

EFFECTIVENESS OF WASTE MANAGEMENT AS A SOURCE OF ELECTRICAL ENERGY IN TPA BENOWO, SURABAYA CITY

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ABSTRACT

Waste management is very important to achieve a clean and healthy environmental quality, thus waste must be managed as well as possible by implementing established planning and regulations so that things that are negative for life do not happen. Reuse accompanied by reduced usage is an effective step to overcome existing problems and the lifestyle of the community must be changed with existing waste to be processed into something of value, therefore the government has created innovations in overcoming waste problems, namely using environmentally friendly technology or PLTSa (Garbage power plant). The purpose of this research is to describe, know and analyze the effectiveness of waste management as a source of electrical energy in TPA Benowo, Surabaya. This research is a form of research conducted with a qualitative approach. Data collection techniques in this study are interviews, observation and documentation to obtain information related to environmentally friendly technological innovations. The results show that the effectiveness of waste management as a source of electrical energy in TPA Benowo, Surabaya city is effective and is running according to existing regulations by measuring indicators from Riant Nugroho's theory so that with Appropriate the effectiveness of established policies can turn waste into useful goods. with environmentally friendly technology.

Keywords: *Waste Management, Population, Technological Innovation, PLTSa.*

A. PRELIMINARY

Waste is an invaluable or worthless object around the community so that with the increasing waste generation, the government is required to carry out the right policy solution to solve the waste problem. As we are dealing with an increasingly developing human lifestyle and increasingly modern technological developments, it is of course necessary to discuss the problem of waste to be a very serious concern for the community and also the government. In Indonesia we can see waste everywhere, especially in urban areas and now it is a very serious problem in the Indonesian environment. Garbage in Indonesia is a very serious problem and also a social, economic and cultural problem. Almost all cities in

Indonesia experience problems in managing waste. This happens because the management of TPA (final disposal site) in a city is still lacking so that the community is large throwing trash in the river. according to Winanti Sih (2018) In line with population growth and an increase in the people's more consumptive lifestyle, waste generation is getting bigger and more diverse, while until now the development of waste management in Indonesia is still less than optimal, so that most of the waste is still buried in the TPA. Meanwhile, according to Manalu (2020) Waste management implemented by big cities in Indonesia is also faced with limited landfills. This makes waste no longer a usable item. Meanwhile, the population is a factor that causes waste problems to arise. It can be seen from the table below:

Table 1 : Total Population of Indonesia in 2018-2020

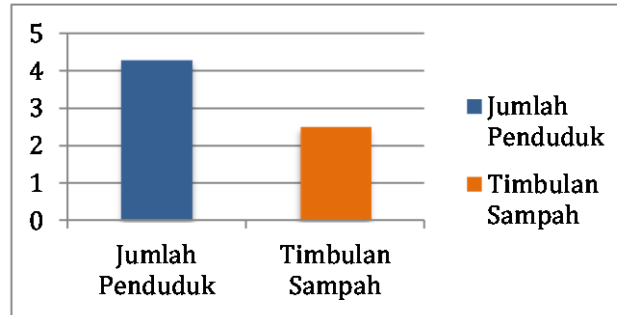
Tahun	Jumlah Penduduk
2018	2.885.555
2019	2.896.195
2020	2.904.751

Source: Central Bureau of Statistics, 2018

The data above shows that the population growth from year to year has increased. Population growth is one of the factors causing the increase in the amount of waste production in Indonesia. Based on data from the Central Statistics Agency (BPS) in 2018, more than 55% of Indonesia's population lives in urban areas. BPS estimates, with an urbanization rate of 2.3% per year, by 2035 the proportion of the total urban population will reach 66.6%. An increase in population and concentration or concentration of activities in urban areas has the potential to cause various urban problems, ranging from slum settlements, traffic congestion, and environmental degradation. This will affect the dynamics of social and economic problems in society (Kominfo, 2019). Therefore, the problem that becomes the problem must have the right and useful solution for Indonesia's future, namely New and Renewable Energy (EBT), which must be developed and controlled from an early age, by changing the mindset that New and Renewable Energy is not just alternative energy from fossil materials. however, it must support the national energy supply with a portion of New and Renewable Energy > 17% by 2025 (Monice, 2016). A number of provinces have taken policies to deal with waste problems, one of which is East Java province which has a very high population, thus the Government has innovations regarding waste management that can overcome the social impacts that occur. The East Java Provincial Government targets to reduce plastic waste piles by 30 percent by 2025, according to the regional strategic policy, one of the ways the government has taken to realize this target is in the regional regulation of East Java Province Number 6 of 2019 concerning Energy, it is necessary to establish a Regional Regulation

regarding the General Plan for Regional Energy of East Java Province for 2019-2050, thus Renewable Energy will be implemented in the community for the future of the city.

