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Research paper



Restructuring of Electronic Waste Management in Batam City by Strengthening Legal System

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Abstract

The problem of managing electronic waste in the city of Batam is so complex because the prevailing laws and regulations do not work properly. Even electronic waste is clearly traded both legal and illegal. No firm action from law enforcers while stakeholders do not care. The condition reflects the legal system is not working and needs reconstruction. Through focus group discussions (FGDs) involving key informants can be expressed in terms of substance, structure, and legal culture. The main problem of the three elements of the legal system is the rule-sanctioning institutions which is reflected by the weakness of the interpretation of the rule of law, the mentality of the apparatus, and the quality of the judge's decision in deciding the case of hazardous and toxic waste materials which have less deterrent effect for the perpetrators of electronic waste importers and circulation. This condition is exacerbated by the legal culture of the society that is less conducive to the handling of electronic waste. To reconstruct the condition, it is necessary to strengthen the legal system through the establishment of local regulations that specifically regulate electronic waste, rule-making institution empowerment, a revolution of bureaucrats and law enforcers mentality, community empowerment of electronic waste hazards, and training of safely electronic waste processing.

Keywords: *Reconstruction, Electronic Waste Management, Strengthening Legal System*

1. Introduction

Electronic waste (e-waste or e-scrap or Waste Electrical and Electronic Equipment (WEEE) is an electronic and used electrical equipment that has been used or discarded by its users. This electronic waste has become the attention of countries in the world such as in China and India [1], in the United States [2], and EU [3]. Each type of electronic waste has a function, the size and composition of different materials, including the end of life which all have an impact on the environment and health.

The amount of electronic waste has increased so rapidly parallel with the economic growth and advancement of information technology [4]. Data of the United Nations University in The Global E-Waste Monitor 2017 mentions the world electronic waste in 2016 amounted to 44.7 million tons or equal to 6.1 kg per person compared to the year 2014 of 5.8 kg per person. It is estimated that the number will reach 52.2 million tonnes or 6.8 kg per person by 2021. Of these, Asia is the most electronic waste producer of 18.2 Mt, followed by Europe 12.3 Mt, America 11.3 Mt, Africa 2.2 Mt, and Oceania 0.7 Mt. In Asia, China produces the most electronic waste (7.2 Mt), followed by Japan (2.1 Mt), and India (2 Mt). In Indonesia, there is no accurate data related to electronic waste [5].

As the big country with a population of 255 million people with a vast territory and consisting of large and small islands, Indonesia is potentially a target for electronic waste disposal and potentially damaging the environment through various ways both legal (trading of used goods, donations) and illegal (without fake documents or documents). Batam city which is located in Riau Islands Province becomes the research area and known as electronic commerce center because of cheapest electronics product. There is no official data on the amount of electronic waste in Batam, but we may find a lot of electronic waste such as TV / LCD, refrigerator, fan, computer/laptop, mobile phone at the certain markets in Batam such as Pasar Jodoh, Tanjung Senkuang, Aviari and My Mart [6].

There is no specific provision governing electronic waste in Indonesia despite the existing laws governing waste management. For example, Law No. 18 of 2008 on Waste Management stipulates specific waste, whereas in Law No. 32 of 2009 on Protection and Environmental Management calls it a waste containing hazardous and toxic materials. Law Number 32 of 2009 has been followed up with the Government Regulation No. 1 of 2014 on the Management of Hazardous and Toxic Waste. There is a paradox between the law in the books and law in action in practice.

Another important aspect is the behavior of people in managing electronic waste incorrectly that could jeopardize health and environment. This danger arises because of poor recycling and disposal processes in managing [7]. Through the use of the theory of Planned Behavior shows that attitude can increase one's interest to manage electronic waste [8]. Attitude is a person's positive and negative judgment about something [9]. A person who is interested in managing electronic waste properly will have an impact on his behavior. This attitude will affect the subjective norms of society which will then come into being as a culture. Behavior and habits and public perception in Batam in managing electronic waste still have the traditional character that is kept, taken certain component, or resold.

