

Plastic Waste Management: Comparison of Regional Legal Policies

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Abstract. The purpose of this study was to determine and analyze the legal policies for sustainable plastic management in the perspective of legal policies in the Gorontalo Province and Bali Province. The research employed a normative method with statute and comparative approaches. The result indicated that the Gorontalo Province Regional Regulation Number 3 of 2013 concerning Waste Management and the Bali Provincial Regulation Number 5 of 2011 concerning Waste Management have almost similar substance in terms of waste management. Based on the substance of the existing regulations, the law plays a real role in ensuring the realization of the social goals. Such an approach is implemented through waste management policy that applies a new paradigm that puts forward a sustainable environmental approach in order to preserve the ecosystem. In conclusion, the authors are of the view that the regional regulations in Gorontalo Province and Bali Province are adequate and sufficient means to establish a legal justification basis of waste management policy. Going forward, the monitoring of the implementation of these regulations are of paramount importance.

Keywords: Management, Plastic Waste, Legal Policies.

1 Introduction

Indonesia is recently labeled by the world as being in a state of plastic waste emergency, as indicated by a study conducted by Jenna R. Jambeck et al. from the University of Georgia. In 2010, it was estimated that 3.22 million metric tons of plastic waste are dumped into the sea in Indonesia and predicted to increase up to 7.42 million metric tons of plastic waste by 2025" [1]. It placed Indonesia in second place as a contributor to plastic waste pollution to the world sea. Likewise, four rivers in Indonesia are given the title of the top 20 rivers most contaminated with plastic waste in the world, as described in the following picture.



Fig. 1. Top Ranking Contributors of Plastic Waste in the World's Oceans [2]

In regional context, Gorontalo City, as the capital of Gorontalo Province, is also experiencing a notably similar condition.

"In 2017, it is estimated to produce 137.24 metric tons per day, which then increase to 139.84 metric tons per day in 2018 and 2019. It is further predicted to increase to 140.13 metric tons per day with the percentage of transported waste decreasing, namely in 2017 the percentage waste transported is 53.54 percent of the total daily volume of waste, while in 2019 it was only 49.6 percent." [3].

The volume of daily waste continues to surge, while in the same timeframe, the percentage of waste transported from year to year has decreased. The previous Central Bureau of Statistics data emphasizes an alarming problem of waste management in Gorontalo City, which will undoubtedly impact environmental quality degradation if left unsolved in the medium and long term.

Alongside Gorontalo City, Gorontalo Regency also experienced an increasing trend of annual waste production. In 2018, the potential output of household waste and other similar wastes in Regional Policies and Strategies in Waste Management (Jakstrada) showed "55,615 metric tons/year, in 2019 with 56,504 metric tons/year, 2020 at 57,408 metric tons/year and 2021 predicted 58,327 metric tons/year." [4]

Boalemo Regency also suffers from increasing production of waste. In 2018, it was estimated that there was 21.179 metric tons/year of waste production. Further, in 2019 and 2020 reached 21,603 metric tons/year and 22,035 metric tons/year, respectively, and in 2021, it is predicted to reach 22,475 metric tons/year." [5]

Similarly, the capital city of Bali Province, Denpasar, is also experiencing waste-related problems.

"In 2017, it was predicted that waste products will be at 3,657.2 metric tons per day, and increase to 4,103.7 metric tons per day in 2018, then show a downward trend in 2019 which is 3925.37 metric tons per day with the percentage of waste transported was 89.59 percent in 2017 and decreased in 2018 to 72.09 percent but rose again to 88.61 percent in 2019. [3]

It seems that the Province of Gorontalo and Bali are facing similar waste-related problems. However, in terms of percentage, the Province of Bali graphically appears to have better management despite the quantity of untransported plastic waste was still larger than the Province of Gorontalo. Therefore, it is interesting to observe the legal policies of these two regions in handling waste, especially plastic waste in the current era of disruption, which is reflected through regional regulations in their respective areas to create a better and livable environment.

The study of waste management legal policies through normative analysis by observing regional regulations is fascinating since "regional regulations are not just implementing regulations from the upper legislation, but they must be able to absorb and accommodate special regional conditions for regional independence (*zelfstandingheid*) and the aspirations of the local community." [6]. Therefore, in the regional regulations, strategic legal policies are described in solving related problems. Regional strategic policies, especially in the handling of plastic waste, must be legitimized in the form of regional regulations given that strategic policies are "written rules which are formal organizational decisions that bind the society to regulate behavior to create new values accompanied by the preparation of ways or methods to

achieve the goal.” [7]

The comparison between the rules that form the legal basis in the form of regional regulations in the jurisdiction of Gorontalo Province with regional regulations in the legal area of Bali Province is aimed at looking at the strategic policies of each region in managing plastic waste in the current era of disruption to perceive ways or efforts of each area to achieve the goal of forming a decent and livable environment for its residents, as mandated in the 1945 Constitution of the Republic of Indonesia Article 28H paragraph (1) which reads: “Everyone has the right to live in prosperity physically and mentally, have a place to live, and get a good and healthy living environment and have the right to obtain health services.”