Figure 1 : Waste Generation in the City of Surabaya in 2019



Source: Ministry of Environment and Forestry, Republic of Indonesia Year 2020

The city of Surabaya is one of the cities in Indonesia that is considered capable of managing waste well. This makes Surabaya an example of a city where people are successful in managing waste. The 3R implementation contained in the Mayor's Regulation is one of the solutions for managing waste into compost or utilizing waste as a source of electricity (PLTSa). It is necessary to establish a waste management policy in Surabaya City. One of the final disposal sites for the City of Surabaya is TPA Benowo, which is a landfill area for part of the City of Surabaya which is located in Romokalisari Village which is directly adjacent to Gresik Regency, with a land area of approximately 37.4 Ha including development area of 3.43 Ha. TPA Benowo is managed by a private party, namely PT. Organic Source (SO) to manage PLTSa which is regulated in the Surabaya Mayor's Decree which has been stipulated in Number 658.1 / 4347 / 436.6.5 / 2012 and 88 / JBU-SO / 8/2012 regarding the Cooperation Agreement for the Provision of Infrastructure and Facilities for Final Processing Facilities (TPA) Benowo to better manage waste and be environmentally sound through a number of successes. with a number of new innovations that can meet the needs of today's society, namely the Waste Power Plant, according to (Samsinar & Anwar, 2018) Waste can be processed into electrical energy because waste contains a high enough moisture content, especially organic waste. Utilization of organic waste can help the Government in dealing with air pollution and raise renewable electricity from organic waste, because electrical energy sources from oil and fossil are gradually becoming scarce because these sources cannot be renewed. Meanwhile, according to Faruq (2016) Electrical Energy is an environmentally friendly energy need that is much needed in terms of aspects of life, the increasing human population, the more needs that must be met. However, it is necessary to evaluate the impact of the waste management based on electrical energy.

Electrical energy is the energy requirement most needed in terms of aspects of people's lives, the increasing human population, the more needs that must be met. Several factors affect the availability of electricity in Indonesia, including the

availability of primary energy or basic needs, fuel prices that are not always constant, technology, and cultural influences on society. Currently, the State Electricity Company (PLN) has been working to address the increasing demand for electrical energy, including increasing the construction of new generators through technology that utilizes waste. purchase of electricity with neighboring countries and the rental system for generators with third parties. often load growth cannot be matched by the addition of new generators which cause a crisis of electrical energy. Therefore, an innovation that can solve the problem of waste has emerged, namely the PLTSa (Waste Power Plant) Technology.

B. LITERATURE REVIEW

a. The concept of effectiveness

Effectiveness is the achievement of predetermined goals. Effectiveness comes from the word "effect" which means a causal relationship. Effectiveness is one of the dimensions of productivity, which leads to the achievement of maximum work goals with the achievement of targets and goals that produce quality and quantity. According to Mardiasmo, quoted by Alisman (2014: 50) states that effectiveness is a state of achieving the expected or desired goals through completion of work in accordance with predetermined and defined plans. Effective measures can be seen and assessed from the results that have been achieved. If the results achieved have reached the specified targets, it can be said to be effective. However, if the results obtained are not in accordance with the predetermined targets, it is said to be ineffective or unsuccessful in the stipulated policy regulations.

b. Appropriate Policy Effectiveness

The effectiveness of policy implementation is a measure of the achievement of previously formulated policy objectives. The effectiveness of policy implementation is related to the extent to which policy effectiveness is related to the implementation made in achieving the expected policy objectives. Here are five "Right" theories from Riant Nugroho (2011: 650), namely:

1. Right Policy

Appropriate Policy, namely: "First, the accuracy of the policy is assessed from the extent to which the existing policy contains matters that solve the problem to be solved. Second, whether the policy has been formulated in accordance with the character of the problem being solved and third is whether the policy was made by an institution that has the authority (institutional mission) in accordance with the character of the policy".

2. Right Implementation

Proper implementation, namely: "The implementation of the policy is not only the government, but there are three institutions that can be the implementers, namely: government, cooperation between the government / community / private sector".

3. Right on target

Right on target, namely: "The accuracy of the target is related to three things, namely: whether the target being intervened is in accordance with what was planned, whether there is no overlap with other interventions or does not

conflict with other interventions. Second, whether the target is ready for intervention or not. Third, whether the policy implementation intervention is new or updates the previous policy implementation ”.

4. Right Environmentally

Environmentally Appropriate, namely: "There are two environments that most determine, namely the first policy environment. This policy environment is an interaction between the policy making and implementing agencies of the policies with other related institutions. Second, namely the external environment, this external environment refers to policies consisting of public perceptions of policies and policy implementation.

