

Performance of Coastal Waste Management Policy: Study in Tanjungpinang City

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Abstract—Since the ocean unites all nations, the problem of coastal waste affects the livelihoods of many people around the globe. In addition, of course, it is related to the biological resources contained therein. The case in Tanjungpinang City, for example, the problem of non-organic waste in several coastal areas of Tanjungpinang City, which reaches a thickness of approximately 3.5 meters, shows the importance of waste management, which is a field related to the arrangement of stockpiling, temporary stockpiling, transfer, processing, and the final disposal of waste. In a manner that follows the best principles of public health, economics, engineering, nature protection (conservation), beauty, and other environmental considerations taking into account public attitudes. Based on these facts, it is essential to place social policies whose determination requires a long and complicated process in the proper context, namely, understanding a political process in a balanced way. Therefore, existing policies need to be in context as a first step to see the problem of coastal waste and then strengthened by analyzing the performance of waste management policies carried out by the government. This study uses a qualitative approach by looking holistically at a problem and will be mapped based on social policies needed by the community. The aim is to provide an overview of the policy results of coastal waste management in Tanjungpinang City. The results of this study indicate that policy performance problems arise that do not accommodate the problem of coastal waste and other impacts on society.

Keywords—Coastal Waste, Social Policy, Social Problems

I. INTRODUCTION

Integrated Coastal Management (ICM) has been globally introduced for about 40 years (Kearney et al., 2007). It is also known as Integrated Coastal Area Management (ICAM), Integrated Coastal Zone Management (ICZM), and Marine Area Management (ICMAM). European and United States Com missions use ICZM, while other coastal countries such as New Zealand and Sri Lanka integrate ICAM into their national plans and jurisdictions [3].

Meanwhile, as globalization has increased, coastal cities have become urbanized, attracting large populations and reshaping the economy, energy use and ecology of the area. The climatic characteristics of the coast are easily affected by environmental changes and human activities. For example, urban air pollutants are altered significantly by sea and land breezes, and urban heat waves increase in response to urban development. The coastal ecosystem itself is very fragile. Global warming and rising sea level have resulted in eroded coastlines and receding beaches, damaged to the surrounding environment, and caused water shortages and deterioration of water quality. Harmful algae blooms and plastic pollution of the seas have affected the lives and health of nearby populations, while high-intensity development damages the entire ecology of coastal areas [8].

Coastal waste not only has a seriously destructive effect on human life and marine ecosystems, but it also poses a long-term economic and environmental threat.

Improving people's economy and quality of life have invariably increased human activities, which have brought about some negative effects, for example, environmental pollution. However environmental governance has never stopped, environmental pollution is still been arised. coastal waste accounts for a very important proportion, and plastics are the main harmful pollutant. The growth of coastal waste not only threatens marine life but also damages the living environment of surrounding residents. Therefore, to degrade waste based on its nature and reduce environmental pollution, automatic waste classification and recognition are particularly important in the disposing of waste [6]. As a result, an efficient waste management strategy results in substantial savings for the business, taking into account where the business, such: as well as the waste management guidelines (strategies) in the area. In addition, environmentally friendly waste management practices include: improving government image, minimizing environmental footprint (taking into account waste collection and transport), reducing costs (special order requirements from suppliers), improving stakeholder relationships, minimizing environmental liabilities and risks, and health and safety benefits [10].

Utilizing natural resources, optimizing coastal area services, and preserving coastal areas will help revive an area's economy or even nationally. However, social problems arise in their use and need concentration and joint commitment to solving them. The social issues of coastal communities include poverty (economic uncertainty), damage to coastal resources, environmental health, and using marine areas for fishers / open access and limited open access.

The main thing is affecting these problems coastal waste [17]. This waste problem is crucial and can even be interpreted as a cultural problem because of its impact

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on various aspects of life, especially in big cities [22]. It is not easy to solve if we discuss the waste problem because it is complex. Even though the government has made various efforts to manage the waste problem, waste is still a significant problem. The cultural conditions of the people who still like to throw away garbage, and the increase in Population, increase the amount of waste.

