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#### CONTROL OF THE USE OF PLASTIC WASTE IN SEMARANG CITY

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**ABSTRACT:** The research objective was to study and analyze the control of plastic waste use in Semarang City and how to control the use of plastic waste in Semarang City. Plastic waste is still a big problem in Indonesia, one of which occurs in the city of Semarang. The problem faced is that every day plastic waste continues to increase, one example in TPA Jatibarang every day Semarang residents can produce household plastic waste of 1,300 tons. This research method uses empirical juridical. This research concludes that the Semarang City Government to address the increasing problem of plastic waste has issued Semarang Mayor Regulation Number 27 of 2019 concerning the control of plastic use. In addition, the Semarang City government issued a mayor's circular regarding the elimination of the use of plastic bags in modern shops such as Alfamart, Alfamidi & Indomaret and to support this, companies also disseminate the regulation to the public. The Mayor's Regulation is ineffective due to the lack of socialization to the public and the lack of awareness of the use of plastic as a grocery bag and lack of supervision by the related institutions due to lack of personnel and no clear sanctions for violating the Mayor's Regulation so that there is no deterrent effect for violators.

Keywords: Control; Plastic; Trash

#### **INTRODUCTION**

Garbage is the result of human activities. According to Hasbullah, its existence cannot be avoided and must be managed properly because waste management that is not sanitary can cause environmental pollution.<sup>1</sup> One of the waste generated by humans is plastic waste.

Plastic waste is still a big problem in Indonesia, one of which occurs in the city of Semarang. According toReni Silvia Nasution Trash Plastics are synthetic polymers that are difficult to decompose in nature. Completely biodegradable takes nearly hundreds of years.<sup>2</sup> The problem faced is that every day the plastic waste continues to increase, one example in the Jatibarang

<sup>&</sup>lt;sup>1</sup> Hasbullah, Taufik Ashar, Nurmaini, Analysis of Waste Management in the City of Subulussalam in 2017, Jumantik Journal Vol. 4 No. 2 June 2019 - November 2019, University of North Sumatra, Medan, 2019, page 135.

<sup>&</sup>lt;sup>2</sup> Reni SilviaNasution, Various Ways of Handling Plastic Waste, Journal of Islamic Science and Technology Vol. 1, No.1, June 2015, UIN Ar-Raniry, Banda Aceh, 2015, p. 99.

TPA in a day every citizen of Semarang City can produce household plastic waste of 1,300 tons. This will certainly be a problem if you do not immediately find a solution to control plastic waste. In the next two years, the land in the Jatibarang TPA will be full if the daily waste supply continues to increase.

Research conducted by Berliana Anggun Septiani et al on the management of plastic waste in the City of Salatiga explained that waste management efforts in Salatiga are more predominantly managed by reusing, recycling, and hoarding plastic waste. Waste management is mostly done by utilizing households as producers of plastic waste, scavengers, plastic collectors and waste banks.<sup>4</sup>

Even though plastic waste has quite a large negative impact, on the one hand the discovery of this plastic has a positive impact, because plastic has advantages over other materials. According to Pramiati Purwaningrum, the negative impact caused by plastic waste can reduce soil fertility, so if it is dumped carelessly, it can clog drainage channels, ditches and rivers, causing flooding. When plastic waste is burned, it can release substances that are harmful to human health.<sup>5</sup> Research conducted by Pramiati Purwaningrum explains the negative impacts caused by the use of plastic waste by the community. The use of plastic waste recycling is an effort to use plastic waste to have economic value.

The Semarang City Government issued a Semarang Mayor Regulation to control waste in Mayor Regulation Number 27 of 2019 concerning control of plastic use. The regulation was issued to control the use of plastic which increases every day. The regulation was issued with the aim of increasing the knowledge of citizens in order to create a beautiful, cool, clean, beautiful and healthy environment so that the participation of the community or business actors is needed so that efforts are needed to manage the consequences of using plastic.

Community participation in the development of Semarang city development, especially in terms of waste management and control of platrumen waste is very important. In accordance with Mayor Regulation Number 27 of 2019 concerning control of plastic use, controlling and managing the use of plastic waste requires not only the participation of Semarang City residents, but also the awareness of entrepreneurs, company leaders and factories in Semarang to carry out and apply the Mayor Regulation that has been issued by the Mayor of Semarang.