5. Right Process

Exact process, namely: "First, policy acceptance, here the public understands policy as a rule of the game that is necessary for the future, on the other hand the government understands policy as a task that must be carried out. The second policy adoption here is that the public accepts policy as a rule of the game that is necessary for the future, on the other hand, the government accepts policy as a task that must be carried out. The three strategic readiness here is that the public is ready to implement or become part of the policy, on the other hand, on the street bureaucrats (or implementing bureaucracy) are ready to implement policies ”.

c. Waste management

Garbage according to Law No. 18 of 2008 is the remains of human daily activities and or natural processes in solid form. Waste is a material that has no value or is of no value for ordinary or primary purposes in the manufacture, use of damaged goods, defects in manufacturing, excessive material, rejected or discarded (Ulfah, 2016). Based on the above regulations, the Regional Regulation of the City of Surabaya Number 5 of 2014 concerning waste management and cleanliness in the city of Surabaya and the Regulation of the Mayor of Surabaya Number 64 of 2018 concerning the Policy for the Management of Household Waste and Household-like Waste With these rules, waste sorting must be carried out by

- (1) everyone at the source;
- (2) managing residential areas, commercial areas, industrial areas, special areas, public facilities, social facilities and other facilities; and
- (3) local government Here the local government is required to provide a facility for sorting regional-scale waste.

Waste has several benefits, including:

- (1) Goods that can still be used are not wasted;
- (2) Provide additional income for the community and waste recyclers by selling waste that has value;
- (3) Can reduce the volume of waste transported to the TPA;
- (4) Maintaining the health and safety of waste management officers; and
- (5) Reducing pollution and keeping the environment clean.

According to Efrano (2001) in (Ray, 2017) waste management is very important to achieve a clean and healthy environmental quality, thus waste must be managed properly in such a way that negative things for life do not happen. In

environmental health science, a waste management is considered good if the waste does not become a breeding ground for disease germs and the waste does not become an intermediary medium for the spread of a disease. cause odor (in terms of aesthetics), does not cause fire and soon. Factors of Waste Generation. According to Ulfah (2016), waste in terms of quality and quantity is strongly influenced by the activities and standard of living of the community. The factors that affect the amount of waste are as follows:

- a. Population The population depends on the activity and population density. The more dense the population, the more garbage will accumulate because there is less space or space to accommodate garbage. As population activity increases, more and more waste is generated, for example in development activities, trade, industry, and so on;
 - 1) The waste collection or disposal system used;
 - 2) Taking materials from the waste for reuse;
- b. Geographical factors The location of landfills is in mountainous areas, valleys, beaches, or in lowlands;
- c. Time factor Depends on daily, weekly, monthly, or yearly factors. The amount of litter per day varies with time;
- d. Social, economic and cultural factors;
- e. In the rainy season, garbage may get stuck in gutters, sluices, or wastewater
- f. Community habits;
- g. Technology advances;
- h. Kind of trash. The more advanced the cultural level of a society, the more complex the types and types of waste are (Levi, 2012).

d. Definition of a Waste Power Plant (PLTSA)

The waste power plant in Presidential Regulation Number 35 of 2018 is a Waste Processing to Electric Energy Based on Environmentally Friendly Technology that meets quality standards in accordance with statutory provisions and can significantly reduce the volume of waste. According to Faruq (2016), power plants that run on energy from waste have gone through a process where the process uses high technology that is environmentally friendly. Meanwhile, according to Nurdiansah (2020), a garbage power plant is a power plant that uses waste as the main fuel for boiling water in a boiler and using water vapor to turn a turbine to generate electricity There is another way to get fuel from waste, namely by utilizing methane gas (Biomass) which emerges from the garbage heap.

C. METHOD

Researchers chose qualitative research. Thus the qualitative approach used by researchers is intended to provide a systematic, accurate, detailed and in-depth description of the problem. The data to be taken is through interviews with important parties from the Surabaya City Cleanliness and Green Open Space Service and the community as participation in maintaining cleanliness for qualitative data collection. Qualitative research is carried out with characteristics that describe an actual situation or fact.

The focus of this research is a determinant in realizing the problem formulation. The formulation of the problem in this study becomes a reference, so

that the focus of the research is aimed at finding out the problems related to the Effectiveness of Waste Management as a Source of Electrical Energy in the City of Surabaya. Riant Nugroho (2011) namely Right Policy, Right Implementation, Right Target, Right Environment and Right Process. By referring to Riant Nugroho's theory, it is certain that waste management will run and be implemented more effectively.

Data collection techniques in this study are interviews, observation and documentation. the informants in this study were to ensure and solve problems in the study.

The research location is a place used by researchers to collect real data related to the object of research in order to obtain accurate data. So the researchers chose Benowo TPA as the research location. The location was chosen on the basis of the consideration that the organizer of the Waste Management as Sources of Electrical Energy and Organizer Informants, namely the Surabaya City Cleanliness and Green Open Space Office.

Based on the explanation of the researchers above, the main goal to be achieved in answering this research problem is to describe, know and analyze about the effectiveness of waste management as a source of electrical energy in TPA Benowo, Surabaya city which is a policy in urban problems.

