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## Community Empowerment of Bangunrejo Village in Waste Management: Impact Analysis and Implementation

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**Abstract.** Waste that is not properly processed can cause environmental pollution. In Bangunrejo Village, problems were found in waste management. The emergence of problems in waste management is caused by various factors such as lack of public awareness and supporting facilities and infrastructure. The accumulation of waste in Bangunrejo Village has a significant negative impact on the environment, including soil and water pollution, as well as health problems for local residents. This study aims to analyze the factors causing waste accumulation, negative impacts on the environment, and handling efforts that can be carried out in Bangunrejo Village. The results of the study indicate that active participation between village communities and support from the village government are the keys to success in creating a clean and healthy environment in Bangunrejo Village.

**Keywords:** Garbage, Bangunrejo, Village.

### 1. BACKGROUND

The environment is the main factor that affects public health, so maintaining environmental cleanliness is a shared responsibility that must be carried out by the community. Cleanliness is a reflection of the life of the local community. Environmental cleanliness can be realized with public concern and awareness. A healthy community is created from a clean environment. Waste that is not disposed of properly will affect the quality of life of the local community, especially children and the elderly who are susceptible to disease. Maintaining cleanliness and public health can be realized by fostering the community in maintaining and preserving their environment, including the culture of reminding each other, separating organic and inorganic waste, and waste banks.

Waste management is very important to maintain the cleanliness and sustainability of the village environment. So far, waste management has been a critical problem that has long been faced by the Indonesian people. Improper waste management will certainly cause various problems, such as the spread of disease, pollution, and infrastructure damage. The lack of efficiency in waste management also affects the economic activities of the community such as agriculture and fisheries. To achieve effective waste management, active participation and public awareness are needed. Educating and empowering the community is an important step in raising awareness of the importance of waste management. Environmental training and socialization programs can help the community understand how to properly manage waste and

reuse recyclable materials. Collaboration is needed between village governments, community organizations, and individuals to create a sustainable and effective waste management system.

Bangunrejo is one of the villages in the northern part of Kendal Regency located in Patebon District. The majority of the people of Bangunrejo Village work as farmers, farm laborers and as entrepreneurs. In Bangunrejo Village, several waste problems were found, including; scattered plastic waste in crowded places, and piling up of waste in irrigation channels so that it can block rice field irrigation. Among the factors that cause the accumulation of waste in this village is the lack of public awareness of the importance of disposing of waste in its place and proper waste management. Although there is a Village-Owned Enterprise (Bumdes), public awareness in processing waste is still low. People often litter, either due to lack of knowledge, inadequate facilities, or other reasons. Local community awareness is the main influence in improving the waste problem in Bangunrejo. In this study, handling of waste problems can be done by sorting waste, public education and awareness, reducing plastic use, recycling programs, composting, cooperation with third parties (related organizations), enforcement of rules and policies.

## **2. RESEARCH METHODS**

This study uses a qualitative approach with a case study method. The main focus is to understand the phenomenon of Bangunrejo society specifically by considering social, economic, and environmental aspects. This research is a type of library research, namely research whose object of study uses library data in the form of books and journals as its data sources. This research was conducted by reading, reviewing, and analyzing various existing literature, in the form of previous research results.

The methods used are field survey and literature review. Data in this study were obtained through field observation and documentation. Researchers conducted a direct survey in Bangunrejo Village, Patebon, Kendal to see environmental conditions related to waste problems. Observations include observations of waste disposal locations, areas where garbage is often found scattered, and the implementation of cleaning activities carried out by the KKN Team.

Researchers will collect various relevant documents such as village government policies related to waste management, statistical data related to waste volume, and documentation of community service activities (Clean Friday). This documentation will support the analysis and provide a clearer picture of the waste problem in the village. Data obtained from observations and documentation will be analyzed using analysis techniques.

Observation data will be transcribed to facilitate further analysis. And will be coded according to relevant themes, such as factors causing waste accumulation, negative impacts of waste, and waste management efforts. And the themes that emerge will be grouped and analyzed further to understand the relationships between themes and draw conclusions.

By using this research method, it is expected to obtain a comprehensive understanding of the waste problem in Bangunrejo Village, Patebon, Kendal and the implementation of its handling, which can be the basis for making more effective waste management policies and strategies in the future.

### **3. RESULT AND DISCUSSION**

Garbage is dirt that comes from leftover food, fallen leaves that are not used, and various other packaging. Garbage can be a material that can be processed into useful materials and vice versa. Garbage is one of the big problems of society that must be considered carefully. There are several points that must be discussed and implemented.

#### **Factors Causing Piles of Garbage**

##### **1) Low Level of Education**

Referring to several studies that the cause of piling up and unconditioned waste is a low level of education, or many people who only have elementary school education. With low education being one of the factors of lack of knowledge including how to manage waste. So is the lack of awareness due to low levels of education.

##### **2) Lack of Support from Village Government**

Lack of support from the village government is one of the factors that causes garbage to pile up and then have a negative impact on the village environment. Among the absence of a definite policy from the village government in responding to the behavior of people who litter. Fines for people who litter can reduce the behavior of naughty people by bringing garbage, this must be a consideration for the village government.

##### **3) Lack of Facilities and Infrastructure**

Based on many studies from various academic and educational figures including Astina (2020), the lack of facilities and infrastructure is one of the factors that causes people to throw garbage in the wrong place, they tend to throw garbage carelessly including in rivers, roads, and areas that are not used as garbage dumps.