<sup>&</sup>lt;sup>3</sup> https://jateng.tribunnews.com/2019/07/22/sehari-warga-semarang-hentuk-1300-ton-2-atau-3-tahun-lagi-tpajatibarang-penuh-ini-solusinya, accessed on, 26 October 2019

<sup>&</sup>lt;sup>4</sup> Berliana Anggun Septiani, et al, Management of plastic waste in Salatiga: Practices and Challenges, Journal of Environmental Science Volume 17 Issue 1 (2019), Postgraduate School Environmental Science Study Program UNDIP, Semarang, 2018, pp. 98-99.

<sup>&</sup>lt;sup>5</sup> Pramiati Purwaningrum, Efforts to Reduce the Generation of Plastic Waste in the Environment, Journal of Environmental Engineering Vol 8 No.2, December 2016, Trisakti University, 2016 Jakarta, page 144.

This research complements previous research by discussing plastic waste control in the city of Semarang by exploring the participation of the community, industry and stakeholders in controlling plastic waste and how the implementation of regulations in the city of Semarang regarding plastic waste control can run properly and effectively in controlling plastic waste. This is to study and analyze how to control plastic waste in Semarang City and how to control plastic waste in the city of Semarang.

# PROBLEM

- 1. How to control the use of plastic waste in Semarang City in a study of Semarang Mayor Regulation Number 27 of 2019 concerning control of plastic use?
- 2. How should the control of plastic waste use in Semarang City be?

# **RESEARCH METHODS**

The type of research used in this research is juridical empirical, which examines the applicable legal provisions and what happens in reality in society.<sup>6</sup> Empirical juridical research is legal research on the enactment or implementation of normative legal provisions in action at any particular legal event that occurs in society<sup>7</sup> and the scope of controlling the use of plastic in the city of Semarang, a study of Mayor Regulation Number 27 of 2019 concerning control of plastic use.

This legal research includes a descriptive analytical research specification, which describes the applicable laws and regulations in relation to legal theories and practice of law enforcement concerning the problems in this study.<sup>8</sup> namely the study of controlling the use of plastic in Semarang City Mayor Regulation Number 27 of 2019, This empirical juridical research uses primary and secondary data.

# DISCUSSION

## 1. Controlling the Use of Plastic Waste in the City of Semarang

The problem with waste at this time, especially in cities, according to Jatmiko Wahyudi, is the increasing production of plastic waste.<sup>9</sup> The city of Semarang, the 4th largest metropolitan city in Indonesia, is also experiencing serious problems in waste management.<sup>10</sup> Its citizens are one million eight hundred million people every day producing an average of 0.6 kilograms of waste

<sup>&</sup>lt;sup>6</sup> Soejono and H. Abdurahman., Jakarta Legal Research Methods: Rineka Cipta, 2003, p.56.

<sup>&</sup>lt;sup>7</sup>Abdulkadir Muhammad, Hukum and Research-Law, Bandung, Citra Aditya Bakti, 2004, p. 134.

<sup>&</sup>lt;sup>8</sup> Moch Nazir, Research Methods (Jakarta: Ghalia Indonesia, 2008), p. 84.

<sup>&</sup>lt;sup>9</sup> Jatmiko Wahyudi, Hermain Teguh Prayitno, Arieyanti Dwi Astuti, Utilization of Plastic Waste as Raw Material for Making Alternative Fuels, Jurnal Litbang Vol. XIV, No. 1 June 2018: 58-67, Pati Regency Regional Development Planning Agency, Pati, 2018, p. 120. <sup>10</sup> Ibid.

