

Plastic Waste Reduction Policy Model based on Sustainable Development Principles in Sultan Ageng Tirtayasa University

Ferina Ardhi Cahyani

Faculty of Law, Universitas Sultan Ageng Tirtayasa
Jl. Raya Palka KM. 03 Sindangsari Pabuaran Kab. Serang
email: ferinaac@untirta.ac.id

Nurikah

Faculty of Law, Universitas Sultan Ageng Tirtayasa
Jl. Raya Palka KM. 03 Sindangsari Pabuaran Kab. Serang

DOI: <http://dx.doi.org/10.51825/nhk.v5i1.14386>

Article Info:

| Submitted: 4 March 2022

| Revised: 13 June 2022

| Accepted: 14 June 2022

Recommended Citation: *Chicago Manual of Style 17th edition (full note)*

Ferina Ardhi Cahyani, Nurikah, "Plastic Waste Reduction Policy Model based on Sustainable Development Principles in Sultan Ageng Tirtayasa University", *Jurnal Nurani Hukum : Jurnal Ilmu Hukum*, Vol. 5 No. 1, (June, 2022)", P.72-83

ABSTRACT

Plastic is a part of human life. Plastic packaging dominates the packaging market share in the world, replacing cans and glass packaging. Plastic is used because it is an inexpensive material, not easily weathered, lightweight, and anti-rust. Human activities cannot be separated from the use of plastics, but the increasing use of plastic results in increased pollution of land and even oceans. This also certainly affects the world's ecosystem. Because of the dangers of plastic for the environment, the government has begun to aggressively create programs and policies aimed at educating the public about the impact of plastic consumption and its dangers on the environment. It also aims to change people's culture of using single-use plastics. Not only the government, but at the university policy level it is also necessary to make policies regarding the restrictions on the use of single-use plastics. This study uses an empirical juridical research method that uses a juridical approach by analyzing primary data in the form of interviews and secondary data derived from primary legal materials. The purpose of this study was to determine the policy of reducing single-use plastic waste in the Sultan Ageng Tirtayasa University environment. These policies will be reviewed based on the principles of sustainable development or sustainable development which balances four aspects, namely economic, social, environment and law aspects.

Keyword: *plastic waste, policy, sustainable development*

ABSTRAK

Plastik merupakan bagian dari kehidupan manusia. Kemasan plastik mendominasi pangsa pasar kemasan di dunia menggantikan kemasan kaleng dan gelas. Plastik dipakai karena bahan yang tidak mahal, tidak mudah lapuk, ringan, dan anti karat. Kegiatan manusia tidak dapat dilepaskan dari penggunaan plastik, namun meningkatnya penggunaan plastik berakibat pada bertambahnya polusi daratan bahkan lautan. Hal tersebut juga tentunya berpengaruh pada ekosistem dunia. Karena bahayanya plastik bagi lingkungan, pemerintah mulai gencar membuat program serta kebijakan yang bertujuan untuk mengedukasi masyarakat mengenai dampak konsumsi plastik serta bahayanya bagi lingkungan. Hal tersebut juga bertujuan untuk mengubah budaya masyarakat akan penggunaan plastik sekali pakai. Bukan hanya pemerintah, namun pada tingkat kebijakan universitas juga perlu dibuat kebijakan mengenai pembatasan penggunaan plastik sekali pakai. Penelitian ini menggunakan metode penelitian yuridis empiris yang menggunakan pendekatan yuridis dengan melakukan analisis terhadap data primer berupa wawancara dan data sekunder yang berasal dari bahan hukum primer. Tujuan penelitian ini adalah untuk mengetahui kebijakan pengurangan sampah plastik sekali pakai di lingkungan Universitas Sultan Ageng Tirtayasa. Kebijakan tersebut akan dikaji berdasarkan prinsip sustainable development atau pembangunan berkelanjutan yang menyeimbangkan tiga aspek yaitu aspek ekonomi, sosial, dan lingkungan.