### **Negative Impact of Waste on the Environment**

1) Environmental pollution

Throwing garbage carelessly can pollute the surrounding environment in the form of water, air, soil and others. Garbage can affect the quality of water in a residential area, unconditioned garbage makes clean water polluted. Liquid garbage is a factor in water pollution. This is very dangerous because when water is polluted it will be difficult to consume again, such as well water that has been mixed with waste water from washing clothes or others causing the well to be unusable, because it has an unhealthy impact. Polluted water also cannot be used for rice field irrigation, even in the world of fisheries because of the presence of inorganic compounds that can cause changes in the pH of the water.

2) Causes Bad Odor

Bad odor is the impact of unmanaged waste. Solid waste such as organic waste from household activities can cause an unpleasant or rotten odor, this is due to the decomposition of organic solid waste which always plays a role in the degradation of microorganisms, then releases gas that has a foul odor. Likewise, waste stored in it is a protein because it contains an amine group that breaks down into ammonia gas.

3) Causes of Disease

Garbage has great potential to become a breeding ground for bacteria and viruses that cause diseases that will become more dangerous if not treated immediately, such as diarrhea. This happens because of the presence of viruses that develop in piles of garbage and waste.

Plastic waste is made from synthetic materials, which generally use petroleum as the base material, and additional materials that generally also come from heavy metals (cadmium, lead, nickel) or other potentially toxic materials such as Chlorine. Burning or decomposing plastic releases toxins from the plastic. Various types of heavy metals and other chemicals contained in it will be released during the plastic decomposition process. These chemicals and types of heavy metals will dissolve in puddles or mix with the soil, and then enter our bodies through food and drink. Burning plastic produces dioxin, one of the most dangerous substances in the world. Dioxin is a chemical that has been widely studied and proven to cause cancer. The dangers of dioxin are often equated with DDT, which is now banned worldwide. In addition to dioxin, ash from burning plastic also contains various heavy metals.

## **Waste Management in the Surrounding Environment**

Handling waste in the surrounding environment is important to maintain the cleanliness and health of the community. Some steps that can be taken include:

1) **Waste Sorting**

Separating organic and inorganic waste. Organic waste can be processed into compost, while inorganic waste such as plastic, glass, and metal can be recycled. The problem of waste accumulation is caused by suboptimal waste management. The solution is to separate waste based on its type so that it can be processed into useful products such as compost, plastic pellets, and handicrafts, which can reduce the volume of waste in the community.

2) **Education and Public Awareness**

Conducting campaigns and educational programs to raise public awareness about the importance of good waste management. This is very necessary, because it can be evidence of empathy from the village government or others in waste management efforts.

3) **Reducing Plastic Use**

Reduce the use of single-use plastic and replace it with more environmentally friendly materials such as paper which is easy to recycle.

4) **Provision of Adequate Trash Bins**

Provide trash bins at various strategic points so that people can easily dispose of trash in the right place.

5) **Recycling Program**

Encourage and facilitate recycling programs in the community, including the collection and processing of recyclable waste. The positive impact of this program is to provide material benefits.

6) **Composting**

Encourage composting of organic waste at household or community level to reduce the volume of waste disposed of in landfills.

7) **Cooperation with Third Parties**

Cooperate with companies or organizations engaged in waste management and recycling. This activity is very helpful in the handling of waste, of course this provides enthusiasm for all elements of the government concerned

8) **Enforcement of Rules and Policies**

Local governments must implement and enforce regulations on waste management, including sanctions for violators.

#### **Analysis of Waste Management Implementation in Bangunrejo Village, Patebon, Kendal**

Bangunrejo is a village that has an active cleanliness management system, seeing that the final disposal site for waste management has been running. Likewise, in front of every resident's house, there is definitely a trash can. However, there are still many scattered trash found around the environment, this happens because of the lack of trash infrastructure in various crowded areas, such as fields and roads, which ultimately the trash is carried by the wind and ends up in rivers.

With this phenomenon, the KKN Team of UIN Walisongo Semarang post 134 tried to help deal with the problem of garbage that was still scattered around the environment by holding community service every Friday called (Clean Friday). Towards morning, the KKN Team left the post to clean the environment by bringing tools. The cleaning activity focused on the road, river, rice fields and road areas. In addition, the KKN Team also helped arrange various plants to be tidied up so that they could spoil the eyes of the Bangunrejo village community.

#### **4. CONCLUSION**

This study confirms that good waste management is very important to maintain environmental cleanliness and sustainability, especially in villages such as Bangunrejo, Patebon, Kendal. A clean environment not only reflects the quality of life of the community, but also plays a significant role in maintaining health, especially for vulnerable groups such as children and the elderly.

Some of the main factors causing waste problems in Bangunrejo Village are the low level of public awareness and education about the importance of disposing of waste in its place and the minimal support from the village government in the form of adequate policies and infrastructure. This condition is exacerbated by the lack of an effective waste management system, which has a direct impact on environmental pollution, health problems, and infrastructure damage.

To overcome this problem, active participation from the community and effective collaboration between the village government and various organizations are essential. Education, awareness campaigns, and recycling programs are strategic steps that can improve the effectiveness of waste management in the village. Activities such as community service carried out by the UIN Walisongo Semarang KKN Team demonstrate the importance of local

initiatives in overcoming waste problems. Sustainable implementation of these programs is expected to create a cleaner, healthier, and more sustainable environment in Bangunrejo Village.

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