<sup>&</sup>lt;sup>10</sup> Ibio

per person, so that the total average is 1,200 tons of waste.<sup>11</sup> Semarang City Government is serious in handling waste problems, one of which is by implementing waste processing innovations at the Jatibarang TPA. Garbage can be processed into methane gas to be distributed for the cooking needs of the surrounding community. He is also preparing to inaugurate a Waste Power Plant by utilizing the methane gas released by the garbage heap.<sup>12</sup> To solve the problem of plastic waste, the government of Java Tengah Province issued Regional Regulation Number 3 of 2014 concerning waste management which obliges the community, producers, area managers to reduce waste production, use waste as a resource and energy. In regulation number 3 of 2014 Article 16 Paragraph (1) asks the community, producers, area managers to limit waste piles, recycle waste, and reuse waste. The limitation of pile of waste as intended by the Government in Article 16 Paragraph (1) of Regional Regulation Number 3 of 2014 concerning waste management requires the public to use recyclable packaging, limiting the use of plastic bags.

The government issued Law No. 18 of 2008 on waste management, considering that the volume, types and characteristics of waste vary widely. Waste management has not been resolved properly and waste has become a problem that must be addressed immediately. The government requires all communities to limit the use of household waste and handle it in an environmentally friendly manner. Article 17 Paragraph (1) requires everyone to obtain prior permission to carry out activities included in household waste management.

To complement several policies regarding plastic waste control, the government has issued a Circular of the Minister of Environment No S.1230 / PSLB3-PS / 2016 concerning Prices and Mechanisms for Implementing Paid Plastic Bags. With this policy, it is hoped that the modern market and retail can reduce the use of plastic waste, considering that the modern market and retail sectors contribute quite a lot to the consumption of plastic bag utilization. This policy was also considered ineffective so that in the end the government issued Presidential Decree No. 97 of 2017 concerning the National Policy and Strategy for the Management of Household and Similar Household Waste.

To support the implementation of plastic waste control, the Semarang City Government issued a new regulation on plastic waste control in Semarang City with the aim of controlling the use of plastic waste.

With the decision of Mayor Regulation No. 27 of 2019, many companies, shops, and even individuals have done so. For example, in companies, there are companies that urge employees

<sup>&</sup>lt;sup>11</sup> http://news.unika.ac.id/2020/01/8-metode-menurut-pakar-untuk-peng Manajemensampah-di-kota-semarang/, accessed on 29 May 2020

 <sup>&</sup>lt;sup>12</sup> https://news.okezone.com/read/2018/11/12/512/1976419/production-sampah-kota-semarang-dalam-sebulan-bisa-sebesar-candi-borobudur, accessed on 29 May 2020

to reduce the use of single-use plastic bottles and are encouraged to use bottles that can be reused. In some stores, many have reduced the use of plastic bags, and provide plastic bags but they are paid. Some fast food restaurants, no longer provide drinking straws. According to Muchammad Zamzami Elamin, many people have also participated in reducing plastic waste by bringing items that are not disposable, such as drinking bottles, iron straws, places to eat and so on.<sup>13</sup>

The implementation of Mayor Regulation No.27 of 2019 in its implementation has experienced various obstacles, for its own obstacles due to the lack of public awareness in reducing the use of plastic in everyday life.

According to Arry Susilowardani, the Head of Pollution and Liquid Waste Control, the Semarang City Environmental Service said that the Semarang City government has made socialization efforts to use its own shopping bags through sub-districts, PKK, schools as well as socialization to business actors such as modern shopping places or markets supermarkets, restaurants, cafes and hotels as an effort to introduce Mayor Regulation No. 27 of 2019 to businesses and the public, both directly and through social media.<sup>14</sup>

Through the Mayor's circular letter, company companies located in Semarang City are asked to support government programs to reduce plastic use in companies, as PT Sinar Pantia Djaja did to support the Semarang mayor's regulation making an announcement Number 37 / HR.21 / SPD / II / 2020 About the Appeal to Control the Use of Plastics, one of which is that every employee of PT Sinar Pantia Djaja is obliged to maintain the cleanliness of the company's environment, one way that can be done is to take an active role in reducing plastic waste in the company. This announcement is disseminated through the apple before work and the posting of announcements in each unit room and canteen in the company environment.