D. EXPLANATION

Research Results and Discussion

The waste power plant (PLTSa) in Presidential Regulation Number 35 of 2018 is Waste Processing into Electric Energy Based on Environmentally Friendly Technology that meets quality standards in accordance with statutory provisions and can be a solution to significantly reducing the volume of waste. Implementing development in the city of Surabaya regarding the construction of waste processing plants into Electric Energy Based on Environmentally Friendly Technology called PLTSa, which was built since 2012 through waste management which is the responsibility of the local government, therefore the city government has given authority to the Surabaya City Cleanliness and Green Open Space Service. as the responsibility for implementing policies in accordance with the duties and functions of related agencies by using the Regional Regulation of the City of Surabaya Number 1 of 2019 concerning Amendments to the Regional Regulation of the City of Surabaya Number 5 of 2014 concerning Waste Management and Cleanliness in the City of Surabaya Article 19 where in this case waste management as referred to energy recycling is carried out through the use or utilization of environmentally friendly technology. TPA Benowo is managed by a private party, namely PT. Organic Source (SO) to manage PLTSa which is regulated in the Surabaya Mayor's Decree which has been stipulated in Number 658.1 / 4347 / 436.6.5 / 2012 and 88 / JBU-SO / 8/2012 regarding the Cooperation Agreement for the Provision of Infrastructure and Facilities for Final Processing Facilities (TPA) Benowo to better manage waste and of course be environmentally friendly and can produce electrical energy that can be useful for the needs of the city.

Seeing the construction of PLTSa as a policy in managing waste based on environmentally friendly technology carried out by the Surabaya City Government, the results of the research that will be presented are about the Effectiveness of Waste Management as a Source Electrical Energy in TPA Benowo, Surabaya City using a research focus on the effectiveness of policies developed by Riant Nugroho which includes Right Policy, Right Process, Right Target, Right Environment, Right Implementation. Following are the results of each research in order.

1. Right Policy

Policy is a government instrument not only in the sense of government which only concerns the state apparatus, but also the overall governance of the management of public resources. In essence, policies are decisions or action choices that directly regulate the management and distribution of natural, financial and human resources for the public interest, namely the people at large, the population or the public interest. As well as this policy, there are a series of activities proposed by a person, group or government in an environment, especially where there are obstacles in the policy and the possibility where the policy is useful in overcoming them to achieve the intended goals. And from the right policy, it is necessary to have an SOP (Standard Operating Procedure), Facilities and Infrastructure, as well as the Benefits and Objectives of having this environmentally friendly technology.

a. SOP (Standard Operating Procedure)

In a policy, of course there is an SOP, namely to ensure that the operational activities of the organization or institution run smoothly from the implementation of the policy itself so that with the existing regulations the policy can run effectively. From the SOP related to PLTSa, the parties concerned will be able to maximize the performance to produce electricity that will be distributed to the power supply. SOPs can also maximize and maintain the vision and mission of the institution itself. In this study, researchers conducted interviews with DKRTH. This is in accordance with the statement from the key person, Mr. Mohammad Amin as Head of the Facilities and Infrastructure Development Section, he said:

"PLTSa is expected to reduce waste significantly, the volume of waste, hopefully every day 1000 tons of waste can be used up, then in addition there will be a byproduct, namely the production of electricity which will be sold to the developer to PT. PLN. The hope is that 1000 tons per day of Surabaya's 1,500 tons of waste volume can be drastically reduced. We have not operated optimally, God willing, this year we will be able to maximize it". (Results of interview with researchers, 24 February 2021).

Based on the results of the interviews in the study, it was found that the existence of SOPs regarding the PLTSa policy had met the stipulated regulations where the three institutions had collaborated in accordance with the tasks that had to be carried out in accordance with the existing agreements and SOPs.

b. Facilities and infrastructure

Facilities and infrastructure are tools to support the success of a process of efforts made in the public interest, because if these two things are not available then all activities carried out will not be able to achieve the expected results as

expected. The facilities and infrastructure regarding PLTSa are technology that can help to manage waste generation so that with this technology, waste can generate electricity and can reduce waste generation. Then conveyed by the informant, namely Mr. A Rasyid Naja as Manager of PLN, he said:

"PLTSa Benowo occupies 37.4 hectares of land in West Surabaya and is able to accommodate 539,343 tons of waste in 2015, with the characteristics of the waste is 65 percent organic and 35 percent inorganic. The capacity of PLTSa Benowo with sanitary landfill technology is 2 MW, but the electricity output that can be exported is only 1.65 MW (Results of interview with researchers, 22 February 2021).