2 Problem Statements

Based on this background, a problem arises: how is the legal policy for handling plastic waste in the perspective of legal policy in the Gorontalo and Bali provinces?

3 Method

The method of this research is the “statute approach method, which simply put, the research is focused on the study of all laws and regulations that are related to the legal issues/themes being studied.” [8]. This research also uses a comparative approach by “comparing to regional regulations to study the similarities and differences in the laws that apply in which the authors describe in the discussion to become later legal analysis material.” [8]

4 Discussion

4.1. Legal Policy for Handling Plastic Waste in The Perspective of Legal Policy in the Gorontalo and Bali Provinces

The increase in population is followed by the residents’ consumption patrons’ transfigurations, which triggers the rise of product capacity, variety, and diversity of waste forms. It should be recognized that the accumulation of waste, especially plastic waste as a remnant of daily human activities and the solid remnants form of natural processes, can harm the social, economic and environmental dimensions if improperly and unthoughtfully handled, “especially culturally. This era of disruption is instantaneous where the use of plastic materials is massive from the top to the bottom of the production and consumption chain.” [9]

Proper waste management, especially plastic waste, must start from the rule of law as a facilitator who bridges existing interests so that they are directed towards achieving the desired goals to create harmonization in social life, because in the process, “laws are formed in society as a means of life controller.” [10]

In Gorontalo province, the legal rules for managing waste are regulated in the Gorontalo Province Regional Regulation (Perda) Number 3 of 2013 [11] concerning waste management and then reiterated at the city and regency levels, starting with Gorontalo City through Gorontalo City Regional Regulation Number 12 of 2017 [12] concerning Waste Management, Bone Bolango Regency with Regional Regulation of Bone Bolango Regency Number 1 of 2015 [13] concerning Waste Management, then Pohuwato Regency with Regional Regulation of Pohuwato Regency Number 3 of 2016 [14] concerning Waste Management in Pohuwato Regency, then Boalemo Regency with Boalemo Regent Regulation (Perbup) Number 59 of 2018 regarding the Implementation Instructions for the Management of Household Waste and Similar Waste and Regent Regulation Number 60 of 2018 concerning Policies and Strategies of Boalemo Regency in Waste Management, then North Gorontalo Regency with Regional Regulation Number 6 of 2019 concerning Waste management and for Gorontalo Regency are regulated in Regent Regulation Number 53 of 2018 concerning Gorontalo Regency Policies and Strategies in Management of Household Waste and Similar Waste.

Bali Province has a Regional Regulation Number 5 of 2011 [15], which concerning waste management and as a derivative of the Provincial Regulation, this research focuses on Denpasar City as the provincial capital as well as the center of Bali tourism, which has Regional Regulation Number 3 of 2015 concerning Waste Management and Tabanan Regency which has “the second largest administrative area in Bali Province and its location is directly adjacent to the Indian Ocean and is a popular tourist destination for Bali Province” [16] has Regional Regulation No. 6 of 2013 regarding the Management of Household Waste and Similar Waste.

The results of the search and comparison carried out by the authors at the level of Provincial Regulations, in outline between the Regional Regulation (Perda) of the Province of Gorontalo Number 3 of 2013 [11] concerning waste management and the Regional Regulation

of the Province of Bali Number 5 of 2011 [15] concerning Waste Management, article by article has substance which is almost the same in terms of waste management, only then adjusted to regional conditions as described in Article 24 of the Gorontalo Provincial Regulation Number 3 of 2013 [11] concerning waste management and Article 13 of the Bali Provincial Regulation Number 5 of 2011 [15] concerning Waste Management, where the waste management is defined as “a series of efforts which include sorting, collecting, transporting, processing and final processing.”

Intriguingly, in Article 17, paragraph (3), the second part of Waste Management paragraph 1 of the Bali Provincial Regulation Number 5 of 2011 [15] concerning Waste Management, there is a regulation regarding the authority of the city/regency government to establish a particular institution for waste management.

The next difference is in Chapter VI Waste Handling Article 10 paragraph (2) of the Gorontalo Provincial Regulation Number 3 of 2013 concerning waste management where the sorting is grouped into three groups, namely

- a. “household waste;
- b. household waste; and
- c. specific waste.”