The prevailing laws do not guarantee the management of electronic waste to be better if the public perception of electronic waste is still bad. The level of compliance between electronic waste management policy and its implementation in Indonesia is still weak [10].

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The research related to various aspects of electronic waste have been done. However, there is no study examining the need for restructuring of electronic waste management in Batam City by strengthening the legal system which covers the regulatory aspects that have been used to deal with electronic waste problems . Is current regulation sufficient to handle the electronic waste problem? The institutional aspect is aimed at assessing law enforcement including the professional capability of law enforcers in implementing the law and their mentality. The legal culture aspects relate to the adherence of the people to the rule of law. Culture is very close to the behavior of the Batam people in managing electronic waste according to the expectations of law enforcer [11]. As stated by the results of research that the habits of people in electronic waste management still base on traditional behavior and endanger health and environment such as incineration, landfill, or dismantled and taken certain component. The rest is thrown away or burned. This habit is still common in developing countries [12].

Compared to other cities in Indonesia, Batam is one of the destinations of used electronic and electronic waste. Batam is located on the border of Indonesia and a place of entry of electronic products. The used electronic marketed in Batam City mostly come from imports, mainly from Singapore. Types of electronic wastes include cable, plastic, solder, glass tube, television nest, monitor, computer, mobile phone, etc.

2. Theoretical Framework

2.1. Theory of the Operation of Law

The menace of electronic waste for health and the environment have not led to the insistence of the people of Indonesia, especially the people of Batam to create laws (called as "peraturan daerah") that specifically regulate the matter of electronic waste. From the legal aspect, the Provincial Government of Riau Islands and the Local Government of Batam City actually have the authority to create local regulations as provided in the Indonesia Constitution of 1945.

The work of laws and regulations made by the rule-making institution is strongly influenced by the social forces of both personnel and non-governmental organizations [13] In this case, the urgent social power for the publication of special regulations governing electronic waste comes from non-governmental organizations and environmentalists. Responsibility for sanction for perpetrators of violation of applicable law is submitted to the sanctioning institution (rule-sanctioning institution) both police, prosecutor, and court. In carrying out its duties and functions these sanctioning institutions are also influenced by social forces. The sanctions are addressed to role-holders of both individuals and business entities, both legal entities and non-legal entities that violate regulations. In response to such law enforcement, stakeholders on the basis of community inputs can provide feedback to lawmakers, which in turn institute legislators to evaluate the inputs of stakeholders. How it works can be seen in the figure below:

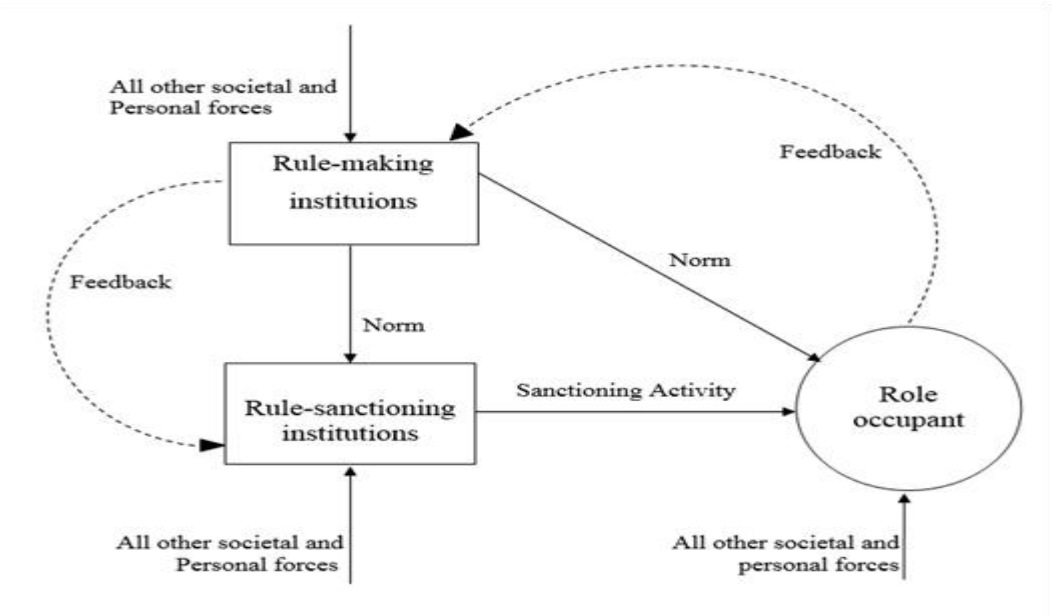


Figure1: The operation of law (Chambliss and Seidman)