Almost the same as Arry Susilowardani, according to Anis Kartika Nigrum as the Head of the Subdivision of Evaluation and Financial Planning in Tembalang District, Semarang City, Kartika said that in Tembalang sub-district, the Semarang Mayor regulation has conducted socialization of Semarang Mayor Regulation No. Sub-district meetings and activities held by Tembalang District appeal to meeting participants and activities to bring a tumbler as a drinking place. In addition to these efforts, the Temballang sub-district government also conducts outreach at the village level during routine coordination meetings with the village

<sup>&</sup>lt;sup>13</sup> Muchammad Zamzami, et al, Analysis of Waste Management in Disanah Village Communities, Sreseh District, Sampang Regency, Environmental Health Journal, Vol. 10, No.4, October 2018, UNAIR, Surabaya, 2018, page 369.

<sup>&</sup>lt;sup>14</sup> Interview with Arry Susilowardani, as the Head of Pollution and Liquid Waste Control of the Environmental Service of Semarang City, on June 29, 2020.

head and its officials so that at every meeting they do not use bottled drinking water and conduct outreach to the Chair of community organizations such as LPMK, PKK, 15

Apart from the above efforts, the Semarang City Government also encourages the public to actively participate in processing waste through various programs such as waste banks, which are located in Gunungpati and Pedurungan, among others. From the waste processing at the Garbage Bank, people can get additional income. This method is also less effective in reducing the amount of plastic waste in Semarang City.

Results of interviews conducted with Imsrinah, Lucia Bekti Suwarsih, Personnel Staff of PT Sinar Pantia Djaja, Lucia Bekti Suwarsih argues that Semarang Mayor Regulation Number 27 Year 2019 has not been effective in the company even though the company has provided socialization and announcements to employees via apples before working and posting announcements In every unit room and canteen in the company environment, the announcement of this call for Control of Plastic Use cannot run effectively in the company because of the practicality of using plastic bags in its use, so there are still employees who use plastic bags to wrap their supplies and even for food sellers in the canteen -the average still uses plastic bags to serve buyers, on average they do not want to be too bothered to wash and bring back and forth every day where they eat and drink.16

Semarang City government should also carry out guidance and outreach to the community as stated in Article 3 Paragraph 2 of Semarang City Mayor Regulation Number 27 of 2019 concerning Control of Plastic Use which includes: Socialization, consultation, partnerships, training, technical assistance and / or implementation facilitation. appropriate technology for plastic control. The lack of socialization to the public about the use of plastic bags in daily use has made controlling the use of plastic in the community of Semarang City less effective.

Lack of socialization of this mayor regulation to the public makes the public not aware of this regulation, in the need for continuous socialization of this regulation so that the community in Semarang City knows about this regulation, the socialization of this regulation should be carried out by all parties up to the Rukun Tangga level so that The people of Semarang City know about the Semarang mayor's regulations on controlling the use of plastic.

The Semarang City Government needs to make a regulation that can reduce the use of plastic in Semarang City and also needs the participation of all parties to increase public awareness in reducing the use of plastic in daily life, so that the Semarang City government program in

<sup>&</sup>lt;sup>15</sup>Interview with Anis Kartika Nigrum as Head of Sub Division of Evaluation and Financial Planning, Tembalang District, Semarang City, on June 30, 2020

<sup>&</sup>lt;sup>16</sup> Interview with Lucia Bekti, Personnel Staff of PT Sinar Pantia Djaja, on July 1, 2020

controlling plastic use in Semarang City can run effectively. Reducing the use of plastics will have an impact on environmental sustainability and reduce global warming and reduce the causes of natural disasters in Indonesia and particularly in the city of Semarang.

The Semarang City Government must also find other solutions so that the control of plastic use in the city of Semarang, such as making the Regional Regulation of the City of Semarang concerning Control of Plastic Use in the city of Semarang and inviting related agencies to participate in controlling plastic control in Semarang City, without any support from agencies and the community is unlikely to realize Semarang City from plastic waste effectively.

Semarang City Mayor Regulation Number 27 of 2019 is currently ineffective for controlling plastic waste in the city of Semarang due to the lack of socialization to the public and the absence of the Semarang City Regional Regulation as an umbrella to impose sanctions on violators. With the local regulation as the legal umbrella, there is legal certainty for violators.