Factors that affect waste generation are Population, meaning that the number of residents, the generation of waste increases, following Socioeconomic conditions, the higher a person's socioeconomic condition, the more waste generated per capita will be generated, and Advances in technology will increase the amount and quality of waste. Coastal waste destroys marine ecosystems and creates aesthetic discomfort [6]. They could also be framed such as the waste classification issue as an image classification task. Therefore, the average waste generation will usually vary daily, from one Region to another, from one country to another. Coastal waste often contains a lot of small objects, such as cigarette butts, scraps of paper, broken glass, bottle caps, etc. However, the industry's rapid development only progresses short-term economic growth without focusing on the resource-consumption problem and environmental contamination [9]. Driving forces, i.e. underlying causes of environmental problems, refer to the needs of individuals and institutions which lead to activities that exert pressures on the environment (e.g. emissions to water, resource use). For example, the human need for food is a driving force that motivates fishing that implies the harvest of fish resources. The intensity of the pressure depends on the nature and extension of the driving forces and also on other factors which shape human interactions with ecological systems, such as ill-defined property rights and other market failures, as well as the behavior of the actors involved [1].

Likewise, Tanjungpinang City, Kepulauan Riau Province, a coastal area, is an ecosystem under threat due to waste pollution scattered in the sea area. Therefore, the Tanjungpinang City Government, in this case, the Housing and Settlement Service and the Environment Service, as the leading sector in the management of the solid waste system in coordination with the Public Works Department, are obliged to seek optimal handling of the city's waste. Therefore, the issuance of Tanjungpinang City Regional Regulation No. 14 of 2009 concerning the Waste Management System and Tanjungpinang City's Regional Regulation No. 3 of 2015 concerning Waste Management is for the realization of management towards a clean Tanjungpinang City.

Waste management is a field that deals with the regulation of the stockpiling, temporary storage, transfer, processing, and the final disposal of waste in a manner that follows the best principles of public health, economics, engineering, natural protection (conservation), beauty and other environmental considerations taking into account the attitude of the community. Based on the preceding, it can be that the scope of waste management is the administrative functions, planning, and techniques involved in the overall solution of the waste problem.

Based on this fact, it is essential to place public policies whose determination requires a long and complicated process in the proper context, namely, understanding a political process in a balanced way. Social policy is very complex because it involves a series of variables. The policy process into several stages, including policy agenda setting, policy formulation, policy adoption, policy implementation, and policy assessment or evaluation [16]; it can even be added two stages, namely policy changes and policy termination [25].

It also contains complexity in its implications, namely 1) social policies are oriented toward planned goals and objectives, not haphazard behavior [19]. 2) social policy is a directed and patterned action, not a different decision, and each one stands alone. Finally, 3) social policy is what, not what is wanted, and 4) social policy can be positive or negative. Departing from social policies, to define the problem of coastal waste. This research will focus on the policy of Tanjungpinang City Regional Regulation No. 14 of 2009 concerning the Waste Management System and Tanjungpinang City Regional Regulation No. 3 of 2015 concerning Waste Management.

According to Law Number 18 of 2008 concerning Waste Management, waste is the residue of human daily activities and/or natural processes in solid form. Types of waste include household waste (excluding feces), household-like waste originating from commercial areas, industrial areas, special areas, social facilities, public facilities and other facilities as well as specific waste. Furthermore, according to the Indonesian National Standard (SNI) Number T-13-1990, what is meant by waste is solid waste consisting of organic and inorganic substances which are considered useless and must be managed so as not to endanger the environment and protect building investment. Meanwhile, urban waste is waste that arises in the city and does not include hazardous and toxic waste (B3).

One of the problems in developing economic activities in coastal or coastal areas is waste management. Waste management in this coastal area is still a gray area, there are no clear regulations regarding the duties and responsibilities of coastal waste managers so that management has not been effective. There are two types of waste in the coastal area, namely waste from tourism activities and garbage from the sea [15].

The interconnectedness between land and coastal and marine environments (the source-to-sea approach) is paramount to achieve successful waste management. Waste management problems inland may result in coastal and marine management problems due to the linkages between ecosystems. For instance, studies show that the majority of marine litter originates from land based activities and rivers play an important role in carrying it to the sea. Therefore, in Brazil, it is paramount that the municipality has a good integrated municipal solid waste management plan, as determined by Brazilian law. Thus, identifying a way of evaluating solid waste management quality in an adequate framework for the needs and reality of the municipality is necessary as a territory management strategy [2].

An efficient waste management strategy results in major savings for the business, taking into account where the business is located, as well as, the waste management guidelines (strategy) in that area. Moreover, eco-friendly waste management practises include an improved business image, minimized environmental footprint (taking into account waste collection and transportation), reduced costs (specific order requirements from suppliers), enhanced relations with stakeholders, minimized liabilities and environmental risk, as well as health and safety benefits [24].