So after describing the results of the interview, it can be seen that in implementing the PLTSa facilities and infrastructure in TPA Benowo with an area of 37.4 hectares, namely using Gasification technology and sanitary landfills which can support waste management so as to produce electrical energy which is then distributed to the distributor. While DKRTH provides Benowo landfill facilities to manage existing waste, PT. Organic sources, which facilitates technology in order to manage waste so that it can generate electricity, while PLN is the distributor of electricity generated from the waste.

c. Benefits and Objectives of having PLTSa

These benefits and objectives are to present a solution to the problems faced by a country in general in certain regions. The purpose and benefits of this PLTSa are to develop scientific knowledge. because public policy will never be separated from a scientific research that produces a policy recommendation. This scientific research is also one of the inputs or references in the agenda-setting process of public issues. This PLTSa is expected to be able to solve the existing problem, namely by looking at the future of the city of Surabaya regarding the waste problem. And the PLTSa is a solution to reduce waste in Surabaya.

This is in accordance with the statement from the key person, Mr. Mohammad Amin as Head of the Facilities and Infrastructure Development Section, he said:

"The benefits and objectives of this PLTSa are to significantly reduce waste in the city of Surabaya and Surabaya is a big city, so it is hoped that with this technology it can also overcome waste and waste can become useful items, ok? Yes, it can generate electricity and hopefully the lifespan of TPA Benowo can be longer". (Results of interview with researchers, 24 February 2021).

So from the results of the interview it can be seen that in terms of the benefits and objectives of the PLTSa, namely as a Surabaya solution in overcoming waste problems so that with the benefits and objectives of the policy it is hoped that it can improve its performance in developing environmentally friendly technology.

2. Right Implementation

Policy implementation is a continuation of the policy formulation and determination process. So that the implementation of policies can be interpreted as actions taken, both by individuals and by government groups, which are oriented towards achieving the goals outlined in policy decisions. The implications of

implementing policies are the consequences that arise as a result of the implementation of these policies. And from the existence of policy implementation, there is a need for inter-related institutions to produce good policies, and policy implementers certainly have the authority to implement policies as solutions to existing problems.

a. Communication between institutions

Communication is the successful implementation of public policy. that the Office of Cleanliness and Green Open Space of Surabaya City to target groups of policies and implementers needs good communication so that the resulting implementation in a plan becomes good too. DKRTH requires actors who can make these policies to support the implementation of policies, namely to the public and also PT. Sumber Organik as a private party to manage the technology. This is in accordance with the statement from the key person, Mr. Mohammad Amin as Head of the Facilities and Infrastructure Development Section, he said:

"Our communication with PT. Sumber Organik continues to monitor development activities and monitors the amount of waste that enters the Benowo TPA. We also monitor in the field directly to supply the garbage every day needed for a garbage power plant so our communication with PT. Organic sources must require good coordination ". (Results of interview with researchers, 24 February 2021).

Based on the results of the interview from the research above, communication between institutions is the delivery of information to related parties so that with this communication, the objectives to be achieved from this technology will be accomplished.

b. Authority of the Institution

In the executor, there is an authority that the policy implementer needs to have. Each institution has responsibility to the agreed policies. Authority such as providing goods and services, authority to request cooperation with other government agencies. In implementing this PLTSA, it is necessary to have authority from the respective institutions which will become the vision and mission of the institution.

This was stated by Mr. Mohammad Amin as Head of the Facilities and Infrastructure Development Section, he said:

"Waste management is indeed our business, the landfill is our land, so we are also working with the private sector to build a BOT (Build Operate Transfer) system, which is a building for handover. they were previously selected from the auction process from several partners. Those who propose forms of waste management technology, there is a contest that must be a requirement for them (the private sector), namely submitting their technology offerings for each technology they own. After that, it started with the Expert Team who considered the technology to be coincidentally PT. Organic sources that win the context ". (Results of interview with researchers, 24 February 2021).

So the authority of the institution in making these decisions requires careful planning in making these policies which will later become the solution to every

public problem. The institution has the authority to solve problems by observing the condition of the waste generation where this waste is a very serious concern or a task that must be completed by the related institution in accordance with the authority of the institution.

3. Right on target

The target in the policy is the goal of the policy, whether the target has solved the existing problem and the important thing is that there is no overlap between the implementing implementer and the impact that is involved in the existence of this technology and the existence of technology made by related parties, which must have objectives that are updating the previous policy implementation as an expected solution. The target in implementing this PLTSa is to be able to manage waste with a large enough capacity so that it can solve the waste problem quickly and effectively. And from the Exact Target, it is necessary to have indicators, namely the result of waste management and the influence of technological advances.

a. Policy Outcomes

From the existence of this PLTSa, it is the impact that is really felt by the community, whether expected or not expected as a consequence of the action or the absence of government action in certain fields or problems in society. So that with the PLTSa the results of policies that have been implemented will be expected to be a solution to existing problems.

Regarding the policy results with the existence of PLTSa This is in accordance with the statement from the key person, namely Mr. Mohammad Amin as Head of the Facilities and Infrastructure Development Section, he said:

"PLTSa with thermal technology will produce 9 megawatts, increasing the amount of waste power production which has previously been managed by 2 megawatts using methane gas technology, so this Benowo TPA has previously processed organic waste into electricity using 1 unit of methane gas power plant and the capacity is only 2 megawatts. Meanwhile, unit 2 of the non-organic waste power plant will supply the thermal power plant. After processing the waste, it will generate electricity ". (Results of interview with researchers, 24 February 2021).