While Article 19 paragraph (2) of the Bali Provincial Regulation Number 5 of 2011 concerning [15] Waste Management, waste sorting activities are divided into five groups, namely:

- a. “waste containing hazardous and toxic materials and waste of hazardous and toxic materials;
- b. biodegradable waste;
- c. reusable waste;
- d. recyclable waste, and;
- e. other trash.”

In terms of grouping, the legal regulation level of Gorontalo Province is not as specific as the legal regulation at the Bali Province level in sorting waste. This waste sorting specification only appears in the Regional Regulation at the Regency/City level, which details specific waste as stated in Article 2 paragraph (4) of the Regency Regulation. Bone Bolango Number 1 of 2015 [13] concerning Waste Management and Article 40 of the Regional Regulation of Pohuwato Regency Number 6 of 2019 concerning Waste Management, namely:

- a. “waste containing hazardous and toxic materials;
- b. waste containing dangerous and toxic waste;
- c. waste arising from disasters;
- d. building debris;
- e. Technologically unprocessed waste; and
- f. Garbage that does not arise periodically.”

Furthermore, Article 4 paragraph (4) of the Gorontalo City Regulation Number 12 of 2017 [12] concerning Waste Management details specific waste as building blocks.

The attraction of the Gorontalo Provincial Regulation Number 3 of 2013 concerning waste management is that the community must separate waste independently, wherein Article 10 of the Gorontalo Provincial Regulation Number 3 of 2013 [11] concerning waste management contains “Everyone is obliged to sort household waste, similar waste, household waste, and specific waste safely for health and the environment from upstream to downstream.” Meanwhile, in Bali Province, there are no provisions regarding this independent community segregation of waste when referring to the provincial regulations.

The regulation regarding independent sorting is only found in Article 19 paragraph (1) letter C of the Tabanan Regency Regional Regulation Number 6 of 2013 [17] concerning Management of Household Waste and Household-Like Waste which emphasizes “everyone is obliged to sort and distribute organic waste,” further also Article 18 paragraph (2) letter a of the Denpasar City Regulation Number 3 of 2015 [18] concerning Waste Management which reads “everyone at the source carries out waste segregation.”

In regard to cross-regency/city waste processing, Article 1 Number 22 of the Bali Provincial Regulation Number 5 of 2011 [15] concerning Waste Management has concretely explained the existence of a Regional Final Processing Site (in known as TPA in Indonesian), which is intended “to process and return the waste to natural medium safely for life and habitat across cities and regencies and is authorized to manage them with the facilitation of the Governor.” In Gorontalo, Article 13 of the Gorontalo Provincial Regulation Number 3 of 2013 concerning waste management has not explicitly mentioned the presence of a regional final processing site but, “The provincial government in cross-regional waste processing can provide waste processing facilities and infrastructure that are safe for health and the environment.”

Gorontalo Province, through Article 33 of the Gorontalo Provincial Regulation Number 3 of 2013 concerning waste management, also clearly describes the coaching program in terms

of waste management, including:

- a. Socialization and dissemination of laws and regulations related to waste management
- b. Education and training for regency/city government officials in waste reduction
- c. Construction of a pilot project of waste management program

The regulation regarding the guidance program in terms of waste management in the Province of Bali is reflected in Article 34 and Article 35 of the Tabanan Regency Regional Regulation Number 6 of 2013 [17] concerning the Management of Household Waste and Waste Similar in Nature and Composition to Household Waste, with the similar substance of the arrangement.

Based on this comparison and also the results of the authors' study of regional regulations related to waste management in Gorontalo Province and Bali Province, the authors' view that based on the substance of existing regulations, the law plays its real function. As in Podgorecki's thought that through the "petrification function where the law performs a selection of patterns of human behavior to achieve social goals and a reduction function that selects different human attitudes in a complex society so that they suit the needs of the community," [19]. This idea is illustrated through proper waste management in regional regulations. It is began to be directed to a new paradigm that puts forward a sustainable environmental approach to preserve ecosystems by "providing obligations to all components of society in protecting the constellation of the living environment and the community environment so that it is hoped that a better way of thinking will be realized in seeing the environment itself." [20]

Waste, especially plastic waste, is currently only seen as a residue that has no value and only has negative impacts on life. Thus, through regulations at the regional level, the law manipulates the position of waste in the minds of the wider community. This is in line with the thoughts of Mochtar Kusumaatmadja, who stated that " Law in Indonesia is not enough to act as a tool but also as a means of community renewal" [21]. In this perspective, waste, especially plastic waste, has begun to be directed and leveled up to become something with economic value and is also friendly to the environment. This is also reflected through the principle that the regional regulations of the two provinces are adopted, which emphasize the principle of responsibility, the principle of sustainability, the principle of benefit, the principle of justice, the principle of awareness, the principle of togetherness, the principle of safety, the principle of security, and the principle of economic value.