Kata Kunci: *sampah plastik, kebijakan, sustainable development*

Introduction

The consumption pattern of the population in Indonesia has changed to ready-to-eat products and packaged drinks (ready to drink). The results of the National Socio-Economic Survey (Susenas) conducted in 2017 stated that the average monthly per capita expenditure on processed food continued to increase from 2016 to 2018 with an increase of 41.39%¹.

This is supported by the availability of these products in minimarkets that are easily accessible, even applications on cell phones in the form of an online motorcycle taxi application. This consumption habit can result in waste generation, especially plastic waste produced by eating utensils, straws, plastic wrapping, and even drinking water bottles.

Plastic is a part of human life. Plastic packaging dominates the packaging market share in the world, replacing cans and glass packaging. Plastic is used because it is an inexpensive material, not easily weathered, lightweight, and anti-rust².

Plastic packaging that dominates the food industry in Indonesia with the number of flexible plastic packaging is 80%. This flexible plastic packaging is widely used for food packaging, while rigid plastic packaging is widely used for beverage packaging³. Human activities

cannot be separated from the use of plastics, but the increasing use of plastic results in increased pollution of land and even oceans. This also certainly affects the world's ecosystem⁴. Piles of plastic waste can damage the environment because plastic is non-biodegradable⁵.

Based on data compiled from the Ministry of Environment and Forestry, 80% of waste disposed of into the sea comes from the land and 90% of it is plastic waste⁶. Plastics are part of waste. According to its characteristics, waste consists of liquid waste, gas /particle waste, solid waste and hazardous and toxic waste (B3). Data from the 2017 Environmental Statistics (2017) shows that solid waste or better known as waste is the most abundant waste in the environment⁷.

The increase in the volume of plastic waste is influenced by the increase in population. The total population of Indonesia in 2017 reached 261.89 million, this number has increased compared to 2000, which was 206.26 million people⁸. Apart from being influenced by population growth, it is also influenced by industrial development, urbanization, and modernization.

Apart from the factors above, based on Law Number 18 Year 2008 concerning Waste Management, it is stated that population growth and consumption patterns have an effect on

¹ Badan Pusat Statistik Indonesia, *Statistik Sumber Daya Laut Dan Pesisir Sampah Laut Indonesia 2019*, 2019.

² Richard C. Thompson et al., "Plastics, the Environment and Human Health: Current Consensus and Future Trends," *Philosophical Transactions of the Royal Society B: Biological Sciences* 364, no. 1526 (2009): 2153-66, <https://doi.org/10.1098/rstb.2009.0053>.

³ Reni Silvia Nasution, "Berbagai Cara Penanggulangan Limbah Plastik," *Journal of Islamic Science and Technology* 1, no. 1 (2015): 97-104.

⁴ Siti Qonaah, "Strategy Kampanye Gerakan #BijakBerplastik PT Danone Aqua Dalam Merayakan Hari Lingkungan Hidup Sedunia 2018," *Jurnal Komunikasi* 10, no. 1 (2019): 48-55, <https://doi.org/10.31294/jkom.v10i1.5182>.

⁵ Asia and Muh Arifin Zainul, "Dampak Sampah Plastik Bagi Ekosistem Laut," *Buletin Matric* 14, no. 1 (2017): 44-48.

⁶ Sri Nurhayati Qodriyatun, "Sampah Plastik: Dampaknya Terhadap Pariwisata Dan Solusi," *Info Singkat, Pusat Penelitian Badan Keahlian DPR RI*, 10, no. 23 (2018): 13-18.

⁷ Badan Pusat Statistik, "Statistik Lingkungan Hidup Indonesia Environment Statistic of Indonesia 2017," *Badan Pusat Statistik* 91, no. 1 (2017): 186-89.