Thus the results of the interviews that have been obtained on the results indicator from the PLTSa technology carried out by the organizers that the results obtained from waste can be useful for the community, of course and this waste can produce around 12 megawatts of electrical energy, of course this policy is an innovation that can be a pilot. from other cities to solve the waste problem, and it can be seen from the production of waste products that every year to year this PLTSa does not produce still depend on the generation of waste.

b. Influence of Technological Progress

Technology is something that is useful for facilitating all aspects of human life where technology is also considered a process that can increase added value. The running process can use or produce certain products, where the resulting product is not separated from existing products. Technology is a policy solution in overcoming existing problems. Technology in the form of facilities and infrastructure in the form of technology that can solve the problem of waste,

namely PLTSa, this technology can be expected to be able to manage as much waste as possible properly. With this technology, the future of the city of Surabaya can be free from waste problems and have a positive impact on the community so that with the PLTSa the community must also support the government's policy to reduce waste and sort waste by sorting and differentiating organic and inorganic waste so that it will not be processed later. the resulting negative impact.

This is in accordance with the statement from the key person, Mr. Mohammad Amin as Head of the Facilities and Infrastructure Development Section, he said:

"For gasification waste management, God willing, Surabaya will be the first to be completed, so we can become a pilot for other cities or regencies that are given responsibility for the development of PLTSa. Actually there are 12 cities that are expected to carry out PLTSa and those in Surabaya are clear. first hope that 1-2 months have been inaugurated ". (Results of interview with researchers, 24 February 2021).

Based on the opinion of Mr. Amin, the impact of this technology is the impact of positive progress so that it can be a model for other cities in carrying out the development of the use of waste.

4. Right Environmentally

Appropriate environment, there are two environmental policies that greatly influence the implementation of policies, namely external and internal, where before starting the implementation of the policy there is a thorough planning, which is seen from the side of the interaction between the policy formulating agency and the policy implementer with related institutions. And the most basic is related to public perceptions where the public determines the success of the policies to be made so that with the existence of public cooperation it is in the planning stage until policy implementation will result in a smooth policy process. And the coordination of related parties will create the objectives that have been set while still paying attention to the regulations of the policy. The factors that are indicators of the existence of an appropriate environment, namely the socialization of society and consistency of the community are described as follows:

a. Community Outreach

Community outreach is very important because it is the starting point for determining the success of a policy in achieving goals. Even though it looks trivial and light, the socialization process greatly influences the sustainability of the policy. So the socialization of policies must be carried out in a planned manner so that during the ongoing socialization activities it is more systematic. DKRTH has made efforts to assist the Surabaya City Government in solving the waste problem by interacting to convey to the public about the selection of organic and inorganic waste using composting programs, 3R TPS and so on. Due to the existence of this waste selection activity, before it is processed into electrical energy, the waste is sorted first to distinguish the materials that must be processed so that they do not cause problems for health.

Related to the socialization of the community with the existence of PLTSa This is in accordance with the statement from the key person, namely Mr. Mohammad Amin as Head of the Section for Facilities and Infrastructure Development, he said:

"Meanwhile, from the PLTSa there is no problem, right, because all of it is from PT. Organic sources have followed the existing regulations regarding quality standards related to waste that have followed environmental regulations, and have also been supervised by the City and Provincial Environmental Services ". (Results of interview with researchers, 24 February 2021).

Based on the above findings at the research location and informants, it was found that there was socialization of the community to understand the waste problem because this had been resolved by the Surabaya City Cleanliness and Green Open Space Office by providing PLTSa technology. So, the socialization of society related to this technology aims as a form of concern or reminding the public to help the government in managing waste or to socialize the 3R method for the convenience of the community and support government programs in tackling waste efforts.

b. Executor Consistency

Consistency in policy can support successful implementation, this is related to orders given to executors that must be implemented and executed and are not easy to experience changes in orders. The consistency of the institution in managing waste so that it can generate electricity, as well as a mapping system carried out by the Surabaya City Cleanliness and Green Open Space Office and other parties related to the implementation of PLTSa.

As explained by Mr. Mohammad Amin as Head of the Facilities and Infrastructure Development Section, he said:

"We have to supply garbage there, the machine capacity is 1000 tons until it can go there to be processed by the gasification method, so as much as possible we don't have too much waste going there, don't get 1000 tons, if more we are exposed to higher costs. reduce waste where the city of Surabaya produces 1500 tons as much as possible 500 tons is used up first. So, we consistently carry out election activities, there is a TPS 3R program, integrated TPS, reducing organic waste and composting. (Results of interview with researchers, 24 February 2021).

So from the results of the interview it is known that in giving orders and coordinating with the implementation of PLTSa it has been carried out routinely by related parties. And support government policies related to renewable energy to produce renewable energy.

