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Burn Them All? An Introduction to Waste Incineration Law in Brazil and Japan

Tiago Trentinella *

I. Introduction

Landfills are important, and so far unavoidable, in any waste management system. Since land to install such structures are scarce, it is reasonable to suppose that a smart waste policy prioritizes all sort of intermediary means to divert waste from being dumped directly into a landfill.

Land scarcity is one of the reasons for Japan to have around 80% of its household waste incinerated directly. Abundance of land can be pointed out as one of the reasons why Brazil buries around 100% of household waste without any previous treatment. In other words, Japan and Brazil handle household waste differently. Japan prioritizes incineration as intermediary treatment method before landfilling. On the other hand, Brazil directly landfills most of its waste. Incinerators for domestic residues are close to a statistical zero.

This paper will provide a brief overview on waste management in Brazil and in Japan. Later, it will screen the regulation, from an Environmental Law perspective, backing waste incineration in each country. Finally, it will speculate the reasons why Brazil has been dodging incinerating its waste. The paper will target only household or domestic waste incineration, as well as federal or national level legislation. Incineration here is understood as any method or technology making use of heat to handle waste.

* Tiago Trentinella is a postdoctoral researcher at the University of São Paulo, Faculty of Law. He concluded his PhD at Osaka University, Graduate School of Law and Politics. His research interests lie in the area of waste management policy law.

II. Waste Management Overview

1. Japan

Japan's regulation on waste originates in 1900 with the Waste Cleaning Act, (Act n. 31, 1900. In Japanese: 汚物掃除法、明治 33 年 3 月 7 日法律第 31 号). Such regulation "defined the collection and disposal of waste as the obligation of municipalities and placed waste treatment operators under the supervision of government organizations to establish a waste administration system. The act stated that waste should be incinerated if possible" (MOE, 2014, p. 3)[(1)].

Ever since, municipalities have been responsible for handling domestic waste in Japan. However, especially during the post-war economic growth period, it was clear that municipalities were not able to handle residues adequately by themselves. In 1954, the Public Cleansing Act (Act n. 72, 1954. In Japanese: 清掃法、昭和 29 年 4 月 22 日法律第 72 号) was enacted to address such problem.

According to article 2 of this regulation, municipalities still remained in charge of the conventional system of waste collection and disposal established in Meiji Era. However, "this act also defined the obligation of national and prefectural governments to provide financial and technological support to municipalities as well as the obligation of residents to cooperate with municipalities in collecting and disposing of waste" (MOE, 2014, p. 4).

In 1963, the Act on Emergency Measures concerning the Development of Living Environment Facilities (Act n. 183, 1963. In Japanese: 生活環境施設整備緊急措置法、昭和 38 年 12 月 24 日法律第 183 号) was enacted. This law aimed to contribute to the improvement of living environment and public health by promoting urgent and systematic maintenance and implementation of sanitation-related infrastructure (article 1), e.g., waste disposal (article 2). Based on article 3, the cabinet approved, in 1965, the first Five-Year Plan for the Development of Living Environment Facilities (MOE, 2005)[(2)].

(1) Such law was the first in Japan on waste management regulation. It was enacted to tackle sanitary issues since Japan was suffering from outbreaks of infectious diseases (Mizoiri, 2006, p. 1).

(2) Other plans aiming at supporting the implementation of sanitary infrastructure, including waste management ones, were approved by the Cabinet from 1960s to 1990s. They were, however, based on a different legislation (MOE, 2005).

It is worth noticing that since the Meiji Era's Waste Cleaning Act, municipalities were not only responsible for domestic waste, but also the industrial one (MOE, 2014, p. 4). Such situation changed along with the enactment of the Waste Management and Public Cleansing Act (Act n. 137, 1970. In Japanese: 廃棄物の処理及び清掃に関する法律、昭和 45 年 12 月 25 日法律第 137 号).

Article 2 of 1970's Act mentioned above brings one of the major changes of the new regulation: the classification of waste into Industrial (e.g., from factories) and General (e.g., from household). Waste-generating business operators must be responsible for the former (articles 3 and 11). As for the later, the responsibility falls under municipalities (articles 4 and 6-2). Additionally, it sets forth regulation on the installation of waste management facilities such as incinerators and landfills.