## 2. The Ideal Handling of Plastic Waste Use Control in Semarang City.

The organizersRegional governments in carrying out their duties, powers, obligations and responsibilities and with the power of higher legislative regulations can determine regional policies which are formulated through, among others, regional regulations, regional head regulations, and other regional regulations. The regional policy in question must not contradict higher laws and regulations and the public interest and hinder investment, as has been regulated inLaw Number 12 Year 2011 concerning the Establishment of Legislation.

One form of legal product that is formed by order of statutory regulations or established based on authority is a Mayor Regulation. Mayor Regulation according to the Elucidation of Law Number 12 Year 2011 is defined as a regulation stipulated by the Mayor based on content in the context of carrying out certain affairs in government. Therefore, the Mayor Regulation becomes the legal system entity in the field of legislation and is the most important part in regulating governance so that it can be carried out in accordance with the Mayor's own function.

The problem arises, when the Mayor Regulation is confronted with District / City Regional Regulations. In the hierarchy of statutory regulations there is no mention and no including a Mayor Regulation into the hierarchy of statutory regulations, so that when viewed from the point of view of effectiveness and binding power it becomes a dilemma, whether the position of the Mayor Regulation is the same as the Regional Regulation or Regional Regulation the same degree from the Mayor's Regulation.

There needs to be strict sanctions on this mayoral regulation to deter violators, in general, as

with other laws and regulations to enforce compliance with the public, sanctions are included in these laws and regulations. However, in reality, specifically in the Semarang Mayor Regulation Number 27 of 2019 does not contain criminal sanctions. Because Semarang Mayor Regulation Number 27 Year 2019 must harmonize the sanctions provisions in the Mayor Regulation with the provisions in Law Number 12 Year 2011 concerning the Formation of Legislation, regulations containing sanctions are only Laws or Perpu and Perda while mayor regulations do not may contain sanctions in it, This is also one of the obstacles for the Semarang City government to reduce the use of plastic in order to make Semarang City clean from plastic waste. With the implementation of Semarang Mayor Regulation Number 27 of 2019, it cannot contain sanctions making people who violate these regulations not deterred from violating these regulations, but in the Mayor's Regulation contains sanctions for those who break them, these sanctions include: a) written warning, b) government coercion, c) suspension of business licenses; and / or d) temporary revocation of business license for every business actor and / or plastic supplier that violates the provisions. With the implementation of Semarang Mayor Regulation Number 27 of 2019, it cannot contain sanctions making people who violate these regulations not deterred from violating these regulations, but in the Mayor's Regulation contains sanctions for those who break them, these sanctions include: a) written warning, b) government coercion, c) suspension of business licenses; and / or d) temporary revocation of business license for every business actor and / or plastic supplier that violates the provisions. With the implementation of Semarang Mayor Regulation Number 27 of 2019, it is not allowed to contain sanctions that make people who violate these regulations not deterred from violating these regulations, but in the Mayor Regulation contains sanctions for those who break them, these sanctions contain: a) written warning, b) government coercion, c) suspension of business licenses; and / or d) temporary revocation of business license for every business actor and / or plastic supplier that violates the provisions.

From the provisions of Law Number 12 Year 2011 that only Perda may include sanctions at the regional or city level and mayoral regulations may not include sanctions in it, and with this Perda, the Semarang City Government can still impose sanctions on every business actor and / or plastic provider because Perda is statutory regulation while mayor regulation is not a statutory law. For this reason, the Semarang City Government needs to make a regional regulation to immediately coordinate with the Semarang City DPRD to make Semarang Mayor Regulation Number 27 of 2019 into a Regional Regulation. In the spirit of the common good, the author believes.

The regional regulation on controlling the use of plastics is expected that Semarang City can be clean from plastic waste and for violators of this regulation, sanctions can be imposed in order to have a deterrent effect on violators. Semarang Mayor Regulation Number 27 of 2019

concerning the control of plastic use should be made by a regional regulation on the city of Semarang as an umbrella for the Mayor Regulation in accordance with Law Number 12 of 2011 which governs the hierarchical arrangement of statutory regulations. If there is a regional regulation that encompasses it, the relevant agencies can impose sanctions on the violator. The Semarang City Government together with the Semarang City DPRD must immediately issue a regional regulation on Controlling the Use of Plastics, in order to realize the aspirations of the Semarang city government that is free of plastic waste.

