacturing in the 1970s. Industry thus tends to be in close proximity to population centers in Japan. The classic "solution to pollution through dilution" formula is therefore even more problematic here than in other

<sup>16</sup> Imura, Hidesumi. 1989. Administration of Pollution Control at Local Level. In *environmental Policy in Japan*, edited by Shigeto Tsuru and Helmut Weidner, 54-96. Berlin:Sigma Bon.p 54-96.

<sup>17</sup> Hoshino, Yoshiro. 1992. Japan's Post-Second World War Environmental Problems. In *Industrial Pollution in Japan*, edited by Jun Ui, 64-76. Tokyo: United Nations University.P. 64-76.

<sup>18</sup> Article one of the 1967 Basic Law for Environmental Pollution Control stated that: "environmental pollution control policy should be conducted in harmony with a sound development of the economy." "What this actually meant," says Takue Shibata, "was the environmental pollution control should be kept within such limits so as not to hinder economic development" (1989, 246-47). The "harmony" clause was removed during the famous 19700 "pollution Diet."

<sup>19</sup> Yanaga, Chitoshi. 1964. *Japan People and Politics*. New York: Wiley and Sons. p 20.



industrial countries, especially with respect to siting industrial waste facilities, the extraordinary density also means that space is, even more than usual, at a premium. Land costs are correspondingly very high. "Geographically, Japan is an environmentalist's nightmare."<sup>20</sup>

According to the accepted official estimate, Japan was in 2003 discharging about 412 million tons per year of material containing industrial wastes.<sup>21</sup> When the amount of generation in 2001 is looked at classified by industry, the electricity, gas, heat supply, water system and steel industry and construction industries each comprised about 20%, next was the agricultural in order. Further, classified by type, most of the amount discard was sludge (47.3%), next were the feces and urine of animal (22.6%) and construction waste materials (13.7%).<sup>22</sup> These three types comprised more than three fourth of the total amount. While this quantity is considerable, the total is very high comparison with other industrial states. The United States, for example, generates an estimated 240-280 million tons per year of hazardous waste (as defined by U.S. regulations).<sup>23</sup> Even taking into account the fact that the relevant American laws define hazardous wastes more broadly than industrial wastes in effect in Japan in 1980s does not make up the substantial difference.<sup>24</sup> Based on the data that the Japanese figures ought to be much higher. If we consider total Japanese production in the major industries contributing to the hazardous waste stream (e.g., petrochemicals, iron and steel, pulp and paper, and electrical machinery and electronics) and compare these output levels to those of the United States, Japan is probably producing, at a minimum, 40 to 60 million tons of hazardous wastes each year, not the 1.4 million tons the official statistics record. These calculations are spelled out in more detail elsewhere.<sup>25</sup>

Though the amount of waste being produced is apparently underestimated in Japan itself, it is likely greater than that of any industrial country

<sup>20</sup> OECD, 1977. *Environmental Policies in Japan*. Paris. P. 10.

<sup>21</sup> Pempel, T. J. 1982. *Policy and Politics in Japan*. Philadelphia: Temple.

<sup>22</sup> Ministry of the Environment Government of Japan. <http://www.env.go.jp.html>. (diakses 20 Maret 2010).

<sup>23</sup> Clean Japan Senta (Japan Clean Center).

<sup>24</sup> Barnett, Harold C. 1994. *Toxic Debts and the Superfund Dilemma*. Chapel Hill: University of North Carolina Press.