From the 1990s, waste-related legislation focused on recycling. That was the dawning of an era of the "sound material-cycle society" (循環型社会) (MOE, 2014, p. 10). The following acts were enacted since then: Containers and Packaging Recycling Act (1995), Home Appliance Recycling Act (1998), Basic Act for Establishing a Sound Material-Cycle Society (2000), Food Recycling Act (2000), Construction Recycling Act (2000), Automobile Recycling Act (2002), and Small Home Appliance Recycling Act (2012) (MOE, 2014, p. 17).

Household waste generation in Japan increased steadily until 2000 (54,830,000t/year, representing 1,185g/person/day). Since then, both per capita and general amount of waste have been decreasing year after year (42,890,000t/year in 2017, representing 920g/person/day) (MOE, 2019, p. 11). Waste generation has been decreasing as a result of the effects of changes in the industrial structure and the Japanese economy as well as the progress in sorted collection, recycling and in the development of a sound material-cycle society (MOE, 2014, p. 15).

Nowadays, Japan manages its household waste as follows: 80.3% is directly incinerated, 18.7% is submitted to intermediate treatment and 1% goes straight to landfills. Recycling rate is calculated by 20% (MOE, 2019, p. 14).

2. Brazil

In Brazil, the first legal provision on waste dates back to the 1950s. In 1954, Federal Law n. 2,312, of September 3, 1954, established general rules for health protection in the Brazilian territory. Article 12 sets forth a generic provision stating that the collection and final destination of waste must be performed avoiding inconveniences to public well-being. The Executive Branch further regulated this law via Decree n. 49,974-A , of January 21, 1961. It was supposed to provide more details about the implementation of such broad rules embedded in the 1954 Act. However, only one provision of the decree addressed waste (article 40), and it was almost a copy of article 12 of the above-mentioned law. In conclusion, standards on handling waste and avoiding inconveniences to public well-being have never been set forth under Federal Law n. 2,312.

Constitutions[3] established municipalities in charge of handling domestic waste. The 1988 Constitution, for example, states that municipalities have the power "to organize and render, directly or by concession or permission, public services of local interest, including mass-transportation, which is of essential nature" (article 30). Waste collection and its final destination is a matter of local interest.

The first specific piece of legislation about waste management passed at the federal level was Law n. 12,305, of August 2, 2010: the National Waste Policy Law[4]. In other words, until 2010, states and municipalities had local rules to deal with waste management problems, but there was no nation-wide guideline.

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(3) Due to several political regimes over its history, Brazil had 8 constitutions. After independence in 1822, Brazil became a parliamentary monarchy under the first constitution of 1824. In 1889, with the proclamation of the republic, a presidential system was implemented under the constitution of 1891. In 1934, a new constitution was proclaimed to mark the end of the old republic regime. In 1937, the Getúlio Vargas' dictatorship led to the 1937 constitution. The 1946 Constitution marked the end of the Vargas Era in 1945. Under a new dictatorship, now a military one, Brazil had the constitutions of 1967 and 1969. The end of the military dictatorship in 1985 brought the currently in force 1988 Constitution.

(4) National Waste Policy Law's regulation was issued via Decree n. 7,404, of December 23, 2010.

The National Waste Policy Law, among other provisions, sets forth principles (article 6) and objectives (article 7). One of the principles is to consider waste management as a system that must take into consideration the following variables: economy, environment, society, culture, technology and public health. Another principle is the cooperation between federal, state and municipal governments, as well as industries and society. The following waste management hierarchy comprises one of the objectives: non-generation, reducing, reusing, recycling, adequate treatment, and environmental-friendly final disposal.

National Waste Policy Law also demands commerce and industry sectors to arrange reverse logistics (take-back) systems to promote the recycling of end-of-use products and packages (article 33). Details on how such a system would work may be set forth in an agreement between the private sector and governments. That is the so-called Sectoral Agreement (Law n. 12,305, article 3; Decree n. 7,404, article 15).

Household waste generation in Brazil has been increasing over the years. According to ABRELPE, in 2017, a total amount of 79,069,585t were generated, 1% more in relation to 2016, representing 1,035g/person/day (ABRELPE 2017, pp. 14, 15). In 2018, 79,069,585t of domestic waste were generated, 0.82% more than 2017, and 1,039g/person/day (ABRELPE, 2019, pp. 11, 12).