## CONCLUSION

Semarang Mayor Regulation Number 27 of 2019 concerning the control of plastic use, in its implementation the Semarang City government conducts outreach to entrepreneurs or business owners of modern markets, restaurants or cafes and reaches the RT community through PKK, LMPK meetings. In addition, the Semarang City government issued a mayor's circular regarding the elimination of the use of plastic bags in modern stores such as Alfamart, Alfamidi & Indomaret and to support corporate companies also disseminate the regulation to the public. The mayoral regulation is ineffective due to the lack of socialization to the public and the public's lack of awareness of the use of plastic as a grocery bag and lack of supervision by the relevant agencies due to a lack of personnel and no strict sanctions for violating the Mayor's Regulation so there is no deterrent effect for violators. Whereas in Law Number 12 Year 2011, the hierarchical arrangement of statutory regulations is regulated as follows, the Constitution, TAP MPR, Law / PERPU, Government Regulations, Presidential Regulations, Provincial Regulations, Regency / City Regulations. Mayor Regulations are faced with Regulations. Regency / city area. In the hierarchy of statutory regulations, it is not stated and the Mayor's Regulation is not included in the hierarchy of statutory regulations. Semarang Mayor Regulation Number 27 of 2019 must harmonize the provisions of sanctions in the Mayor Regulation with the provisions in Law Number 12 of 2011 concerning the Formation of Legislation, regulations containing sanctions only laws or Perpu and Perda while the Mayor Regulation may not contain about the sanctions in it. The Semarang City Government can still impose sanctions on every business actor and / or plastic supplier because the Perda is a statutory regulation while the Mayor Regulation is not a statutory law. Semarang Mayor Regulation Number 27 of 2019 must harmonize the provisions of sanctions in the Mayor Regulation with the provisions in Law Number 12 of 2011 concerning the Formation of Legislation, regulations containing sanctions only laws or Perpu and Perda while the Mayor Regulation may not contain about the sanctions in it. The Semarang City Government can still impose sanctions on every business actor and / or plastic supplier because the Perda is a statutory regulation while the Mayor Regulation is not a statutory law. Semarang Mayor Regulation Number 27 of 2019 must harmonize the provisions of sanctions in the Mayor Regulation with the provisions in Law Number 12 of 2011 concerning the Formation of Legislation, regulations containing sanctions only Laws or Perpu and Perda while the Mayor Regulation may not contain about the sanctions in it. The Semarang City Government can still impose sanctions on every business actor and / or plastic supplier because the Perda is a statutory regulation while the Mayor Regulation is not a statutory law. regulations contain sanctions are only laws or Perpu and Perda while the Mayor's Regulations may not contain sanctions in them. The Semarang City Government can still impose sanctions on every business actor and / or plastic supplier because the Perda is a statutory regulation is not a statutory regulation while the Mayor Regulation is not a statutory regulation while the Mayor Regulation is not a statutory a statutory regulation while the Mayor Regulation is not a statutory law. regulations on every business actor and / or plastic supplier because the Perda is a statutory regulation while the Mayor Regulation is not a statutory law. regulations are only laws or Perpu and Perda while the Mayor's Regulations containing sanctions are only laws or Perpu and Perda while the Mayor's Regulations may not contain sanctions in them. The Semarang City Government can still impose sanctions on every business actor and / or plastic supplier because the Perda is a statutory regulation while the Mayor Regulation is not a statutory law. regulations may not contain sanctions in them. The Semarang City Government can still impose sanctions on every business actor and / or plastic supplier because the Perda is a statutory regulation while the Mayor Regulation is not a statutory law.