In line with this, Hettiaratchi said that "the view of waste management mustbe shifted from being reactive to being proactive, by using a holistic approach that introduces that waste as a resource rather than a responsibility." [22]. Moreover, based on the research of Rizqi Puteri Mahyudin and her team, "reducing waste by recycling has the potential for large amounts and economic value." [23]

Besides functioning to regulate, law also functions to motivate and educate the people so that they can behave in accordance with the values of life and has a progressive view in maintaining ecosystem sustainability. Regional regulations in Gorontalo Province and Bali Province in the field of waste management legitimize that legal products are able to give an impression and even modify the people's lives. As the theory by Roscoe Pound said, "law is a means of social engineering in order to achieve justice, legal certainty, order, the benefits, and objectives of the formation of the law itself." [24]

Waste handling activities include sorting, collecting, transporting, processing, and final processing, are comprehensive prevalence in building a sustainable environmental existence. The current waste management approach has only focused on final processing, whose cycle is carried out at the final processing site. Through these regional regulations, waste management has been carried out from the source by every person or legal entity to create a chain effect, namely reducing waste through reduce, recycle, and reuse waste activities.

The existence of rules regarding the community's obligation to sort waste is also a very useful resolution. The sorting that the community does for the waste they produce will certainly streamline the process of handling waste. As a result, there is no waste accumulation in the final processing sites, and the process of processing waste at the sites could be sped up in order to reduce the further impact of the landfill in the form of "by-products of methane gas which is not good for the environment because it creates the effect of greenhouse gas emissions, where these emissions have an impact on global warming and leachate which affects the properties of underground water," [25]. Moreover, the pile of garbage in large quantities could cause unpleasant odors, scattered garbage, and slum environment. This condition is clearly not good for the health of residents around the final sites.

Waste management regulations, especially in terms of waste management, have reversed the current pyramid of thinking. In the past, the flow of waste handling was from the landfill, then it was recycled and reused. However, in the present era, the sequence of waste handling consists of prevention, limitation, reuse, material recycling, energy recycling, and finally processed at the final processing site. According to the Ministry of Environment of the

Republic of Indonesia, this idea is the best option as illustrated in the following figure:



On the other hand, the resolution presented by this legal provision also increases community participation in waste management, which has been the responsibility of the local government alone, considering that "community participation is the main element in preserving and maintaining the quality of the environment." [27]

Lawrence M. Friedman's theory asserted that "the legal system consists of a sub-system of legal substance, a sub-system of legal structure and a sub-system of legal culture." [28]. According to this theory, the author view that in legal substance, the regional regulations in Gorontalo Province and Bali Province in terms of waste management are adequate and sufficient to answer the legal problem as happened in several regions in Indonesia. The problem is that "the lack of adequate legal regulations that regulate community participation in waste management." [29]. In the author's view, both local regulations on waste management in Gorontalo Province and Bali Province have adopted the polluter pays principles concept. This principal concept has been adopted into Article 87 of Law Number 32 of 2009 [30] concerning Protection and Management Environment, which states that "in its principle, the concept of green legislation in every formulation of regulations must pay attention to the environment that has been synergized at the national and regional regulatory levels in the form of incentive, disincentive and compensation policies." [31]

It is interesting to conduct a further study regarding the contribution of the legal structure and the role of legal culture in optimizing the handling of plastic waste in the era of disruption which is viewed from the perspective of legal policy in the region. This relates to the "environmental issues and their management itself demands the role of the government, legislators, law enforcers, and the community as citizens." [32]. Nonetheless, the observation and measurement on the effectiveness of the implementation and implications of legal substance in people's lives still require further and more comprehensive studies in subsequent studies.

5 Conclusion

In general, the Gorontalo Provincial Regulation Number 3 of 2013 concerning waste management and the Bali Provincial Regulation Number 5 of 2011 concerning Waste Management, looking in article by article, have similar substances in terms of waste handling; it is only adjusted to regional conditions. In essence, the existing legal regulations have carried out their function to change society through waste management, especially plastic waste. These regional regulations began to be directed to a new paradigm that puts forward a sustainable environmental approach to preserve ecosystems. In terms of legal substance, the authors view that the regional regulations in Gorontalo Province and Bali Province in terms of waste management are adequate and sufficient to answer legal problems; it is just a matter of the implementation and implications in real life in society.

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