In 2017, 91.2% (71.6 million tons) of the total amount of waste generated was collected. It means that municipalities did not handle 6.9 million tons of waste. Consequently, they were inadequately disposed (ABRELPE, 2017, p. 14). Considering the numbers of 2018, 92% (72.7 million tons) of the total amount of waste generated was collected. Hence, about 6.3 million tons were not (ABRELPE, 2019, p. 11)[(5)].

Most of the waste, 59.5%, is disposed of in landfills, 23% in inadequate

(5) The Brazilian federal government presents different numbers. According to SNS (Secretaria Nacional de Saneamento - National Secretariat for Sanitation), municipalities collected 50.8 million tons of waste (SNS, 2019, p. 8). Different assessment methodologies may explain such differences from ABRELPE's.

landfills (*aterros controlados*), and 17.5% in unlawful ones (*lixões*) (ABRELPE, 2019, p. 16). *Lixão* is an outdoor area where the waste is simply dumped without supervision, sanitary, or environmental impact controls (IBGE, 2010, p. 214). The difference between *aterros controlados* and *lixão* is that, in the former, at the end of each day, the waste accumulated is covered with a layer of earth. No other sanitary or environmental-related measures are taken (IBGE, 2010, p. 185). Hence, 40.5% of domestic waste in Brazil has an inadequate final destination.

According to a survey conducted by IBGE[6] in 2008, a major part of municipalities in Brazil disposed of their waste improperly: 50.8% in *lixões* and 22.5% in *aterros controlados*. The remaining circa 26% to 27%, disposed of in landfills (IBGE, 2010, pp. 60, 214). ABRELPE confirms that such a situation has improved, but the majority of municipalities still use inadequate dumpsites. In 2018, approximately 39.9% used landfills; 31.1%, *aterros controlados*; and 29%, *lixões* (ABRELPE, 2019, p. 17).

The recycling rate in Brazil is 1.6% (SNS, 2019, p. 8). Incineration is often used for waste from health services, which are collected by municipalities (ABRELPE, 2019, p. 40). SNS (2019, p. 144) states that municipalities use incinerators for 0.07% of waste collected. The share of domestic waste in this number is not certain. ABRELPE does not even mention incineration for household waste.

III. Incineration in Japan

Incineration as a method of waste treatment has a long history in Japan. It has been advocated since 1900 as a preferred way to treat residues. The article 5 of the Enforcement Regulation of the of Waste Cleaning Act (Ordinance n. 5, 1893 - Ministry of Home Affairs. In Japanese: 汚物掃除法施行規則、明治 33 年 3 月 8 日内務省令第 5 号) states that waste collected by municipalities should be, as

(6) IBGE stands for *Instituto Brasileiro de Geografia e Estatística* (National Institute of Geography and Statistics).

much as possible, incinerated (see also MOE, 2014, p. 3)[7].

As mentioned before, the Public Cleansing Act, article 2, demanded national and prefectural governments to provide financial and technological support to municipalities for waste management purposes. Following this principle, article 19 of the same act sets forth that the national government shall endeavor to provide the municipalities with the necessary funds for the waste incineration plants.

Moreover, based on the principle of cooperation with municipalities, the Act on Emergency Measures concerning the Development of Living Environment Facilities aimed at assisting municipalities on waste management issues. Issued in 1965, the Japanese government formulated the first Five-Year Plan for the Development of Living Environment Facilities "in order to establish policies for the development of waste management facilities, including incineration facilities, thereby promoting the introduction of waste incineration facilities in cities" (MOE, 2014, p. 4).

In 1970, the Waste Management and Public Cleansing Act (Act n. 137, 1970. In Japanese: 廃棄物の処理及び清掃に関する法律、昭和 45 年 12 月 25 日法律第 137 号) pushed the incineration regulation a step further.

Besides the statement of architectural standards for municipal waste facilities, a national subsidy system for supporting such facilities was responsible for increasing incinerators' capability (MOE, 2014, p. 7). Additionally, the Air Pollution Control Act (1968) and the Act on Special Measures against Dioxins (1999)[8] regulated air emission from waste incinerators (MOE, 2014, p. 6, 9 and 13).

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(7) The influence for tackling sanitation issues by incinerating residues came from Europe and the United States of America, where this method was widely used. Although Incineration was prioritized, there were not many facilities for that purpose. Waste was piled up outdoors and burned continuously (MOE, 2014, p. 3). Also, the main purpose of most of the facilities was to produce ashes for agricultural purposes (Mizoiri, 2006, p. 6).