The use of the theory of law operation becomes important to see whether the rules imposed in managing electronic waste have been adequately addressed. Therefore, stakeholders feedback should be considerations in reconstructing the prevailing law. The lack of legal certainty will, of course, have implications for the role of rule-sanctioning institutions. Hence, it is expected to find the weaknesses of substance, structure, and legal culture as proposed by Friedman.

3. Research Methodology

The research area is the city of Batam, Riau Islands Province Indonesia. This research is based on the rampant electronic waste in Batam city which can be found in certain places. The existence of the rampant e-waste violates the prevailing laws and regulations which prohibits the entry of hazardous waste into the territory of the Republic of Indonesia (Article 21 paragraph (1) a Law Number 18 of 2008 and Article 69 paragraph (1) d of Law Number 32 of 2009) and require producers to manage their packaging and / or manufactured goods which can not or is difficult to decompose by natural processes (Article 15 of Law Number 18 of 2008). This research begins by searching for key informants who understand the law and its practices.

Selected key informants consist of the director of Verification and Management of Hazardous and Toxic Waste and Non-Hazardous and Toxic Materials at the Ministry of Environment and Forestry, businessmen, police, soldiers, the Regional Environmental Impact Management Agency of Batam (BAPEDALDA), intermediary, and distributors. The interview method is done by using focus

group discussion (FGD) in Batam city while the director is interviewed in Jakarta. The discussion was based on several key issues of electronic waste, the role of soldiers and police regarding the entry and distribution of electronic waste, and cases settled by police. Observations were also done at the collection and sold electronic waste places. Court decisions as secondary data are needed to know deeply the quality of the judicial decision. Thus, this research is a type of qualitative research.

4. Research Results and Discussion

The absence of any special provisions in laws governing electronic waste can lead to multiple interpretations. The term specific waste (Law No. 18 of 2008 on Waste Management) and hazardous and toxic waste (Law No. 32 of 2009 on Environmental Protection and Management) does not specifically mention electronic waste. Specific waste is defined as waste due to its nature, concentration, and/or volume requiring special management. While hazardous and toxic waste materials are defined as the remains of a business and/or activity containing hazardous and toxic materials. Hazardous and toxic substances are substances, energies, and/or other components due to their nature, concentrations and/or quantities, either directly or indirectly, to pollute and/or damage the environment, and/or harm the environment, health, as well as the survival of human beings. Difficulties can happen when the imported ones are used electronics, not electronic waste. It is difficult to determine as a specific waste or hazardous and toxic waste material when the imported electronics are still functioning or the lifetime is still working or it will end. Therefore, the condition can be used as a feedback for regulatory institutions to make improvements to the prevailing legislation that multi-interpretation as an effort to prevent the entry of electronic waste in various modes and to ensure legal certainty for the community.

Basically, the government prohibits the import of hazardous and toxic waste materials unless able to manage them on their own. The Government also requires that the imported product must be in a new condition (Minister of Trade of the Republic of Indonesia Regulation No. 54 / M-Dag / Per / 10/2009 on General Provisions of Import). It means that there will be no import of goods or used products in Indonesia. On the contrary, the observation result shows that the import of electronic and electronic waste is still found in some places in Batam city.

The policy of banning the import of used goods is not comparable with the government policy that allows electronic waste exports. In fact, the purpose of controlling electronic waste is to protect human health and the environment. The export policy is not in line with the objectives of the Basel Convention which bans transboundary movement of hazardous and toxic waste material. Although there has been no official data on how large the number of electronic waste exports, but it raises a question of the role of Indonesia in controlling electronic waste.