⁸ Badan Pusat Statistik, *Statistik Lingkungan Hidup Indonesia (SLHI) 2018*, ed. Subdirektorat Statistik Lingkungan Hidup, *Badan Pusat Statistik/BPS-Statistics Indonesia* (Badan Pusat Statistik/BPS-Statistics Indonesia, 2018), <https://doi.org/3305001>.

increasing the volume, types and characteristics of increasingly diverse waste. Data adapted from the Indonesian Central Bureau of Statistics states that waste generation also increases every year. In 2019 it is estimated at 67.1 million tons and an increase compared to 2018 (Badan Pusat Statistik Indonesia, 2018). This cannot be denied, where there is a large population, the more waste will be produced.

Because of the dangers of plastic for the environment, the government has begun to aggressively create programs and policies aimed at educating the public about the impact of plastic consumption and its dangers on the environment. It also aims to change people's culture of using single-use plastics.

Policy lies not only with the central government, but also at the university level as part of the academic field which has a role for the surrounding community as well. Seeing that there are still many academics and students using single-use plastics, a policy is needed to suppress this use along with additional solutions.

Moreover, this policy has been implemented at the main ministry level, namely the Ministry of Education and Culture. Restrictions on the use of plastic media must be applied to student activities, meetings, seminars and other activities in the Untirta environment. This policy needs to consider the principles of sustainable development, where these principles balance three important aspects, namely economic, social, and environmental to match Untirta's vision, namely Green Campus.

Methodology

The data collection technique in this study is based on the type of data, namely by using two data collection techniques. First is the technique of collecting data through interviews with parties related to the research theme, then

field observations and documented in the form of research reports and published in scientific journals. In addition, secondary data is in the form of primary legal materials, namely statutory regulations and secondary legal materials, namely books, journals, data related to tourism as study material for primary data analysis in research and classified so that it is clear the relevance of literature to data in the field based on field observations. documented.

This research is classified as a descriptive analysis research with a qualitative approach, namely the research approach using primary data based on purposive sampling by paying attention to the representative elements of the research object. and secondary data as part of a literature review to support research analysis which is then described qualitatively to provide an understanding of the policy model for reducing single-use plastic waste in the Untirta environment.

Discussion

The purpose of this study was to determine whether or not there is a policy regarding the reduction of single-use plastic waste in the Sultan Ageng Tirtayasa University environment. If there is no, this research will examine how the policy model should be based on the principles of sustainable development or sustainable development which balances three aspects, namely economic, social and environmental aspects.

The benefit of the research carried out is the creation of a policy model to reduce the generation of plastic waste generated in the Sultan Ageng Tirtayasa University environment. If this policy has been implemented, it can be seen the level of awareness of the academic community at Sultan Ageng Tirtayasa University in protecting the environment by playing a role in reducing plastic waste.

The role that can be performed is the willingness to bring eating and drinking utensils reusable, reducing the use of single-use plastic products in activities held at Sultan Ageng Tirtayasa University, and other roles. According to Law Number 18 Year 2008 concerning Solid Waste Management, garbage is a national problem that comes from problems with population growth and consumption patterns.

Waste has become a national problem, so its management needs to be carried out comprehensively and integratedly from upstream to downstream so that it provides economic benefits, is healthy for the community, is safe for the environment, and can change people's behaviour.

The results achieved until this progress report is written will be described as follows. It should be noted beforehand, that the research team made and distributed questionnaires in the research process to the academic community of Sultan Ageng Tirtayasa University.

The academic community consists of lecturers, students, and educational staff. The questionnaire contains questions that support this research. However, based on the data the researchers got, the following is a description of the research results.

Starting with a question about knowledge about sorting waste, from 35 respondents consisting of lecturers and educational staff, 71% are employees who have worked at Sultan Ageng Tirtayasa University for more than ten years. A larger percentage was obtained from student respondents, from 43 respondents, 95.3% of them knew about waste sorting.