In order to avoid pollution by waste, it is necessary to manage waste. Waste management is defined as control over waste generation, storage, collection, transportation, processing, and final disposal of waste [18]. All of these are linked to the best principles for health, economics, engineering, conservation, aesthetics, the environment, and also to people's attitudes. In determining waste management, information and analysis regarding the generation and composition of waste is required. Garbage in coastal areas is one of the complex problems faced by a city that is close to the beach or coast, for example the Kenjeran Coastal community of Surabaya. Communities in the area have not done any sorting and disposed of waste in its proper place, namely to collection facilities such as bins or trash bins [14].

Waste management is mean a set of action did to organize many wastes with methods used engineering. It should be include the wide range of materials and various sources. In coastal area, waste management as the first and most important step to maintain these areas such as sanitary, cleaning up and keep the ecosystem alive. The solid waste management continues to be a major challenge in urban areas throughout the world, but particularly in the rapidly growing cities and towns of the developing World. Urban areas in Asia produced approximately 0.76 million tons of municipal solid waste (MSW) per day in 1998, which is expected to be risen to 1.8 million tons by 2025. China itself has been produced 0.14 billion tons of MSW in 1998. Keeping pace with the requirements of rapid economic development and continuing population growth, and because of its critical role in protecting the environment and public health, accomplishing effective and efficient municipal solid waste management should be a priority for cities of the developing countries [7].

Waste production is massive and the waste collection programme needs further attention. Furthermore, littering at the beaches, is considered mainly as a source of economic, environmental and other health related issues. The extensive occurrence of plastic debris in coastal environments and ecosystems, is one of the most significant environmental issues of our time. Microplastics, that is, microscopic plastic particles that are produced as additives to a variety of products of everyday use, or originate from degradation of larger plastic objects, are considered the most abundant form of solid-waste pollution on our planet. However, it makes sense that the waste we find in the coastal areas and later on in the sea is strongly related and linked to what tourism can get from the surrounding area [10].

The longest and as the most important coastal area in

Iran are Persian Gulf and Gulf of Oman in south with length about 2530 km and Caspian Sea in north with length about 922 km. The coastal pollution happened in developing country have been caused various difficulties for these sensitive ecosystem. For example, in Mahashtera Seashore especially in its Mangrove forests different kind of municipal and industrial waste scattered and large area is covered by plastic bags. During past decade quantity and compounds of municipal solid waste in cities of southern Caspian Sea coastal area have been changed considerably but collection, transporting and dumping methods are still the same as before. In current years Istanbul make a great progress in using waste management system with sanitary landfills and methane recovery system which predicted to produce about 160 MW electricity energy during 10 years.

The another sample for waste management system is Macau in China this city lies on the western side of the Pearl River Delta. Before 1990 waste used to bury in landfills. But this solution can't be used anymore because of lake of lands and its high value. So it was decided to Change the priority from landfilling to incineration of waste. Landfilling is the last option and only wastes with low heat value or not suitable for incineration is buried now [7].

In Barangay Angeles, it could be seen that every last Saturday of the month, the Youth Civic Action Program (YCAP) or Community Clean and Green are conducted. This is as a barangay-wide cleaning program that usually lasts for two hours. The concept did based on the green revolution of the Marcos era (in the 1970s). In these municipalities the coastal clean up is a periodic activity. There were some times when the municipal government would collect around 30 sacks of mixed waste from the coastlines with the help of community volunteers. They would normally consist of non biodegradable waste such as diapers, plastic utensils, paper bags, and paper plates from fast food establishments.

This is particularly prominent in Atimonan that located near a highway where residents and visitors alike would often throw their food packing waste and personal hygiene waste into the most convenient places, resulting coastal waste pollution. At the barangay level, community residents have ben claim that they practiced waste segregation, usually separating biodegradable from non biodegradable waste. This as the simplest and most effective waste segregation strategy. There are also four eco-aides such as individual volunteers who collect waste from households by foot or via bicycles. The four eco-aides who operate in the different zones of the barangay earn an estimated PHP 2000.0 each monthly from the barangay fund.