(8) Act on Special Measures against Dioxins (Act n. 105, 1999. In Japanese: ダイオキシン類対策特別措置法、平成11年法律第105号).

Dioxins, which have negative effects on human health, are said to be the most relevant polluting substance arising from waste incineration. The Japanese Government published, in the early 80s, the first reports about dioxin-contaminated dust, and, in the 90s, new reports about the presence of dioxin in the soil and in mother's milk. As a result, dioxins became an issue of public concern, triggering movements to close down waste incineration facilities. The development of emission control technologies following the tightening of control regulations and people's awareness reduced dioxin emissions from waste incineration facilities by 99% in 2011, compared to 1997 levels. (MOE, 2014, p. 9).

According to Waste Management and Public Cleansing Act, article 8, the installation of a waste incineration facility needs a license issued by the respective prefectural governor. Under the same article, the requirement for this license must be accompanied by technical documents such as the kind of residues to be handled, capacity, location and structural blueprints, operational management project *et al*.

Another document to be submitted is the living environment assessment report of the surroundings of the incineration plant (周辺地域の生活環境に及ぼす影響についての調査の結果を記載した書類)[9]. Details on such documents are set forth in the Enforcement Regulation Ordinance n. 35, 1971 - Ministry of Health and Welfare (廃棄物の処理及び清掃に関する法律施行規則、昭和 46 年厚生省令第 35 号)[10].

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(9) Environmental Impact Assessment Act (Act n. 81, 1997. In Japanese: 環境影響評価法、平成9年6月13日法律第81号), article 2, lists the activities which shall be preceded by an environmental impact assessment (EIA). The only facilities related to the Waste Management and Public Cleansing Act are landfills. As this Act does not include waste incinerators, they do not require EIA. It does not mean that environmental concerns will not be taken into account since the living environment assessment report must be formulated. Additionally, municipalities and prefectures may demand EIAs for incinerators based on local regulation (Environmental Impact Assessment Act, article 61). Indeed, prefectures and municipalities started requiring EIA prior to the national government. In the1970s, Fukuoka Prefecture (1973) and the municipality of Kawasaki (1976) were the first ones to do so (Kitamura, 2017, p. 301).

(10) Such ordinance was first edited in 1971 by the Ministry of Health and Welfare. Later, the competence for such regulation was transferred to the Ministry of the Environment.

Article 3-2 of this regulation states that the living environment assessment report must address the effects of the incineration facility on the surroundings areas, considering air quality, noise, vibration, malodor, water quality and groundwater. Additionally, it must have information on the current situation of hydrology, weather and other natural conditions, population, land use and other social conditions that have been verified to predict the impact of the establishment incineration facility on the living environment.

Back to Waste Management and Public Cleansing Act, article 8. The prefectural governor must publicize the documents mentioned above for one month. The governor also must notify the mayors of the cities to be affected by the incineration facility and include their opinions on the impacts of such plant. Additionally, stakeholders have two weeks from the publication of the documents to address their opinion on the facility's impacts. Finally, the governor must hear a technical opinion from a specialist.

The license may be issued if, among other matters, measures to protect the living environment comply with the Ministry of the Environment regulations. Additional conditions may be established to guarantee such protection will indeed be effective.

Nowadays, Japan has a widespread network of incinerators. There are 1,103 municipality-owned facilities with a processing capacity of 180,471t/day; and 306 private ones, able to handle 107,293t/day (MOE, 2019, p. 22). In the Tokyo metropolitan area, for example, there are 19 operational plants (Tokyo 23, 2019).

IV. Incineration in Brazil

Brazil's first plant to incinerate waste was installed in 1888 in the municipality of Porto Alegre, State of Rio Grande do Sul, Southern Region. In 1896, Manaus, in the State of Amazonas, Northern Region, was the first municipality to own a waste incinerator. Belém, in the State of Pará, Northern Region, also had one at the beginning of the 20th century (Caodaglio and Cytrynowicz, 2012, p. 51).

São Paulo, the largest Brazilian city, had in total four incinerators installed,

named and inaugurated as follows: Araçá in 1913, Pinheiros in 1949, Ponte Pequena in 1959 and Vergueiro in 1967 (Caodaglio and Cytrynowicz, 2012, pp. 64, 110, 116). They are no longer operational, either due to the population growth around those plants, or for operational reasons.