Almost all respondents know about waste sorting. Waste sorting is quite crucial because if the waste is not

sorted, it will be difficult to recycle. This buildup usually occurs in landfills or landfills. Apart from being unsightly to the eye, the accumulation of garbage will also pollute the surrounding environment. Unlike the number of respondents who know how to sort waste, there are several units at Sultan Ageng Tirtayasa University that do not have a special trash can that separates organic waste and inorganic waste.

Movements and calls for limiting the use of single-use plastic waste have been increasingly held in recent years, however, 57% of the 35 respondents have never participated in these activities. Meanwhile, 51% of the student respondents had participated in the socialization regarding the limitation of single-use plastic waste.

There are many factors why this is done, data from the Ministry of Marine Affairs and Fisheries, for example, states that in 2030 it is predicted that the amount of plastic will be more than the number of fish in the sea. This happens because currently a lot of plastic waste is dumped into the sea. Throwing plastic waste into the sea is not a solution, but rather creates a new problem. Problems that will arise not only for more than 800 species of marine life⁹, but will return to humans themselves.

This movement to protect the environment from the bad effects of plastic waste can also be carried out in an academic environment such as a campus, for example. Why? because there are many agents of change on campus. Not only that, the habit of always protecting the environment can also be carried out by the academic community other than students, namely lecturers and education staff.

The more individuals who do good habits by reducing or at least separating organic waste and inorganic

⁹ Kementerian PPN/Bappenas, "Apa Itu SDGs?," 2020.

waste produced, the greater the positive impact that will be generated. Such as the willingness to bring eating and drinking utensils reusable, has been carried out by 60% of respondents from lecturers and education staff and 81% from students.

However, this number can still change because the numbers do not reflect the representation of the academic community. In connection with the awareness to bring cutlery set and tumbler, reusable it turns out facilities that support the reduction of the use of disposable plastic products have been inadequate.

One of the things that can be emulated from the Faculty of Law, University of Indonesia, when research members attended the International Seminar on the Ten Years of Law Number 32 of 2009 concerning Environmental Protection and Management (UUPPLH) in August 2019 was that the committee did not provide mineral water or drinks. other types in packaging. How can this be done even when setting the agenda on an international level?

The answer is because supporting facilities are available. Participants who have received notification via e-mail (one week before the event) about the suggestion to bring personal drinking bottles can refill the drinking bottles through the dispenser that has been provided. The dispenser is not only provided when a certain agenda is held, but is available every day.

The use of single-use plastic products is still on most of the agenda, meetings for example. Usually, in a snack box provided at a meeting there are at least one or two of the three types of snacks wrapped in plastic. Likewise with bottled drinking water which is also in plastic bottles or cups plus a plastic straw too.

The use of how to serve snacks at a meeting by serving on a plate and using a glass cup can still be counted. Research members have encountered a presentation this way about three times in a span of two years. In fact, the more participants in the meeting, the more plastic waste will be generated. Sultan Ageng Tirtayasa University has a vision and mission for the years 2019-2023, namely:

1) *The Vision*

Realization of Untirta as an Integrated Smart and Green (It'S Green) University which is superior, has character and competitiveness, in the ASEAN region in 2030.

2) *Mission*

- a) Improve the quality, relevance and competitiveness of education as well as graduates who are superior, have character and are competitive in the ASEAN region
- b) Improve the quality and quantity of research and innovative community service based on real needs according to the times
- c) Increasing the carrying capacity of good higher education governance as an implementation of the Integrated Smart and Green (It'S Green) University.

Having a vision and mission as an Integrated Smart and Green (It'S Green) University is a commitment from Sultan Ageng Tirtayasa University to play a role in environmental conservation. Green is not only related to green campus with lots of beautiful trees, but also other elements in the environment, including waste management, especially plastic waste.