<sup>25</sup> Miller, G. Jeffrey and Johnston, Craig. 1996. *The Law of Hazardous Waste Disposal and Remediation: Cases-Legislation-Regulation-Policies*. West Publishing Co P131-148.

other than the United States. The problem is worsening in both magnitude and complexity.<sup>26</sup> While there are no official figures available on the rate of growth of industrial waste in Japan, a reasonable ballpark estimate suggests their production is probably increasing 3 to 5 % annually.<sup>27</sup> The waste problem in Japan is also becoming more complex and more difficult to manage. As one Japanese official, Masaru Tanaka, has noted, "new compound material developed by new technology and diversified life patterns will change the quality and increase the quality of such waste that are difficult to treat, and produce intermediate waste in the course of treatment".<sup>28</sup> "These," he adds, with some understatement, "may cause new environmental problems."<sup>29</sup>

#### D. Industrial Waste Management

The Japanese system for the treatment and disposal of industrial waste is similar to that of some other industrial countries, in the sense that it is more a private-sector than a public-sector matter. Government establish standards, but the onus is on private companies to treat and dispose of their own waste. To the extent government is involved, the management of industrial waste in Japan is less responsibility of the national government and much more that the prefecture governments. Unlike many countries, particularly the United States and Canada, which rarely heavily on land filling, there is much more emphasis in Japan on treatment and reduction of the industrial and hazardous waste stream. Most of the large Japanese companies thus utilize on-site treatment. The Tokyo area plant of Nissan, for example, has its own industrial waste treatment facility, including two incinerators. Japan's Waste Management and Public Cleansing Law No 6 of 2001 specify the type of treatment to be given to different types of industrial waste. The law also specifies criteria for landfill operations and what sort of waste can be deposited into what type of landfills. There are three

<sup>26</sup> OECD, 1977, *Environmental Policies in Japan*, Paris.

\_\_\_\_\_, 1985, *The State of the Environment*, 1985, Paris.

\_\_\_\_\_, 1991a, *Environmental Indicators*, Paris.

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<sup>27</sup> Ue, Jun, 1989, Pollution Export. In *Environmental Policy in Japan*, edited by Shigeto Tsuru and Helmut Weidner, 395-412. Berlin: Sigma Bohn, p 395-412.

<sup>28</sup> Takahiko, Kimura, Bureau of Public Cleansing, Tokyo Metropolitan Government, Personal communication with the author, April 2000.

<sup>29</sup> Tanaka, M. 1985. The State of the Art of Investigations and Researches in the Field of Waste Management in Japan. Bulletin, Institute of Public Health, 34, No. 3-4: 1994 p. 97.



types: simple uncontrolled (Inert) landfills (for nonhazardous, stable materials) leachate-controlled landfills (for nonhazardous but nonstable waste), and contained sites (Strictly Controlled Landfills) (for hazardous waste). While first two types are fairly common, there only forty four of the third type in all of Japan.<sup>30</sup> About half of these (twenty or so) are used and managed by private companies for their own wastes. Most of the remaining are managed by private waste disposal companies. There are only two strictly controlled landfills are publicly operated.

There can be little doubt, however, that Japan has contaminated sites, and probably large numbers of them. According to one Japanese official, a program is "absolutely necessary" because there are "many areas where groundwater and soils have been contaminated by chemicals."<sup>31</sup> One was discovered a few years ago in Kokura city on Kyushu, for example. A property on which there had been an explosives plant since before World War II became surrounded by residential areas. The company decided to sell the site. When government officials investigated, they found toxic contamination from improper landfill. The area was quietly cleaned up by private contractors. In another case, highly toxic hexavalent chromium was found buried near a factory site in Tokyo.<sup>32</sup> Private companies capable of dealing with such problems claim to know of many such affected areas that will require treatment, but they do not find their services in much demand.

National agencies have begun planning a comprehensive survey of possible contaminated sites.<sup>33</sup> If the surveys of other countries provide an indication, the number of sites in Japan could range from a few thousand (as in Canada, Denmark, and the Netherlands) to, as is more likely, tens of thousands (as in the United States and Germany). Experience elsewhere also suggests that the first surveys done will underestimate the extent of the problem; that of the sites discovered, one in ten or more will require urgent attention; and that cleaning up contaminated sites will be very expensive, roughly twenty times the cost per unit of treating waste.<sup>34</sup>

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<sup>30</sup> Weiner. 1989b. The Politic Alcoholism: Building an Arena Around Social Problem.p497-98.

<sup>31</sup> Tanaka,M. 1990, The Sate of Art of Investigations and Researches in the Field of waste management in Japan. Bulletin, Institute of Public Health 34, nos. 3-4 83-94 ,4

<sup>32</sup> Dr. Osami Nakasugi (21).