### REFERENCES

#### Book

Abdulka dir Muhammad, Law and Law Research, Citra Aditya, Bakti, Bandung 2004

Moch Nazir, Research Methods, Ghalia Indonesia, Jakarta, 2008

Peter Mahmud Marzuki, Introduction to Law, Kencana, Jakarta, 2008

Riduan Syahrani, Summary of the Digest of Legal Studies, Publisher Citra Aditya Bakti, Bandung, 1999

Soejono and H. Abdurahman., Legal Research Methods, Rineka Cipta, Jakarta, 2003 Journal

- Belian Anggun Septiani, Dian Mita Arianie, Via Fide Aditya Andi Risma, Widhi Hadayani,
  Istiarsi Saptuti Sri Kawuryan, Plastic Waste Management in Salatiga: Practices and
  Challenges, Journal of Environmental Science Volume 17 Issue 1 (2019): 90: 90,
  Environmental Science Study Program UNIP Postgraduate School, Semarang, 2018.
- Hasbullah, Taufik Ashar, Nurmaini, Analysis of Waste Management in the City of Subulussalam in 2017, JUMANTIK Journal Vol. 4 No. 2 June 2019 - November 2019, University of North Sumatra, Medan, 2019.
- Jatmiko Wahyudi, Hermain Teguh Prayitno, Arieyanti Dwi Astuti, Utilization of Plastic Waste as Raw Material for Making Alternative Fuels, Jurnal Litbang Vol. XIV, No.1 June 2018: 58-67, Pati Regency Regional Development Planning Agency, Pati, 2018.
- Muchammad Zamzami Elamin, Kartika Nuril Ilmi, Tsimaratut Tahrirah, Yudhi Ahmad Zarnuzi, Yanuar Citra Suci, Dwi Ragil Rahmawati, Rizky Kusumawardhani, Dimas Mahendra Dwi P., Rizqi Azizir Rohmawati, Pandhu Aji Bhagaskoro, Ismi Fuatjia Nasifa, "Analysis of Waste Management in Society Disanah Village, Sreseh District, Sampang Regency ", Journal of Environmental Health, Vol. 10, No.4, October 2018: 368-375, UNAIR, Surabaya, 2018,

Princess Patchouli Sari, Analysis of Solid Waste Management in Banuhampu District, Agam

Regency, Jurnal Health Andalas Community, Andalas University, Padang, 2016.

Reni Silvia Nasution, Various Ways of Handling Plastic Waste, Journal of

Islamic Science and Technology Vol. 1, No.1, June 2015, UIN Ar-Raniry,

Banda Aceh, 2015.

Pramiati Purwaningrum, Efforts to Reduce the Generation of Plastic Waste in the Environment, Journal of Environmental Engineering Vol 8 No.2, December 2016,

Trisakti University, 2016 Jakarta.

# Laws and Regulations

1945 Constitution of the Republic of Indonesia

Law No. 23/2014 on Regional Government

Law of the Republic of Indonesia Number 18 of 2008 concerning Waste Management.

 $Law\,Number\,12\,of\,2011\,concerning\,the\,Establishment\,of\,Legislation$ 

RI Government Regulation Number 81 of 2012 Concerning Waste Management and Similar Household Waste

Regional Regulation of Central Java Province Number 3 of 2014 Concerning Waste Management in Central Java

Semarang Mayor Regulation Number 27 of 2019 concerning Control of Plastic Use Interview

Anis Kartika Nigrum as Head of Sub Division of Evaluation and Financial Planning, Tembalang District, Semarang City, interviewed on June 29, 2020

Arry Susilowardani, as the Head of Pollution and Liquid Waste Control of the Environmental Service of Semarang City, Wawanvcara on June 30, 2020

Lucia Bekti, Personnel Staff of PT Sinar Pantia Djaja, Interview on 1 July 2020

Imsrinah who lives at Mugas Barat XI No. 25 Semarang, wawaancra on June 29, 2020

Internet:

https://jateng.tribunnews.com/2019/07/22/sehari-warga-semarang-hentuk-1300-ton-2-atau-3-tahun-lagi-tpa-jatibarang-penuh-ini-solusinya

http://news.unika.ac.id/2020/01/8-metode-menurut-pakar-untuk-peng Manajemen-sampahdi-kota-semarang/

https://news.okezone.com/read/2018/11/12/512/1976419/production-sampah-kotasemarang-dalam-sebulan-bisa-sebesar-candi-borobudur