Another problem is the government's heavier duty in waste management because all kinds of waste become government burden. This condition is in fact not true and developing country governments will not be able to manage waste if there is no technological innovation, civil society engagement and strengthening the legal system. This task becomes increasingly heavy when electronic waste is increasing more and more annually. To reduce the heavy role, electronic producers involvement is required through a take-back system as already done in the EU. Any company that produces electronics and electrical equipment shall be responsible from production to the end of the lifetime of such electronic products, referred to as Extended Producer Responsibility (EPR). Electronic waste management through EPR or take-back systems is very difficult to implement in low-income countries. They basically have no effective regulation to deal with electronic waste [14]. The EPR system is not working properly. The responsibility of electronic waste management is still a government domain.

The function of government becomes very strategic in controlling electronic waste in the region and its authority is permitted by the constitution. The rationale for the need for regional regulation is to bring regional involvement closer to handling the issue of electronic waste by involving civil state apparatus. The low social power to encourage the creation of local regulations on electronic waste management makes more complexity of electronic waste control. Through the local regulation is expected to be able to provide new power as well as assist the government in overcoming the rampant electronic waste in the region. However, whatever ideally a rule depends on the rule-sanctioning institution and the stakeholders.

At the level of implementation of the regulation, local governments are faced with the entry of electronic waste in the region, especially in the Batam city of Riau Islands Province and wakatobi of Southeast Sulawesi Province. As the result of empirical observation, electronic waste can be found directly in certain places in Batam such as Pasar Jodoh, Tanjung Senkuang, Aviari, and My Mart such as Fridge, Fan, LCD, Computer, Laptop, and Television. In Jodoh Market, some gadgets and electronics ex Singapore sold in some stalls with low prices. At Tanjung Senkuang Market, located in the direction of Batu Ampar shipyard, there are several used goods marketplaces such as fans, refrigerator, air conditioner, television and even watches. The same is true in the Aviari market, whereas for My Mart Batam Center specifically for used computers and laptops.

At present, there are no electronic waste processing facilities in almost all areas in Indonesia, so people still utilize the Final Disposal. This condition is exacerbated by the lack of a community's awareness of separating electronic waste and disposing of electronic waste at the Temporary Disposal Site. Therefore, it needs electronic waste management with a systematic method. Electronic waste management methods by incinerating are less appropriate because it will cause air pollution due to heavy metals inside. In addition, the processing of electronic waste is different from organic waste that can be processed by the community itself by making it as fertilizer. Therefore, the condition can be categorized as an urgent problem in the region so it requires a fast and accurate solution in the processing.

For small-scale used electronics such as mobile phones are usually brought from Singapore by entering maximum ten mobile phones in the luggage. Based on Riau Islands Police data of 2016, mobile phone smuggling was thwarted by the Directorate of Water Police Riau Police. Tens of thousands of the various brand's mobile phones were confiscated including confiscation of 13.114 mobile phones smuggled from Batam water Riau Islands Province by using fake documents. Before April 2016, Smuggling of 1.300 mobile phones in the twenty suitcases has also been thwarted at the illegal port and also laptops in the port Telaga Punggur Batam.

The interviews results of Focus Group Discussion (FGD) among the actors of used electronic illegal import in the city of Batam showed the existence of a syndicate between law enforcer and the actors. It even involves an army and police to back up the used electronic entering the territorial waters of Indonesia. Their motivation is merely economic. The perpetrator never realizes that his actions will jeopardize human health and the environment. The used electronic is then sold directly to the retailer and to the user for the next. It can be easily found along the road to Tanjung Sengkuang such as refrigerator, fan, and tv and at Pasar Jodoh Batam for the used mobile phone.