5. Right Process

The process of having a policy here is a process that includes planning, formulating, implementing, and evaluating policies. So the policies taken by the government are in the public interest. policy arises because there are problems that cannot be resolved, therefore government initiatives have emerged to seek solutions in overcoming existing problems and the government needs to pursue strategic efforts in the reality of public policy, namely by looking at the impact of

this technology for the future of the city of Surabaya. The policy process needs to set specific goals and objectives and measure the results. And those who get the target must of course support government policies for the sake of welfare and comfort. And from the Exact Process, it is necessary to have indicators, namely directions and responses from the community, as follows:

Directives and Responses or Community Responses

Referrals and responses or responses society, namely being the goal of the success of a policy by looking at the community's point of view regarding policies that have environmentally friendly methods. Garbage is useless and difficult to solve, it becomes a problem for every city to be able to solve it. Public response is very important for the government in supporting policies that will make the city better. The government's efforts in overcoming the waste problem are the right strategy so that it will have a positive impact on the community and also the city itself.

In line with the direction and response of the community, DKRTH said technology was very effective, which could be proven from the statement made by Mr. Mohammad Amin as Head of the Facilities and Infrastructure Development Section, he said:

"Yes, it is very good, especially the surrounding community. The local community is empowered by PT. Sumber Organik as a workforce, recruiting local people and the smell can reduce the smell of garbage from wastewater, for wastewater management it uses advanced technology so that it does not pollute the environment." (Researcher's interview result, February 24, 2021).

Then, along with what Amin said that interviews were also carried out by hearing the responses or responses from the community regarding this PLTSa policy, Widya as a Surabaya community expressed it as follows:

"I strongly agree with the policy taken by the government because it can take advantage of alternative technology and does not endanger the environment". (Results of interviews with researchers, February 15, 2021).

In line with the above interview statement, Hartono as a Surabaya community is as :

"In my opinion, the very right decision to use waste into electrical energy has greatly affected the world of solid waste so that waste will be useful later, rather than being useless, it is better processed into electrical energy so that the earth can be free from waste". (Results of interviews with researchers, February 15, 2021).

Then added again by the response of the community regarding this PLTSa policy, which was expressed by Fitriyah as the people of Surabaya as follows:

"This is a breakthrough that must be supported and developed again so that it becomes one of the solutions. With the hope of reducing the large volume of waste in Surabaya ". (Results of interviews with researchers, February 15, 2021).

So based on the interview above carried out by community informants and also DKRTH with this technology resulted in a very positive response, as well as from the community's supporters strongly support environmentally friendly

technology because the hope of the people of the city of Surabaya as much as possible can be free from waste. This technology is of course highly expected by the community to overcome problems that arise and become a solution for the government in dealing with them, not only that, besides being able to generate electricity, this technology also brings benefits to people around the landfill, namely the manager empowering the surrounding community to become a workforce so that by seeing the impact This positive technology also has a beneficial influence on the people of the city of Surabaya.

After the research results are described by referring to data sources in the form of interviews, observation and documentation. So the researcher can provide the results of a policy analysis regarding the Effectiveness of Waste Management as a Source of Electrical Energy at TPA Benowo, Surabaya City. It is necessary to know that according to Mardiasmo, quoted by Alisman (2014: 50) states that effectiveness is a state of achieving the expected or desired goals through completion of work in accordance with a predetermined plan. Effective measures can be seen and assessed from the results that have been achieved. If the results achieved have reached the specified targets, it can be said to be effective. However, if the results obtained are not in accordance with the predetermined targets, it is said to be ineffective.

Then according to Riant Nugroho, the effectiveness of policy implementation is a measure of the achievement of previously formulated policy objectives. The effectiveness of policy implementation is related to the extent to which policy effectiveness is related to the implementation made in achieving the expected policy objectives. Here are five "Right" theories from Riant Nugroho (2011: 650), namely Right Policy, Right Implementation, Right Environment, Right Target and Right Process.

1. Right Policy

In the Right Policy factor, there are SOPs (Standard Operating Procedures), Facilities and Infrastructure, and Benefits and Objectives. Thus it can be concluded that the Right Policy is Effective, which can be seen from the SOP (Standard Operating Procedure) indicator that has implemented the task. although the SOP (Standard Operating Procedure) in the implementation of this technology was not specifically explained in detail. However, the facilities and infrastructure from DKRTH and the management are very optimal, as seen from the ability of each institution to present this waste utilization technology. And seeing the benefits and goals of this technology greatly affects and even has a positive impact on the future of the city, namely that it can reduce the generation of waste and this waste can generate electricity.