The waste which is collected is sent directly to the Barangay's MRF. The garbage truck of the municipal government, which has a fixed schedule for garage collection, collected the residual waste including diapers is collected by. On Wednesdays, biodegradable wastes are collected and are set to be disposed of at a dumping site for instance. For the rest of the week, non-biodegradable waste is collected. The waste collected from the coastal area is also picked up by the truck and segregated in the barangay's MRF [11].

The world's environmental pollution is a partial product of the severe problems in coastal tourist destinations. Beach and marine environments have already been plagued with pollution exacerbated by the tourism industry. Even the municipality has distinguished waste management charges in tourist destinations for specific sectors such as hotels/resorts, restaurants, and tents along the beach, but this still results in inadequate waste management. This indicates that local governments, such as municipalities, and the private sector have limited environmental awareness and collaboration as they cannot find a win-win situation from those collaborations. The public sector expects all stakeholders to have a high degree of understanding of the environmental effects of tourism, as opposed to the private sector, which expects all stakeholders to increase the economic potential of tourism without environmental concerns. In the sense of a win-win, the benefit derived can be both in-kind and in-cash or in the value of resources and should be shared and clarified clearly along with the processes for working together [3].

However, in the outline of waste management, there was no mandatory legislation to elaborate an environmental impact assessment study (during the tourist activities rapid expansion on the study area), as well as there was no waste management strategy in place (the early 1980s). No data were available on waste generation at that time in the study area, but according to information collected by the municipality, the waste was collected once a day and transported to a typical landfill site, which has now been restored, taking into account the requirements of the 1999/31/EC directive and the amended Directive 2018/850/EC [4].

The main purpose of creating standards is to achieve unification in rules and directives so waste management programs have necessary quality. In other word standards provide a reference for monitoring deferent part of waste management system and they are not rigid in fact generalizability and applicability in different situations with minimum modification are the main features of an appropriate standard. But during application of standards it's always possible that it facing with unanticipated situation in which, following all the standards would be impossible. In such a case it must be tried to stay close as much as possible to the standards boundaries. In other hand in some areas rules and instruction can't handle needs of waste management systems. So Technical and economic feasibility reports during construction of waste management facility can improve our knowledge about issues of each area and prevent further problems. Main purpose of waste management systems was to remove waste from residential area. The number of functional elements in waste management system changed from 3 in 1930 to 8 in these days and it shows the improvement in services and waste management standards in developed countries. Coastal areas as tourist attraction has important rule in public health and environmental protection, lack of appropriate rules in these areas can be a threat for nearby cities and environment. Rules and instructions in developed countries provide necessary standards for design, manufacture, installation, operation and

maintenance of waste transport, recycling and disposing equipment to achieve following goals:

- Developing program to manage recyclable wastes
- Improving society's safety, health and welfare
- Preventing surface and ground water pollution
- Preventing air pollution
- Preventing spread of pathogens
- Protecting Natural resources
- Protecting and Improving Environmental standards

In order to achieve the maximum capacity and better performance in these facilities, waste separation must be done at its source which need education and public awareness. There are some workshops and educational advertisements but these are still not enough. Waste management should be seen as a national problem and all the authorities must be involved in resolving it. In developed countries rules and standards improved waste management system with current approach of waste to energy and waste reduction. In addition rules an instructions are a reference for monitoring the performance of various sectors in waste management [7].

The policy implementation is that happened after the policy plan is adopted. In that point, the policy implementer uses a certain organizational form, various policy resources, and translates the content of the policy concept form into a realistic effect through actions such as interpretation, implementation, service, and propaganda. Besides, it as the process of the goal. Whether the policy can effectively play its role depends largely on the efficiency of policy implementation.

The main body of policy implementation is government officials, and the policy audience is all relevant personnel. Political trust depends on the ability of the government to provide people with good policies and good ways, and whether people feel good about government officials. Therefore, this can reflect to a certain extent that the government's policy implementation efficiency will have an impact on the public's political trust in the government [5].

Measurement of the performance of this policy implementation begins with the fact that government programs are not always successful in their implementation. The case study discussed in this paper is the implementation of coastal waste management policies in Tanjungpinang City. Measuring the performance of a policy is essentially measuring the achievement of a policy. According to Ripley [21], there are various indicators that can be used to assess the quality of policy output, namely: coverage, bias, access, frequency, service delivery (service accuracy), accountability, and program suitability with needs.