<sup>33</sup> Hurdle, Reich, and Stiskin 1987. Island of dreams: environmental Crisis in Japan. New York: Autunni Press.p.6.

<sup>34</sup> Tanaka, M. 1985,92.

### E. Legal Aspect of Industrial Waste Problems

Today, among problems directly related to the disposal of waste, dangerous waste moving over national boundaries and the abandoning of such waste in ocean waters can be mentioned as matters of prime concern. Indirectly, these problems are deeply involved with the warming of the global environment, dioxin, acid rain, and destruction of the ozone layer. From this vantage point, the waste disposal problem is of prime important on a world scale.

On the domestic scene as well as the economy develops and the life styles of citizens undergo change, the volume of generated waste continues to grow and the varieties of wastes become increasingly diversity. It also becomes increasingly difficult to secure adequate waste disposal facilities.<sup>35</sup> Inappropriate disposal through illegal abandoning of waste is becoming a major social problem and the situation related to waste is now very serious.<sup>36</sup>

The first is the problem of the types of waste. According to the spirit of the Law Concerning Waste Management and Public Cleansing No. 66 of 2001 article 2 (4), industrial waste divided into three types: stable, supervisory and closed waste. Stable wastes are comprised of only five sorts; plastic; rubber; metal, glass and china, and wastes generated from the demolition of buildings. These types of wastes aren't able to dissolve in water or disintegrate should be dispose at Inert Type Landfill Site. Supervisory wastes include slime and cinders with toxic substance under certain levels, the dregs of plant and wood and so on should be disposing at Controlled Type Landfill Site. Moreover, very toxic slime and cinder must be disposed of into the closed type of waste sites (Strictly Controlled Type Landfill Site). Among of these types, stable waste the most numerous, and the most frequently cause of friction with residents. We must dump only stable waste into stable disposal sites, so the prevention of ground water pollution and the treatment of wastewater and gas are not needed in law. The typical facility is a huge hole in the ground or a valley with a dam, where the people dump waste and cover the material with earth. Certainly, if the wastes are limited to the five sorts listed above, the problem may rarely arise. However, this is not really. The complete segregation of waste is impossible and some organic matter cannot be excluded, and there are some metal wastes with painting or cadmium plating and mixed in the stable waste.

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<sup>35</sup> OECD 1991b, 152-153; Gourlay 1992

<sup>36</sup> Hatakeyama, Takemuchi. *Sangyouhachibutsu to Horitsu (Law and Industrial Waste)* p. 2



The second problem is the location. According to the spirit of the Law Concerning Waste Management and Public Cleansing No. 66 of 2001 article 11, the businesses shall be required to manage of their industrial waste by themselves. The municipalities may manage of those industrial waste which can be managed of together with municipal solid waste and which are judged to be in need of their management, either solely or jointly with someone else as part of their work. The prefecture governments are entitled to manage of, as part of their work, the industrial waste which is judged to be in need of their management in order to ensure the proper management of industrial waste. It is a matter of business, and each prefecture government has authority. Therefore, prefectures must permit industrial wastes disposal companies to operate, if they fulfill the necessary conditions of the law.<sup>37</sup> On the other hand, neither cities nor towns have the authority or obligation to dispose of industrial waste. But in some areas the cities or towns have industrial waste facilities.<sup>38</sup>

After all, it is impossible for prefecture or municipal governments to control the location of final disposal sites of industrial wastes. However, the locations of final disposal sites are near residential areas, or concentrated in a municipality. The state of things is not different in the case of intermediate disposal facilities.

Let us briefly review some relevant cases of industrial waste facilities in Japan area with emphasis on the rapid changes of living habits in which have brought about significant trend in nature of the waste and in the way they can be treated.

Moreover, the industrial wastes tend to spread from where they are deposited. This is not apart of the relatively minor problem of blowing paper. For industrial waste in one locality can cause problem elsewhere, they either to be transported, or they are converted to gases through, for instance, combustion, incinerated or to liquids through, for example, leachates (the liquids emerging from landfills (dump) after rain or strain water has been allow to inter).