There is a new vision and mission that makes Sultan Ageng Tirtayasa University have to adjust to making new policies that support the implementation of this vision and mission. The vision and mission raised by Sultan Ageng Tirtayasa

University are in line with the principles of sustainable development or sustainable development. Sustainable development is a conscious and planned effort that integrates environmental, social and economic aspects into a development strategy to ensure environmental integrity and safety, capability, welfare, and quality of life for present and future generations (Article 1 number 3 Law Number 32 of 2009 concerning Environmental Protection and Management).

The vision and mission of Sultan Ageng Tirtayasa University which is visionary above can be implemented in many stages. At the initial stage, this can be done by making policies that support the vision and mission.

Interviews conducted by the author on Wednesday, November 11, 2020 to several academics at the Sultan Ageng Tirtayasa University regarding some habits to reduce the use of single-use plastics, obtained mixed results. Questions are limited to the scope of knowledge about sorting waste, willingness to bring reusable drinking bottles, and reusable utensils. First, the results obtained from the students who were interviewed did not bring a drinking bottle.

Results can be different when students take part in teaching and learning activities as in normal conditions, because during interviews teaching and learning activities are carried out online due to the Covid-19 pandemic.

Currently, only students who are allowed to go to campus have an interest in the preparation of a thesis or final project. Several students answered that if they did not bring a reusable drinking bottle, it would be troublesome.

Apart from having to bring the empty bottles back home or to the boarding house, they also worry about how to refill them if the water in the bottle runs out. Because currently there are not

yet drinking water refill facilities in all buildings, especially buildings that are the center of teaching and learning activities such as Building A, Pakupatan Campus.

However, there were also students who often brought reusable drinking bottles. One reason is that it can save pocket money. In addition, they also think that they know better about the quality of drinking water in their homes so that it is healthier and more secure.

The assumption that buying drinking water in disposable plastic packaging is easier and cheaper is also the reason why students do not bring reusable bottles. When associated with waste sorting, they know about how to separate trash bins for organic and inorganic waste.

They even know about waste sorting which has been taught since elementary school, but has not been implemented at this time. In fact, the three types of bins provided by the university contain the majority of plastic waste.

Reluctance to bring reusable cutlery also occurs. Re-washing cutlery after use is the reason why they are reluctant to bring reused cutlery. In fact, one of them realized that there was no guarantee of cleanliness to use the cutlery provided by the food seller in the canteen.

In addition, students also knew about environmental damage when using disposable plastic dishes. The reason is only one, do not want to be complicated by re-washing cutlery. This knowledge and awareness for some students of the Faculty of Law is obtained through courses in Environmental Law and the *Capita Selecta* of Environmental Law.

As a teacher in the *Capita Selecta* Environmental Law course, before the Covid-19 pandemic occurred, to be precise in the first week of the Odd Semester of the 2019-2020 Academic Year, the author once appealed to students to start bringing reusable drinking bottles.

This started with the large number of bottles of drinking water in disposable bottles when class was over, even though the classrooms would still be reused by other classes. As a result, changes began to be seen after the third week and continued to increase in the following weeks by checking before giving material and discussion.

Second, interviews were conducted with educational staff respondents. Researchers conducted interviews with staff at the Faculty of Law, Sultan Ageng Tirtayasa University. The results obtained are the staff who on the day of the interview get a shift to work from the office, most of them do not bring drinking bottles or reusable utensils.

Starting from forgetting to bring, being lazy because you have to cook first, to being practical because buying bottled drinking water is considered easier and more efficient. Whereas in reality, compared to students who have difficulty refilling drinking bottles, it is easier for staff to refill because there is a water dispenser in each section (academic and general).

A small proportion of staff who brought reusable drinking bottles said that saving money was one of the reasons why they brought reusable drinking bottles. If one drinking bottle containing 600 millilitres can be consumed for approximately three hours and working hours start at 08.00-16.00 or for eight hours, then it is refilled approximately 3-4 times, so as to save on purchasing drinking water in plastic bottles once use with an average price of Rp3,000.00, - or Rp12,000.00, - if multiplied by four bottles.