One of the interesting cases is the illegal transboundary of chemical waste (IPA, Solder paste, Solder ball), waste of Flexible Printed Circuit (FPC), Used Oil and Grease, chemical packaging (cans, bottles, and tubes), used gloves and cotton stick contaminated with hazardous and toxic material occurred in January 2016 in Batam. This activity was done by PT Maruwa Indonesia a Foreign Investment Company that is suspected for doing the transport of hazardous waste inconsistent with Article 60 of Law No. 32 of 2009 on Environmental Protection and Management providing

that every person is prohibited from dumping waste and/or material to the environmental media without a license. Hazardous and toxic waste disposal activities may only be carried out with the license of the minister, governor or regent/mayor in accordance with their authority. Unfortunately, the suspected was finally not arrested by the police because of the letter of the Regional Environmental Impact Control Body of Batam Number 742 / Bapedal / PLH / XI / 2015 stipulates that FPC is not covered in the list of hazardous waste materials as attached in the Government Regulation No. 101 of 2014 concerning Hazardous and Toxic Waste Management. The attachment just stipulates Printed Circuit (PC), not FPC although the both contain metal components. That's why the police have difficulty to interpret because of the Letter. It is very ironic and the weakness of the rule-sanctioning institution.

Based on an analysis of the five Court Verdicts regarding hazardous and toxic waste over Case Number:2480/Pid.B/2014/PN.SBY; Case Number:385/Pid.Sus/2013/PN.P.Bun; Case Number: 47/Pid.Sus/2014/PN.Pti; Case Number:548/Pis.Sus/2014/PN.Bls, and Case Number: 284/Pid.Sus/2015/PN.SMG showed as follows: 1. The verdicts are based on legal certainty to meet the elements of the charged article, 2. The verdict does not have a deterrent effect and average below one year and a maximum of 1.5 years, 3. The evidence is not considered properly, and 5. The principle of human health and environmental protection is not a priority for the judicial verdict.

Here are the indicators to analyze the quality of judge verdict regarding hazardous waste:

Case number	Verdict Elements						
	Fulfillment of the charged article elements	Accuracy of judge intepretation	Consideration of evidence properly	Syllogism appropriately	Deterrent effect of verdict	Consideration of human health and environment values	Fair and Just Verdict
284	✓	✓	x	✓	x	x	x
47	✓	✓	✓	✓	x	✓	x
385	✓	✓	x	✓	x	✓	x
2480	✓	✓	x	✓	x	✓	✓
548	✓	✓	x	✓	x	x	x

The table shows that five-judge verdicts reflect the thinking of legal positivism. According to positivism, every legal norm must exist in its objective nature as positive norms, and be asserted in the form of agreements between people or their representatives. Law is no longer conceptualized as the principles of morality and justice, but the law has been endorsed as *lege* or *lex*, in order to assure legal certainty. Legal positivism was first developed by John Austin, then developed by Hans Kelsen. According to the idea of Legal positivism, law is the whole of the rules which apply either in general or in particular. The used approach in the legal positivism is to separate the law from political, moral, justice, social, or in other words, anything unrelated to law should be separated from the law. If the application of the law is done as developed by Hans Kelsen then justice will never exist and does not provide benefits for the people. State law is the main source to settle the case and will ignore the customary law, and local wisdom. Legal positivism is aimed at addressing legal certainty while Gustav Radbruch states that law should contain legal certainty, benefit, and justice. Legal positivism will not be able to solve the problem of electronic waste comprehensively and will only arise new problems of environment and human health. Restructuring electronic waste management by strengthening the legal system will not work if the rule-sanctioning institutions are still based on state law.

The court's verdict will not be effective to resolve the issue of electronic waste when the punishment is very light and of course no deterrent effect for the perpetrator. This will damage the environment in the future because environmental damage is cumulative and can only be discovered after the next five or ten years. The table also shows that health and environmental protection values are used for legal consideration of judges 60% while the element of justice is only 20%.

The legal system is less conducive to waste management in Indonesia, especially Batam City. This is exacerbated by the culture of the society that considers electronic waste has economic value. Some of them still work and may be sold and the rest may be dismantled to take its components. The government may not forbid the activity and should educate them on how to manage electronic waste safely. The main task of the government is to prohibit the entry of electronic and electronic waste into the territory of Indonesia. This task is not done well by the government in handling the case of entry of used electronic and electronic waste in Batam city. The weakness of law enforcement will contribute to the deterioration of the environment and human health.