There is a negative side to this argument that industrial waste pollution may be the more difficult to overcome. Although some wastes are biodegradable and will, if long enough, but the facts showed us that the industrial wastes have cause many victims.

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<sup>37</sup> Kitamura, Yoshinobu. 1998. *Sangyouhaikibutsu he no houseitaisakutain* (Law and Policy of Industrial Solid waste), Tokyo: Daichi Hoki..p.144.

<sup>38</sup> Based on interview with Hokkaido Government, Department of Environment and Life Style Official, on June, 1999.

In Nose, Osaka Prefecture, the highest concentrations of carcinogenic dioxins in the nation have been found in sludge in a pond at municipal garbage incinerator plant in this northern Osaka community. The result of dioxin sampling taken in November 1977, when the initial survey results were released, showed dioxin concentrations of 23,000 pictograms (one trillionth of a gram) per gram of topsoil in the pond sludge at a site 100 meters from the smokestacks of the garbage incinerator.<sup>39</sup>

In November 1998, official send experts to conduct a series of studies of dioxin concentrations in soil and water nearby after readings of 2,700 pictograms were detected in a chestnut grove on the grounds of a local high school.<sup>40</sup>

The Ministry of Health and Welfare reports that in Germany, the government restricts agricultural use of land if more than 40 pictograms of dioxin are detected in 1-gram soil samples. The children are advised not to play on land where more than 100 pictograms of dioxin are found in soil samples.<sup>41</sup> Dioxins are very toxic, and are linked to cancer and other health problems.

More than 15 percent people living in Tokorozawa area in Saitama Prefecture and in Nose, Osaka, have ingested cancer-causing dioxin at rates higher than the government safety standards, and the Environment Agency, 4 pictograms per-kilogram.<sup>42</sup> The survey also found that more than 90 percent of the dioxin entered the resident's bodies through food.

The highest rate was 8.6 pictograms per kilogram of body weight marked by a person in Tokorozawa area. The government's standard is 4 pictograms per kilogram.

Tokorozawa is known for its many garbage incinerators, which reportedly discharging dioxin emission. Soil around an incinerator in Nose contained the highest concentration of dioxin.<sup>43</sup>

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<sup>39</sup> interviewed with the officials at Takasu Town Office and Wakkanae Municipal Office on November 1999.

<sup>40</sup> Asahi Shinbun. Highest dioxin level recorded. 1998/04/18. (diakses 22 Maret 2010)

<sup>41</sup> Asahi Shinbun. Highest dioxin level recorded. 1998/04/18. (diakses 21 Maret 2010)

<sup>42</sup> Asahi Shinbun. Highest dioxin level recorded. 1998/04/18. (diakses 22 Maret 2010)

<sup>43</sup> Asahi Shinbun. High dioxin levels found in 2 areas. 1998/08/11. (diakses 22 Maret 2010).



The Environment Agency surveyed 63 people in five municipalities in Saitama Prefecture, including Tokorozawa, and Nose from October to the December 1998. In Tokorozawa and Nose, people volunteered for the survey. They were classified into two groups, those living within two kilometers of garbage incinerators and those living more than two kilometers from those facilities. The survey showed that highest level was 8.6 pictograms per-kilogram of the body weight per-day, double than national safety standard.<sup>44</sup> It is also estimated that the amount of the cancer-causing substance that entered their bodies through air and soil.

According to Labor Ministry that workers who dismantled part of dioxin-contaminated waste incinerating facility in Nose, Osaka Prefecture have been diagnosed as having high concentration of dioxins in their blood and probably inhaled vaporized dioxin.

The Osaka Labor Bureau reported that the secondary dioxin poisoning was possible caused when the workers used gas burners on parts of the structure, vaporizing the dioxin.