The habit of bringing reusable cutlery is not optimal either. The reason that arises is the fear that the cutlery is left behind and is considered a hassle. When the break time arrives, apart from buying food at the canteen, the staff occasionally orders food via a delivery service. Food that has disposable cutlery is the reason

why they don't bring their own cutlery. In fact, apart from waste from disposable cutlery, there are other types of waste produced, namely food wrappers, plastic bags, and plastic straws.

Third, interviews conducted with the last academic community, namely lecturers, resulted in several varied responses. For first responders, bringing a reusable drinking bottle is considered practical, because it can be easily refilled.

The second respondent said that the unwillingness to bring reusable drinking bottles was due to the fact that carrying bottles was considered a complicated and troublesome matter. The desire to live practically is also a reason. If we look at the availability of facilities, the means of refilling drinking water in the form of a dispenser is sufficient because there are three dispensers in one two-story building.

Reusable cutlery, which is a natural thing to carry during the pandemic, has also been implemented by several lecturers. In fact, some of them brought food supplies at once. This is because the food that is cooked and brought from home is more hygienic. But on the other hand, using cutlery that has been provided by food vendors is considered effective and efficient, so there is no need to bring reusable cutlery by yourself.

Waste sorting is the next question in the interview conducted by the author. Most of the respondents answered that waste can be divided into two, namely organic and inorganic, as well as the place of disposal. Based on data collected from the Instagram page of the National Coordinating Team for Marine Waste Management (@tkn_psl), waste is divided into three (3) types, namely organic waste, inorganic waste, and B3 waste.



Figure 1. Types of waste
Source: National Coordinating Team for Marine Debris Management.

Based on the picture above, the color in the trash shows the designation for different types of waste. Organic waste is natural waste that can be biodegradable, such as fruit, leaves, and food scraps. Inorganic waste is waste produced from materials that are difficult to biodegrade.

The process of destroying inorganic waste requires special equipment. Plastics, Styrofoam, and cans are examples of inorganic waste. The third type of waste is B3 waste or hazardous and toxic materials. B3 in Article 1 number 21 of Law Number 32 Year 2009 concerning Environmental Protection and Management are substances, energy, and / or other components which due to their nature, concentration and / or amount, either directly or indirectly, can contaminate and / or damage the environment, and / or endanger the environment, health, and the survival of humans and other living creatures.

Glass, chemicals, and medical waste are included in this type of waste. Medical masks are one of the types of medical waste produced during the Covid-19 pandemic. The trash cans provided in the Sultan Ageng Tirtayasa University environment are in

accordance with the types and colors of differentiation, namely green, yellow, and red as follows:



Figure 2. The trash can next to the basketball court on the Untirta Pakupatan campus.
Source: Personal photo of the researcher.

However, on closer inspection, the B3 trash can which has a red color does not yet have the label "B3" and still has the words "organic" written on it, even though it has been repainted with the color of the B3 trash can. This was found not only in one place, but also in other places as follows:



Figure 3. Trash cans across from Building C Postgraduate, Untirta Pakupatan Campus.
Source: Researcher's personal photo.

Waste bin facilities with special labels have not become a solution to the problem of sorting waste. There are still many academicians who throw garbage out of place. Such as disposing of plastic

bag and Styrofoam food wrappers in organic trash.



Figure 4. Disposing of trash does not comply with the trash bin label provided
Source: Personal photo of the researcher.

The pictures above shows that awareness and willingness to sort waste is still low. As a university that aspires to become a Green University, the entire academic community should also support the realization of this vision starting from small things first such as sorting out the waste produced. However, the campus should also separate the waste generated into temporary shelters which are also separated based on the type of waste.