The institutional setting is a key element in the design of a strategy to allow for the establishment of an oceans governance regime, particularly regarding such aspects as monitoring and enforcement, and co-operation between local, regional and global institutions. Consensus building among the parties involved is also very important to ensure the success of any policy, and to implement instruments which key stakeholders are not always willing to accept. This implementation stage must also include the development of adequate mechanisms to monitor the performance of the adopted policy. This can

be achieved through the development of a set of performance indicators for which information will be continuously gathered [1].

Policy outcomes indicators are usually used to measure the results of implementing a policy. The results or impacts of the policy are basically related to changes in the condition of the community who are the target group of the policy or program, namely from undesirable initial conditions (poverty, poor health conditions, etc.) healthy, etc.). The policy outcomes indicators used in this paper are (1) initial outcomes or the initial results of policy outputs, (2) intermediate outcomes or medium-term outcomes, and (3) long-term outcomes [20].

In order to verify the relationship between the performance of the policy and the government undefineds trust, the study did before conducted a hierarchical regression analysis according to the following steps: firstly, the control variables such as sex, age, education, position and the like are included in the model to control the influence of the mixing factors [5].

II. METHOD

The qualitative research method uses a case study approach with descriptive analysis (Yin, 2009). Sources of data are obtained into primary data and secondary data. A qualitative approach to the case study method looks at the problem as a whole (holistic), linking each functional variable and understanding its nature. Primary data is obtained directly from sources used as research informants (Johnston, 2014). The source of information in this research is to determine purposively competent informants. The informants in this study consisted of the Housing and Settlement Service Apparatus and the Tanjungpinang City Environmental Service as institutions that became the leading sector in dealing with solid waste problems. Data collection techniques used are literature study, observation, and interviews. Moreover, the data analysis technique uses three components of analysis: data reduction, data presentation, and conclusion .

III. RESULTS AND DISCUSSION

An environment is a place where living things carry out their daily activities. Of course, in carrying out these activities, living things need a healthy environment and a comfortable atmosphere. In general, the waste management policy in Tanjungpinang City has a regulated since 2004 in the Tanjungpinang City Regional. Regulation Number 3 of 2004 concerning Waste Service Retribution. 2015 concerning Waste Management Regarding the issue of waste fees, it is also regulated in the Tanjungpinang City government policy as stipulated in the Tanjungpinang City Regional Regulation Number 5 of 2012 concerning Public Service Retribution as amended in the Tanjungpinang City Regional Regulation Number 4 of 2018 concerning Amendments to City Regional Regulations. Tanjungpinang Number 5 of 2012 concerning Public Service Retribution.

The government of Tanjungpinang City has made several rules to deal with this. For example, the waste problem, but some of these rules have not been followed

as the policy says they should. It is due to various social issues and the condition of human resources in the Tanjungpinang city government, which has not been able to realize the policy so that it runs as it should. Head of Tanjungpinang City DLH, Riono, said this considering that his party received directions from the Financial Audit Agency (BPK) to carry out waste retribution following applicable regulations (Syafara, 2021).

Furthermore, regarding waste in Tanjungpinang City, the Tanjungpinang City DPRD has also received serious attention. There are several notes on strategic waste issues in the Tanjungpinang Mayor's Accountability Report (LKPD) 2021. These notes include the lack of fleets and garbage bins and the point of disposal locations. Waste in Tanjungpinang City, weak coastal waste management, waste handling, and flooding that has not been optimal and often occurs due to waste.

Based on some of the above, improving the performance of policies by the Tanjungpinang City government in dealing with waste problems is necessary. Especially regarding coastal waste, considering that Tanjungpinang City is a Coastal City and the Capital of Kepulauan Riau Province, improvements should always comply with the mandate of Tanjungpinang City Regional Regulation Number 3 of 2015 concerning Waste Management. It is clear that the order of this regional regulation is Article 5, which states that:

1. The Regional Government is responsible for waste management in the Region.
2. SKPD, which handles waste, is responsible for implementing waste management in the regions.
3. The Camat is responsible for community development in the field of waste management in his working area.
4. The village head is responsible for community development in the field of waste management in his working area.
5. The guidance, as referred to in paragraphs (3) and (4), includes guidance on community compliance regarding waste management in their respective areas.

It considers the importance of handling waste in island areas. Therefore, integrated waste management is needed. The integrated waste management system must to the composition of the trash on the beach and coast, both from tourism, household activities, and marine debris. Therefore, it is necessary to conduct field measurements in the form of waste generation and composition in the coastal area of Tanjungpinang City.