In the early 1900s, São Paulo witnessed discussions between academia and politicians on waste management, which might reflect what happened in other Brazilian municipalities at that time. Academia advocated for incinerators to deal with urban waste. This method would not only reduce the volume, but also eliminate sanitary risks to the population. On the other hand, although politicians agreed about the advantages of incinerators, they argued that budgetary issues should also be taken into consideration. In other words, incinerators were too expensive to be given priority in a waste management system (Caodaglio and Cytrynowicz, 2012, pp. 51-53).

The last experience São Paulo had with waste incinerators was a negative one. Lack of pollution control and inadequate maintenance caused emissions that disturbed neighbors for years. Complaints and demonstrations against them were usual. Vergueiro, the last incinerator to be operational in the city, stopped working in 2002. There was a closedown ceremony conducted by the mayor at that time, Marta Suplicy. Ballons, instead of toxic fumes, were released from the chimney (Caodaglio and Cytrynowicz, 2012, pp. 154, 156, 157, 213).

Cases such as the Vergueiro Incinerator contributed to damage the reputation of such installations. In Brazil, incinerators are considered a to-be-avoided method to treat waste. It has severe opposition from recyclable-waste pickers'[11] organizations, which argue that jobs will be lost because recyclables will be burned. Additionally, it is said that incinerators' emissions are dangerous and difficult to control (Gama, 2019).

A synthesis of such arguments is the manifesto publicized by MNCR[12] et al.

(11) Waste pickers are usually low-income people who live on collecting and selling recyclable waste. There are from 800,000 to 1,000,000 waste pickers in Brazil (MNCR et al., 2019, p. 8).

(12) MNCR stands for *Movimento Nacional de Catadores de Materiais Recicláveis* (National Recyclable-waste Pickers Movement).

The authors state that waste incineration technology is difficult to be justified in the 21st century. Hence, it is mistakenly considered as an alternative for waste management in Brazil. Besides job losses and air emissions impacts, they state that incinerators worsen climate change effects and are against the provisions of the National Waste Policy Law, since this law prioritizes recycling to thermal treatment (MNCR et al., 2019, p. 3).

Although mentioned in official reports from SNS and IBGE, as well as in the MNCR et al.'s Manifesto, the term "incineration" is not mentioned in recent regulation on waste management. Euphemisms, or more technically accurate terminology, are abundant. For example, in 2002, the National Environmental Council (Conama)[13] referred to "thermal treatment of urban residues", which shall be preceded by segregation aiming at recycling (Conama Rule n. 316, of October 29, 2002, article 24). The National Waste Police Law of 2010 defines "energy recovery and utilization" as one of the adequate methods of final destination for waste (article 3). The Ministry of the Environment, along with the Ministry of Energy and the Ministry of Regional Development, refer to "energy recovery" (Interministerial Rule n. 274, of April 30, 2019).

Even in business, the term "incineration" seems to have lost space. There are at least two projects for installing incineration facilities in the metropolitan area of São Paulo, in the municipalities of Barueri and Mauá: the so-called URE Barueri and URE Mauá. URE is the acronym for *unidade de recuperação energética*, or "energy recovery unit" (Foxx Haztec, 2019) or for *usina de recuperação energética*, or "energy recovery power plant" (LARA, 2019). Finally, recent scholarly publications use the expression "waste-to-energy" (Tisi, 2019). Although the term "incineration" is not used and generating energy from household waste implies different technical processes, those designations do not change the fact that urban waste is burned.

According to the National Environmental Policy Law (Law n. 6,938, of August 31, 1981), installing any potentially pollutant facility (e.g., waste

(13) Conama stands for *Conselho Nacional do Meio Ambiente*.

incinerator) demands a previous environmental licensing process (article 10). Conama Rule n. 316, article 26, sets forth that licensing of incinerators shall be based on Environmental Impact Assessment (EIA). Such assessment must identify direct and indirect impacts related to social (e.g., cultural heritage), economic (e.g., land use), physical (e.g., air quality) and biological (e.g., ecosystems) issues, bearing in mind preventive or mitigation measures. There is a need to implement monitoring programs on negative or positive impacts. Additionally, alternative locations and technologies must be considered (Conama Rule n. 1, of January 23, 1986, articles 5 and 6). Once the environmental authority receives an EIA, a simplified report must be made available to public consultation.