Waste management upstream will have an impact on waste management downstream. The waste problem is one of the seventeen goals to be achieved in Sustainable Development or sustainable development. Sustainable Development is the 2030 Agenda for Sustainable Development (the 2030 Agenda for Sustainable Development or SDGs) which is a new development agreement that encourages changes to shift towards sustainable development based on human rights and equality to promote social, economic and environmental development.

The SDGs Achievement Report 2019¹⁰ shows that waste management in urban areas is still low in applying the principle of reducing waste. In addition,

the availability of waste management sites is reduced, reuse, recycle (TPS 3R) also lacking. The report on the Achievement of the 2019 SDGs goal 12 (responsible consumption and production) targets the recycling of 61.5 million tonnes of waste generation, but what has been achieved is 8.02 million tonnes.

Sultan Ageng Tirtayasa University as one of the upstream producers of waste both organic, inorganic and B3 is expected to have an adequate waste management system. Sorting waste and limiting the use of single-use plastics are the first steps to reduce the amount of waste generation. Sustainable development basically has 4 (four) pillars, namely the pillar of social development, the pillar of economic development, the pillar of environmental development, and the pillar of legal development and governance. Each pillar needs to be applied in making a policy that supports 17 (seventeen) sustainable development goals.

In terms of reducing plastic waste, it is related to the twelfth goal of responsible consumption and production, but that does not mean that it is not related to other goals. The thirteenth goal, addressing climate change, also needs to be considered, because the more unmanaged waste is generated, the greater the impact on climate change.

The fourteenth (oceanic ecosystem) and fifteenth (terrestrial ecosystem) goals are also goals that will be affected by the results if waste is not managed, let alone plastic waste. This is because 24-34 million metric tons or 11 percent of the total plastic waste in the

¹⁰ Kementerian Kelautan dan Perikanan, "Pimpin Bersih Pantai Di 108 Titik Di Indonesia,

Menteri Susi Ajak Masyarakat Boikot Plastik Sekali Pakai _ KKP News," 2019.

world enters the sea every year ¹¹ and the rest, if not managed, will have an impact on terrestrial ecosystems. So that the policy of limiting the use of single-use plastics at Sultan Ageng Tirtayasa University must consider the principles of sustainable development.

Sultan Ageng Tirtayasa University has a vision for the realization of Untirta as an Integrated Smart and Green (It'S Green) University that is superior, characterized and competitive, in the ASEAN region in 2030. Quoted from the UI Green Metric Guide ¹² to measure the level of sustainability at the university, it is carried out by see programs and policies that are owned.

The categories used are:

- a. arrangement and infrastructure,
- b. energy and climate change,
- c. waste,
- d. water,
- e. transportation, and
- f. education and research.

The waste recycling program generated by the campus is an indicator for measuring waste. In addition, efforts to reduce the use of paper and plastic in the campus environment are also an indicator.

At the University of Indonesia, there is already a policy that regulates the reduction of paper and plastic use, namely in the Decree of the Rector of the University of Indonesia Number 1308/SK/R/UI/2011 concerning Policies to Reduce the Use of Paper and Plastics on the University of Indonesia Campus. The policy was also reduced to a policy at the faculty level.

As a university that has a vision to become a green university, Sultan Ageng Tirtayasa University should have policies and programs that support the realization

of this vision. Creating a policy to limit the use of single-use plastics is an initial step that can be taken. Of course, by providing adequate supporting facilities, such as the provision of dispenser machines at certain points, including lecture buildings.machine installation Reverse osmosis can also be done.

Another way that can be done is to make a water tap which is preceded by the construction of a water reservoir tower that uses solar energy so that it is environmentally friendly, as has been owned by Sebelas Maret University since 2015.

This will be useful for reducing the amount of plastic waste generated from bottles and glasses of mineral water in disposable plastic containers. Thus, efforts to reduce the use of single-use plastics as a way to create a green university will be achieved.