On August 15, 2000, the Labor Ministry reported to a government committee made up of experts on environmental pollution that as many as 5,380 pictograms of dioxin per gram of blood fat were detected in the blood of workers who helped dismantle the incinerator in the town of Nose. This is the highest level ever detected in the blood of workers in Japan.<sup>45</sup>

Another problem is the industrial waste disposal plant itself. According to Waste Management and Public Cleansing Law no 66 of 2001 article 15-3 that the prefecture governors may revoke the permission of Paragraph 1 of Article 15 pertaining to the said industrial waste disposal facility, or order the installer to make the necessary improvements of the said industrial waste disposal facility within a specified period of time or suspend its operation for a specified period of time, when there is a case which falls under one of the following items.

- 1) Where the structure of industrial waste disposal facility pertaining to the permission of Paragraph 1 of Article 15 or its operation and maintenance is recognized as not complying with the technical standards provided in Item 1) of Paragraph 1 of Article 15-2 or Article 15-2-2 or

<sup>44</sup> Asahi Shinbun. High dioxin levels found in 2 areas. 1998/08/31. (diakses 22 Maret 2010).

<sup>45</sup> Japan Times. High dioxin ingestion found in Osaka and Saitama Prefecture. 1999/8/31. <diakses 22 Maret 2010>.

the plan concerning installation or plan for operation and maintenance set forth in the application of Paragraph 2 of Article 15 pertaining to the said permission (or if the permission of Paragraph 1 of the preceding Article is granted for that plan, the modified plan is applied).

- 2) When the capability of the installer of industrial waste disposal facilities is recognized as not satisfying the standards specified by the Ordinance of the Ministry of the Environment in Item 3) of Paragraph 1 of Article 15-2.
- 3) When the installer of industrial waste disposal facilities takes actions which violate the Laws, or demands, asks or indicates another person to act against the Laws, or helps another person to do so.
- 4) When the installer of industrial waste disposal facilities becomes to be one of a. to f. of Item 2) of Paragraph 3 of Article 14.
- 5) When the installer of industrial waste disposal facilities violates the condition attached to the said permission under the provision of Paragraph 4 of Article 15-2.

A major part of the problem in Japan arises from already contaminated sites.<sup>46</sup> These sites include poorly managed present or former landfills and dumps, old or abandoned industrial sites, and storage areas for such toxins as PCBs.<sup>47</sup> Most industrial countries have at least begun to deal with this problem, and most carried out surveys of its extent during 1980s. Unfortunately Japan has not yet. There is no single article in the Waste Management and Public Cleansing Law or legislation in Japan focused on site remediation, and there is no ongoing national program to identify sites, let alone do the necessary cleanup.<sup>48</sup> There have been a few isolated and specific cleanup operations. Indeed, the contaminated sites problem in Japan has not yet really surfaced (if that is the correct term). There has been no Japanese love canal story. As a consequence, public concern about the problem remains high.

There is waste disposal plant in neighborhood Tokyo's Suginami-ku is causing a headache for its residents. A ward committee of experts, which has been investigating the problem since residents began complaining of ill-health, announces in an interim report that a relationship exists between the location of the plant and the health conditions of residents in the area.

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<sup>46</sup> The Japan Times. Workers may have inhaled dioxin. August 20, 2000. (checked 22 Maret 2010).

<sup>47</sup> LaGrega, 1994, p.23.

<sup>48</sup> Japan Environmental Agency 1986, 128.



The survey found that the symptoms of the illness dubbed "Suginami-byo" ("Suginami Sickness"), which include respiratory problems, dizziness and numbness in the limb, skin rashes, sore throats and eyes problem, increased for residents who live closer to the facility, operated by Tokyo Metropolitan Government. It is said that it was the first time that a local government had recognized the existence of such a problem in this case.

The random survey was conducted a total of three thousand two hundred people in four districts in Suginami-ku, including Igusa, close to the facility, and three other districts.