Referring to the theory Chambliss and Seidman, it needs to make clear about the status of electronic waste for legislation aspect because the prevailing law does not mention term of electronic waste and only stipulates specific waste and hazardous waste. The clarity of the definition of electronic waste into legislation is a must to avoid multiple interpretations. The urging of civil society to the rule-made institutions is necessary to include electronic waste specifically both in the new law and in the regional law. People have a right to health and a safe environment and oblige to give a feedback to the rule-made institutions.

Lack of legal certainty will influence law enforcement done by the rule-sanctioning institution in overcoming the problem of electronic waste as hazardous and toxic waste materials. Rule-sanctioning institutions and sustainable development are two things that support each other. The weakness of rule-sanctioning institution will impact on the failure of sustainable development. Therefore, the cooperation of all parties, both law enforcers, bureaucrats, community and business actors is a necessity for the sustainable development. The strengthening of civil society becomes a necessity as an effort to monitor law enforcement in order to protect human health and the environment.

The role occupant as the legal object is the important thing in obeying the rules and assisting the achievement of sustainable development through environmentally sound activities. The role occupants are individuals, businessman or corporation. They may give a feedback both to the rule-made institutions and rule-sanctioning institutions in regard to the implementation. Unfortunately, the legal culture of the society in handling electronic waste has not been so good. A study report on the issue of electronic waste in developing countries shows African countries tend to reuse the discarded products, while Asian countries tend to dismantle electronic waste to take certain components because of economic values and often use the unsafe and unhealthy methods [15, 16,17,18].

The dependence of the three elements they are a rule made the institution, rule sanctioning institution and role occupant become very strategic in controlling electronic waste. The unclear regulation needs to be revised immediately and made amendment or new regulation either at the national level in the form of law or at the regional level in the form of regional regulation. Hopefully, the changes will make sure for the rule-sanctioning institution to do law enforcement due to multiple interpretations. The government should change the mentality of law enforcers because in the fact the entry of used electronic and electronic waste into the territory

of Indonesia backed up by the apparatus, especially in the city of batam.

There is actually a company processing hazardous and toxic waste materials in Batam city namely PT Desa Air Cargo Batam (DACB) which was established in 1995. DACB is a service company that recycles waste of hazardous and toxic materials but not for electronic waste. Hazardous and toxic waste materials can be processed to produce new products and then be sold and exported. The rest is incinerated and will be ash. The ash is disposed of (landfill) in Cilingsi Bogor Regency by PT Prashada Pamunah Limbah Industri (PPLI). In comparison, in Jakarta there is also a waste processing service company that is PT Mitra Kersa Artha who has launched the Ecocash program. Ecocash is an online service that is ready to buy electronic waste for recycling. The existence of companies specializing in electronic waste recycling is, of course, help the community and companies in Indonesia.

Based on these conditions, several solutions are needed to solve the problem of electronic waste by strengthening the legal system, namely: 1) the need to create a regional regulation at both the provincial and municipal levels. Batam is a specific city that needs a regional regulation of electronic waste with all its aspects; 2) empowerment of rule-making institutions including their personnel; 3) undertake a mental revolution for bureaucrats and law enforcers; 4) engaging with third parties including non-governmental organizations and universities in order to educate the public about the menace of electronic waste for health and the environment; 5) conducting community training on how to safely utilize electronic waste for reuse, recycling, and certain components for raw materials.

5. Conclusion

1. The law has not worked proportionally because of no specific rules concerning e-waste and multi-interpretation rules. It also nedds to distinguish between used elektronic and e-waste. Waste management is still a government domain so that the concept of EPR is not working. This reflects the weakness of the local government which has the authority to specifically regulate e-waste
2. Rule-sanctioning institutions do not take action against perpetrators who enter electronic waste from Singapore. The institutions even seem to close their eyes. Mental improvement of the apparatus is a must. This condition is exacerbated by the quality of court verdicts in cases of hazardous and toxic waste that are still low and have no deterrent effect
3. The role occupant is not functioning due to conditions that are still possible to import e-waste and the omission of law enforcers. They argue that e-waste still has economic value. Role occupants need to be educated about the menace of electronic waste for the environment and human health. The government must also educate the perpetrators on how to process electronic waste safely

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