It is deemed necessary that the rector's policy which has been passed down to become the policy of each faculty, institution, and UPT. Regulations on limiting the use of single-use plastics can be the first step before formulating the next policy that can support the university's vision. Making programs that support the policy also needs to be made as a form of policy implementation.

The making of policies and programs must be based on the principles of sustainable development or sustainable development as previously discussed. Thus, gradually the vision to become a green university in 2030 will be achieved.

¹¹ Gita Laras Widyaningrum, "Studi Terbaru: Masalah Sampah Plastik Di Bumi Sudah Di Luar Kendali - National Geographic," 2020.

¹² UI GreenMetrics, "UI GreenMetric World University Rankings 2020" 10, no. 1 (2020): 1-41.

Conclusion

Plastic waste that is not removed and not managed wisely will cause problems for humans, other living things, and the environment. As the owner of the vision of Integrated Smart and Green (It'S Green) University, Sultan Ageng Tirtayasa University does not yet have a policy that focuses on limiting the use of single-use plastic products and managing plastic waste.

Based on the data obtained by researchers, in order to increase the awareness of the Sultan Ageng Tirtayasa University academic community of the importance of reducing the use of single-use plastic products on campus, Sultan Ageng Tirtayasa University needs to create a policy model that has a vision, mission, and the principles of sustainable development.

References

- Asia, and Muh Arifin Zainul. "Dampak Sampah Plastik Bagi Ekosistem Laut." *Buletin Matric* 14, no. 1 (2017): 44-48.
- Badan Pusat Statistik. *Statistik Lingkungan Hidup Indonesia (SLHI) 2018*. Edited by Subdirektorat Statistik Lingkungan Hidup. *Badan Pusat Statistik/BPS-Statistics Indonesia*. Badan Pusat Statistik/BPS-Statistics Indonesia, 2018. <https://doi.org/3305001>.
- — —. "Statistik Lingkungan Hidup Indonesia Environment Statistic of Indonesia 2017." *Badan Pusat Statistik* 91, no. 1 (2017): 186-89.
- Badan Pusat Statistik Indonesia. *Statistik Sumber Daya Laut Dan Pesisir Sampah Laut Indonesia 2019*, 2019.
- GreenMetrics, UI. "UI GreenMetric World University Rankings 2020" 10, no. 1 (2020): 1-41.
- Kementerian Kelautan dan Perikanan. "Pimpin Bersih Pantai Di 108 Titik Di Indonesia, Menteri Susi Ajak Masyarakat Boikot Plastik Sekali Pakai _ KKP News," 2019.
- Kementerian PPN/Bappenas. "Apa Itu SDGs?," 2020.
- Nasution, Reni Silvia. "Berbagai Cara Penanggulangan Limbah Plastik." *Journal of Islamic Science and Technology* 1, no. 1 (2015): 97-104.
- Qodriyatun, Sri Nurhayati. "Sampah Plastik: Dampaknya Terhadap Pariwisata Dan Solusi." *Info Singkat, Pusat Penelitian Badan Keahlian DPR RI*. 10, no. 23 (2018): 13-18.
- Qonaah, Siti. "Strategy Kampanye Gerakan #BijakBerplastik PT Danone Aqua Dalam Merayakan Hari Lingkungan Hidup Sedunia 2018." *Jurnal Komunikasi* 10, no. 1 (2019): 48-55. <https://doi.org/10.31294/jkom.v10i1.5182>.
- Thompson, Richard C., Charles J. Moore, Frederick S. Votn Saal, and Shanna H. Swan. "Plastics, the Environment and Human Health: Current Consensus and Future Trends." *Philosophical Transactions of the Royal Society B: Biological Sciences* 364, no. 1526 (2009): 2153-66. <https://doi.org/10.1098/rstb.2009.0053>.
- Widyaningrum, Gita Laras. "Studi Terbaru: Masalah Sampah Plastik Di Bumi Sudah Di Luar Kendali - National Geographic," 2020.