The result also concluded that a majority of people exhibited these symptoms between 1996, when the facility went into service and until 1998.<sup>49</sup> The fatal accidents happened toward two workers which caused them to die and one was in critical condition after they collapse from lack of oxygen while working at industrial waste disposal facility in Chikushino, Fukuoka Prefecture on October 1999.<sup>50</sup>

Moreover, According to the Environment Agency and the Kanagawa Prefecture government that the dioxin contents of air over an industrial district near the U.S. Atsugi Naval Air Facility in Kanagawa Prefecture is 35 times the government standard.<sup>51</sup>

The two government institution believe the cancer-causing agent is being emitted by an industrial waste incinerator run by Environ-tech, a private industrial waste disposal firm in close proximity to the military facility.

In the most recent study, conducted for 56 days from late December 1999 until late February 2000, officials found the highest level of dioxin to be 21 pictograms per cubic meter of air, compared with the government's guideline of 0.6 pictograms introduced on January 2000.<sup>52</sup> Furthermore, On June 30, 2000 Aichi Prefecture, municipal official informed that a concentration of dioxin exceeded the legal limit was detected in gases emitted from an incinerator in Toyota City. Gases from the incinerator operated by the Shadier industrial waste disposal company contained 3,500 nanograms

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<sup>49</sup> LaGrega, 1994. Hazardous Waste Management. New York: McGraw-Hill, p.172.

<sup>50</sup> Mainichi Shinbun. Waste site is one big headache. 99/9/16. (diakses 22 Maret 2010).

<sup>51</sup> Mainichi Shinbun. Two die of asphyxiation at waste plant. 1999/10/07. (diakses 22 Maret 2010).

<sup>52</sup> The Japan Times. Dioxin in air over U.S. bases times standard. April 20, 2000. (diakses 22 Maret 2010).

(one billionth of a gram) of dioxin per cubic meter, about 44 times the government set limit of 80 nanograms.<sup>33</sup>

According to Ministry Health and welfare the amount of dioxin is the highest ever been detected in waste gases in Japan. In addition, in May 2000, the Construction Ministry's local office unwittingly came upon high level of dioxin and polychlorinated biphenyl's<sup>34</sup> (PCBs) in soil on the northeastern edge of land wedged between the two rivers, Tsurumi and Toriyama rivers, near Shin-Yokohama Station. Dioxin level were at 2,300 picograms per gram of soil, compared with the 1,000 picograms deemed safe by the Environment Agency, while 19.2 mg of PCBs per kilogram were found, whereas the agency deems zero to be the norm.<sup>35</sup> Both dioxin and PCBs are carcinogenic. They accumulate in the fat of animals and move up in the food chain.

The site was like a simple abandoned lot until the end of November 1999 when it was made public. The area is highly contaminated by chemicals that pose a risk to both wildlife and people. Authorities, residents and builders do agree on one thing that the waste probably dumped around 1973. As the former landowner stressed that the area was waste storage or dumpsite in 1970s.<sup>36</sup>

A dioxin survey conducted by a citizen's group confirmed dioxin pollution nationwide, with the highest concentrations in urban areas with waste incinerators. Members of Seikatsu Club, a Kanto-based cooperative, and others paid for the 30 million yen testing fees with donation. A Canadian firm analyzes the samples of soil. According to Teiichi Aoyama, head of the Tokyo-based firm Environmental Research Institutes that the high levels are likely due to industrial waste incinerators.<sup>37</sup>

In story on dioxin in May 2000, Japan Times writer Mick Corliss noted Japan's contain ten times the amount of dioxin in other industrialized countries.<sup>38</sup>

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<sup>33</sup> The Japan Times. Dioxin in air over 11.5 times times standard April 20, 2000. (diakses 22 Maret 2010)

<sup>34</sup> The Japan Times. Dioxin 44 times legal limit July 1, 2000 (diakses 22 Maret 2010)

<sup>35</sup> Biphenyls is a white crystalline hydrocarbon (C<sub>6</sub>H<sub>5</sub>-C<sub>6</sub>H<sub>5</sub>) used especially as a heat transfer medium)

<sup>36</sup> The Japan Times. Cancer-causing chemical found at Yokohama site. August 27, 2000. (diakses 22 Maret 2010).