Coastal waste is from land that arises from activities around the coast, depending on the number of coastal households, tourism, business sectors such as hotels/inns, restaurants, and marine debris. Waste management in this coastal area is still grey, and there is no precise local regulation regarding the duties and responsibilities of coastal waste management. Therefore, testing waste composition is one of the main factors in determining the feasibility of processing waste based on 3R (Reduce, Reuse and Recycle). Furthermore, knowing the characteristics of destruction in coastal areas will select the correct type of waste management and processing system.

According to Ripley, various indicators can assess the quality of policy output: coverage, bias, access, frequency, service delivery (service accuracy), accountability, and program suitability with needs. Using this indicator, the results of the study found that:

1. The occurrence of policy coverage problems because the policy coverage in the Tanjungpinang City Regional Regulation does not include coastal waste problems.
2. There is a bias in policies that cause social problems for people living in coastal areas and for implementing OPDs because there is no regulatory or policy basis that regulates coastal waste management in this policy.
3. There is an access problem due to the lack of fleets and garbage bins and the point of garbage disposal locations in Tanjungpinang City, making it difficult for people to dispose of their garbage in its place, especially in coastal communities with access to direct disposal to the sea.
4. The frequency of the coastal waste generation increases to a thickness of + 3.5 meters in Tanjungpinang City, and flooding often occurs with excess rainfall.
5. Regarding government services related to this or serial delivery, it shows the lack of TPS in

Tanjungpinang, with only 52 TPS. At the same time, ideally, each Obong Garbage Place (TOS) / Waste Disposal Site (TPS) is 1000/total population.

6. The absence of publications and government performance results from general levies related to waste collection, so they are not accountable for waste management.
7. Incompatibility of policies and programs resulting in the addition of slum areas in Tanjungpinang City has not become a priority for completion by the Tanjungpinang City government by placing an achievement target of only 0 percent at the Perkim office and 24 percent at the Environment service.

Then, if the waste problem's achievements for the Tanjungpinang City area, it is charged to the OPD, which has the Duties and Functions to handle this, namely the Housing and Settlement Service. Unfortunately, the results of realizing the achievements made by the Tanjungpinang City Housing and Settlement Service in 2021 are still far from the expectations stated in the strategic plan and the 2021 mayor's accountability report. The activities that have are as follows:

TABLE 1.
ACTIVITIES AND ACCOMPLISHMENTS OF THE TANJUNGPINANG CITY PERKIM OFFICE IN WASTE AFFAIRS

No	Activity	Ceiling	Financial Realitation
1	Provision of waste facilities	5.620.118.220	5.381.431.320
2	Handling waste by sorting and collecting	2.075.587.899	1.347.890.911
3	Increasing	187.086.500	69.828.000
4	Provision of facilities and infrastructure for waste management at TPA/TPS/SPA	921.587.920	801.682.200

Based on the data on the realization of the activities above, two problems have low achievements, namely Handling waste by sorting, collecting, transporting, managing, and final processing waste at the Final Processing Site (TPA)/Waste Disposal Site (TPS)/Intermediate Transition Station (SPA) with an achievement value of only 64.94 percent and improvement community participation in waste management with an achievement value of 37.32 percent.

IV. CONCLUSION

From this paper, it can conclude that several things related to policy performance, in this case, Tanjungpinang City Regional Regulation No. 14 of 2009 concerning to the Waste Management System and Tanjungpinang City's Regional Regulation No. 3 of 2015 concerning to Waste Management in overcoming the coastal waste problem. However, there is nothing in the context of policies that discuss coastal waste, and it can be from the results of the targets and achievements of the leading sector in waste management, which is still very weak.

Related to financing and weak policy performance. From these conclusions, the results of this study can produce several suggestions, and input for the government and the community, including:

1. The presence of funding for the waste management plan, particularly for the activity increasing community involvement in waste management.
2. The provision of facilities and infrastructure such as TPS and TPA is ideal. Additional human resources that support activities.
3. The agency should focus on fostering and developing community empowerment programs, such as a waste bank, on being wider to reduce waste generation.
4. Improve management in overcoming the problem of coastal waste. The DPRD can evaluate the Tanjungpinang City Regional Regulation No. 14 of 2009 concerning the Waste Management System and Tanjungpinang City's Regional Regulation Number 3 of 2015 concerning Waste Management to include regulations regarding coastal waste.

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