Moreover, according to Conama Rule n. 1, article 11, a public hearing can be required by stakeholders et al. within 45 days from the EIA publication. Public hearings aim to inform about the facility to be installed, clarifying doubts, and collecting opinions, either negative or positive ones, and suggestions (Conama Rule n. 9 of December 3, 1987, articles 1 and 2). Inputs must be attached to the licensing procedure for the consideration and decision-making on the issuance of the license (article 5).

Finally, as for air emissions, limits are set forth in Conama Rule n. 316, article 38.

V. Concluding Remarks

Incineration in Japan has a long-lasting history. Its first regulation dates back to 1900, during Meiji Era. Although incinerators were installed in Brazil in the late 19th century and early 20th century in capital cities along the country, landfilling ended up being a preferred method for waste destination. Nowadays, while Japan has a wide network of incinerators, Brazil struggles to build some new ones.

Japanese legislation brings thermal treatment of residues not only in the context of waste destination (Waste Management and Public Cleansing Act), but also in the recycling one. Packaging and home appliance recycling laws, for

example, have provisions about material recycling (product-to-product), as well as on the use of recyclables as fuel (Act n. 112, 1995, article 2; Act n. 97, 1998, article 2). It is a demonstration that 100% of material recovery from recycling is not always possible or economically feasible.

Both countries have regulation demanding to assess and mitigate environmental impacts originated from incineration plants. However, Brazil grants more scrutiny from the society since public hearings are mandatory and inputs from the public must be considered in the decision-making process. In Japan, public hearings are not mandatory under national legislation. Stakeholders are allowed to send their opinions to the governor, but there is no obligation for the governor to take them into account.

Public scrutiny is not necessarily an obstacle for implementing infrastructure facilities in Brazil. Power plants, roads, even landfills must be backed up by EIA and public hearings. Not mentioning multiple lawsuits challenging them since in Brazil, differently from Japan, standing on environmental matters is broad. Nevertheless, even when the public stands against, such facilities are often built.

In this sense, there are no considerable differences in environmental regulation that make incineration preferred in Japan and rejected in Brazil. One of the reasons for the lack of incineration facilities may be a mindset issue: Brazilians are suspicious about burning waste. There is an argument saying that incinerators may reduce the number of recyclables handed to waste pickers. However, Japan's recycling rate is much higher than that of Brazil. Therefore, landfilling does not necessarily make ends meet to waste pickers.

Brazilian social problems shall be taken into consideration, but should not cloud waste policy's long-term planning. Incineration for handling domestic waste is used not only by Japan, but also by other developed countries, such as the social and environmental-friendly Germany (Tisi, 2019, pp. 5, 6). Since suitable areas for landfills are becoming increasingly scarce and recycling is not developed enough, there is no reason to ignore or discard alternative methods and technologies for waste treatment and disposal.

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Burn Them All? An Introduction to Waste Incineration Law in Brazil and Japan

<Summary>

Tiago Trentinella

Japan and Brazil handle household waste differently. While Japan prioritizes incineration, Brazil directly landfills most of waste. Japan's waste regulation dates back from 1900. Ever since, municipalities have been responsible for handling domestic waste. Incineration was prioritized for sanitary reasons. From 1960s, there are emergency budget provisions aimed at building infrastructure to address sanitary issues, including residues management. As a result, there is currently a widespread network of incinerators, which must be authorized by the prefectural administration. Although national level legislation does not demand environmental impact assessment (EIA), environmental issues must be taken into consideration. Finally, stakeholders have the right to submit their opinion about the facility.

In Brazil, the first provision on waste regulation dates back to the 1950s. A sole article demanded waste to be adequately disposed. Constitutions made municipalities in charge of handling domestic waste. Although landfills spread throughout the country, unlawful ones (*lixões*) are used by most of municipalities. There is regulation on incineration at the federal level and the national waste policy law recognizes it as one of the adequate methods for waste treatment. Incineration plants are subject to EIA and public hearings.

There are not considerable differences on regulation that make incineration preferred in Japan and rejected in Brazil. It is likely that one of the reasons for such difference is a matter of mindset: Brazilians seem to be against burning

waste. There is an argument according to which incinerators may reduce the amount of recyclables to be handed by waste pickers. However, Japan's recycling rate is much higher than that of Brazil. Therefore, landfilling does not necessarily make ends meet for waste pickers. Brazil should not be blind to any method or technology of waste treatment or final disposal.