<sup>37</sup> The Japan Times. Cancer-causing chemical found at Yokohama site. August 27, 2000. (diakses 23 Maret 2010).

<sup>38</sup> The Japan Times. Dioxin contamination worst at Atsugi base, survey finds. May 21, 2000.



The highest overall average for region was Chiba (4.48) with a high of 8.02, Kanagawa Prefecture averaged 3.06 pg, Hokkaido average 0.62, and in Kyushu the average was 1.21, with a high of 5.43 pg in Chikugo, Fukuoka Prefecture.

As mentioned before the controversy over a private incinerator located next to the U.S. Navy's Atsugi Airbase in Kanagawa Prefecture to learn that the highest dioxin levels anywhere were found on the base, about 400 meters from the incinerators 53 pg-TEQ per gram.

Seikatsu Club is committed to ongoing testing, and hopes the government will begin to supervise waste disposal more strictly, encourage returnable and recyclable. The group would also like the business and industrial waste business sector to take more responsibility for waste reduction and proper disposal.

These illustrations lead to the main themes of this study that there are some loop-hole of legal aspect of industrial waste problems can be regarded as not only handling, transporting, incinerator and landfill problems but also the problems generated accompany with and after handling, transporting, incinerator and landfill the industrial wastes. At least, the "visible" cost involved are dominated by amount of spend on collection, transportation, processing, disposal and landfill making. The "invisible" or difficult quantity social costs have not received the attention we believe they should. The inclusion in the overall accounting would lead to solutions much nearer the optimum than are those presently being pursued.

#### F. Conclusion

The waste problem is not a new things in Japan, it has historical root in Japanese history more or less one hundred years ago with the enforcement of the regulation concerning waste management (Anakuta-Tonishi Kisoku). The problem of industrial waste as might be expected appear along with the economic growth, accelerated industrialization, consumption and urban growth. These cause the expanding volume and types of industrial wastes. The problem is worsening in both magnitude and complexity. The waste problem in Japan is also becoming complex and more difficult to manage. The industrial waste problems can not be described solely in terms of figures on production and treatment. A major part of the problem in Japan arises from already contaminated sites. Industrial waste problems can be regarded as not only handling, transporting, incinerator and landfill problem but also the problems generated accompany with and after incinerator and land filling the industrial wastes.

In order to cope with the industrial problem in Japan, there are some efforts have been done such as the improvement of industrial waste treatment, management, and the revision and enforcement of industrial waste regulation.

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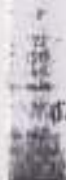
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### Article, Television, interview and paper:

Article one of the 1967 Basic Law for Environmental Pollution Control stated that "environmental pollution control policy should be conducted in harmony with a sound development of the economy." "What this actually meant," says Takue Shibata, "was the environmental pollution control should be kept within such limits so as not to hinder economic development" (1989, 246-47). The "harmony" clause was removed during the famous 19700 "pollution Diet."

How street Children in New Delhi, India survive by collecting the waste which give the income for fifteen rupee (₹15) perday, TBS news on 18:00 o'clock, December 15, 1999.

Interview with the Hokkaido Government, Department of Environmental and Life style Official, Takasu Town Official and Wakkanai Municipal Official on Juni and November 1999.

Interview with Hokkaido Government, Department of Environment and Life Style Official, on June, 1999.

Television News of Asahi Television on 10:00 pm. January 27, 2000. The news reported on the dead of victims of nuclear reactor accident in Ibaraki Prefecture on January 27, 2000.

The Japan Times. Waste Manila sent back offloaded. January 12, 2000.

The successes detailed by the Organization for Economic Cooperation and development (OECD), for example, are all in conventional areas of air and water pollution control of SO<sub>2</sub>, NO<sub>x</sub>, BOD, etc. Among the specific areas where less progress has been made is the low percentage of Japanese homes served by sewer systems (OECD 1977). The OECD also notes that "other types of pollution appear to have been comparatively neglected" (p.21). Industrial wastes appear to be one of these "other types." Waste Management and Public Cleansing Law no 66 of 2001.

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**Biodata Penulis:**

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