2. Right Implementation

Policy implementation can be interpreted as actions taken by policy administrators where certain groups are oriented towards achieving the goals outlined in policy decisions. Thus, it can be concluded that Appropriate Implementation is Effective. It can be seen from the indicators Communication between institutions is needed to build policies and of course communication from related parties has carried out good coordination and always monitors the development of this technology so that it can work optimally in dealing with

waste. Then the factor of authority between institutions, namely the authority of the executing party has carried out their respective duties and it is hoped that the cooperation can increase optimal results.

3. Right on target

The target in the policy is the target of the existence of the policy so that it is expected that the target must see the impact of the policy so that no party is harmed with the right targets and objectives. The target or objective has been achieved in accordance with previously planned, it is said to be effective, whereas if the goal or target is not completed in accordance with the predetermined time then the work is ineffective and the impact that is involved with this technology. The target in implementing this PLTSa is to be able to manage waste by large enough capacity so that it can solve the waste problem quickly and effectively. In the Right Target factor, there are indicators of Policy Results and Influence of Technological Progress. Thus, it can be concluded that Right Target is Effective, it can be seen from the results of the policy that it greatly affects changes in the city for the better and from the parties concerned have tried this policy carefully so that it can produce good results, namely it can produce electricity while the influence of this technological progress brings various luck related to the use of human resources so that it is expected to be able to produce optimal performance.

4. Right Environmentally

The policy environment is the commitment or consistency of an institution or government towards laws and regulations and other policy mechanisms relating to environmental issues, namely by seeing the community as the impact of environmental-related development policies. And the most important thing is related to public perceptions where the public determines the success of the policies to be made so that with the existence of public cooperation, the planning and evaluation stages of the policy will produce a smooth policy process. In the Appropriate Environment factor, there are indicators of community socialization and consistency of the implementer. Thus it can be concluded that Appropriate Environment is Effective, it can be seen from the socialization indicator from the Office of Cleanliness and Green Open Space, which is the initial stage of a way to prepare for the use of this technology so that it does not go directly to this technology, but related agencies have attempted activities that will bring changes to the community related to waste. Meanwhile, the consistency of this implementer is that each institution has made its commitment in overcoming the waste problem and supporting this policy process so that this policy has been implemented properly.

5. Right Process

The policy process needs to set specific goals and objectives and measure the results. And those who get the target must of course support government policies for the sake of welfare and comfort. The process of implementing this policy requires direction and community response, because if there is no community approval of policy development, the planned policy will not be implemented. In the Right Process factor, there are indicators of direction and community responses. This is a measure of success in building policy. Directives and public responses for the implementation of this technology can improve and

improve the performance of the executor optimally.

From the directions and responses from the community regarding this technology, namely pretty good and it is necessary to maximize the way this technology works in order to significantly reduce or help the waste problem in Surabaya. And from the Surabaya City Cleanliness and Green Open Space Service, technology is said to be very effective because the waste reduction is so large that it can reduce waste problems.

Thus it can be concluded that the Right Process is Effective, it can be seen from the indicators of the direction and responses of the community, namely supporting the existence of this technology so that later this technology can be even more optimal in reducing waste generation and of course there is no impact caused by this technology.

Thus, it can be concluded that the effectiveness of waste management as a source of electrical energy in TPA Benowo, Surabaya city has been effective and is running according to existing regulations.

E. CONCLUSION

Based on the results of research and discussion related to the effectiveness of waste management as a source of electrical energy in TPA Benowo, Surabaya, the authors can draw the following conclusions:

Appropriate the policy regarding this SOP has implemented its respective duties from the institution although the SOP in the implementation of this technology is specifically not explained in detail. However, the facilities and infrastructure from DKRTH and the management are very optimal, as seen from the ability of each institution to present this waste utilization technology. And seeing the benefits and goals of this technology greatly affects and even has a positive impact on the future of the city, namely that it can reduce the generation of waste and this waste can generate electricity. Appropriate Policy implementation of inter-institutional communication is needed to develop policies and of course communication from related parties has carried out good coordination and always monitors the development of this technology so that related parties can work optimally in overcoming the waste problem. Then the factor of authority between institutions, namely the authority of the executing party has carried out their respective duties and it is hoped that the cooperation can increase optimal results.

Right Target of the policy from the existence of technology that is very policy results influencing changes in the city for the better and from the related parties have made this policy carefully so that it can produce good results, namely it can produce electricity while the influence of this technological progress brings various luck related to the use of human resources so that it is expected to be able to produce optimal performance. Appropriate Environment sees the situation and conditions in the field that the socialization of the Office of Cleanliness and Green Open Space is the initial stage of a way to prepare for the use of this technology so that it does not go directly to this technology, but the related Office has sought activities that will bring changes to the community regarding waste. Meanwhile, the consistency of this implementer is that each institution has made its

commitment in overcoming the waste problem and supporting this policy process so that this policy has been implemented properly. Appropriate process, namely the implementation must understand the public interest by paying attention to the directions and responses of the community, namely supporting the existence of this technology policy so that later this technology can be even more optimal in reducing waste generation and of course there will be no impact caused by the existence of environmentally friendly technology.

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