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The Role of the Compost House in Overcoming Waste Problems in the Traditional Village of Padangtegal, Ubud

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ABSTRACT

Garbage is one of the problems faced by almost every region in Indonesia. Padangtegal Traditional Village, Ubud is no exception. The existence of waste in the Padangtegal Traditional Village is one that gets more attention from village officials, where the Padangtegal Traditional Village makes policies that can help overcome its waste problems. Apart from the village apparatus, the provincial government also provided support for the Padangtegal Traditional Village in overcoming the waste problem. This is proven by the existence of a TPST located in the Padangtegal Traditional Village or what is often called the Compost House by the community. In assessing the role of the compost house, interviews were conducted with village officials and several members of the community. Where the results of this study are expected to help optimize waste management and overcome waste problems so that the environment becomes cleaner.

Key words: garbage; processing; compost house; Padangtegal Traditional Village; TPST.

INTRODUCTION

From time to time, waste is always a difficult problem to deal with. Where day by day there is more and more trash. This can be based on technological advances, people's lifestyles, and population growth which continues to increase, thereby increasing the volume and types of waste that exist. In addition to the problem of the volume of waste, which many people care about, this waste can be said to be lacking.

In Article 1 of Law no. 18 of 2008 states that waste is the residue of daily human activities and/or natural processes in solid form. So indirectly human activities that produce waste. The community should care about the waste that has been produced by themselves. Also mandated in Law no. 18 of 2008 regarding waste management where waste processing activities include systematic, comprehensive and sustainable activities which include efforts to reduce waste and handle waste. 1 Efforts to handle waste should start from household waste to landfill .

TPST is one of the places for processing waste, where according to the Regulation of the Minister of Public Works of the Republic of Indonesia Number 03/PRT/M/2013 the waste that goes into the TPST is waste that has been sorted. In the Padangtegal Traditional Village itself there is a TPST which is often called by the local community as the Compost House. With the Compost House in the Padangtegal Traditional Village, it indirectly requires the community to start sorting the household waste they produce. Apart from that, it will indirectly bring up village regulations as well as systems and patterns of waste management in the village, starting from the household to the compost house.

With good waste management in the Padangtegal Traditional Village, it is hoped that it can be used as a model for other villages in managing waste. Seeing the existence of the Padangtegal Traditional Village which is located in a tourism area, of course, waste is an important problem to deal with. So that later it will be able to protect the environment and tourism in this area so that people and tourists feel comfortable while in the area.

The World Health Organization (WHO) defines waste as goods originating from human activities that are no longer used, whether they are not used, are not liked, or are thrown away. Furthermore, according to Law no. 18 of 2008 concerning waste management, it is defined that waste is the residue

of daily human activities and/or natural processes in solid form. If we elaborate further, there are several types of waste such as organic, non-organic, and other waste.

In Indonesia, currently there is a lot of waste that has not been handled properly. It can be observed that in locations around/such as rivers, beaches, seas, and other places there is still a lot of trash found. According to data from the Ministry of Environment and Forestry for 2021, out of 248 districts/cities throughout Indonesia, 30,895,072.72 tons of waste have been produced in a year. Of course that is a large number. As for the reduction in the amount of waste each year, it averages 15.63% or 4,828,730.97 tons/year. This amount is still quite small when compared to the total amount of waste recorded. There was also waste handling recorded at 48.91% or as much as 15,111,101.27 tonnes/year. For managed waste, it is 64.54% or 19,939,832.24 tons/year and the amount of unmanaged waste is 35.46% or 10,955,210.48 tons/year.

The garbage appears from various sources. According to Sudrajat (2006), sources of municipal waste generally come from housing and markets. Meanwhile, according to the Ministry of Environment and Forestry, data for 2021 shows that waste comes from several sources as described in the following graph:

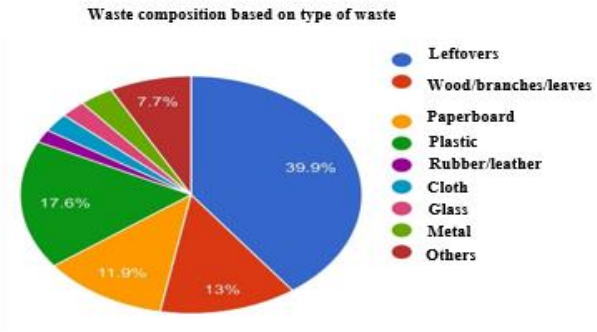

Figure 1. Composition of Waste Based on Type of Waste

Based on the graph, it can be stated that food waste is the most dominant type of waste, namely 39.9%. Of course, humans are most responsible for this. From year to year the population is increasing. According to Kuncoro (2009) the character of waste in urban areas is strongly influenced by the rate of population growth, economic growth and prosperity, as well as the lifestyle of urban communities. So it can be said that population growth and people's lifestyles have a big influence on increasing the volume of waste.

The Ministry of Environment and Forestry website also contains data on the composition of waste based on the source of the waste, which is shown in the following graph:

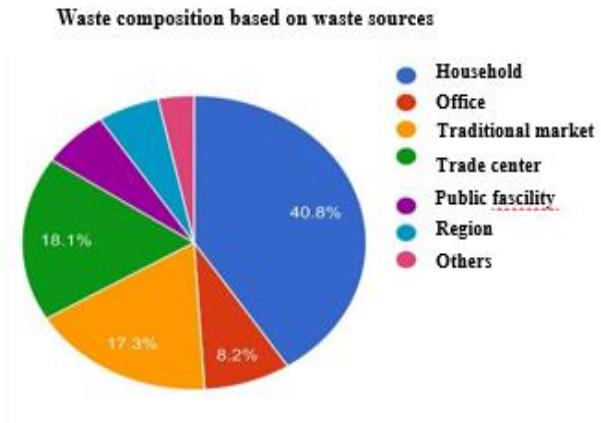

Figure 2. Composition of Waste Based on Source of Waste Source: SIPSN MENLHK

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As stated in the graph, households are the producers with the highest amount of waste generated, namely 40.8%. In the next sequence, namely trade centers and traditional markets.

Waste management

Based on the data previously described where there are 30,895,072.72 tons of waste generated annually, it is necessary to have steps to manage the waste itself. According to Sudrajat (2006) there is a way to manage waste by dividing areas based on center points, sub points and nodes. This processing is to change the inorganic waste that has been collected into recycled materials that are ready for use. In the figure an area will be divided into 5 areas namely north, south, west, east, and center. In each area there are many nodes, which are the collection points for scavengers. In the middle area there is a center point, which is a place for collecting the results of sorting from sub points. The working process is as follows.

a. Garbage container which is taken 2 times a week
b. Mixed waste will then be transported to the node where it will be sorted immediately.
c. Inorganic waste from the node will be brought to the sub-point, then separated in more detail.
d. The results of sorting from the sub point will be sent to the center point.
e. Integrated waste processing at the center point.

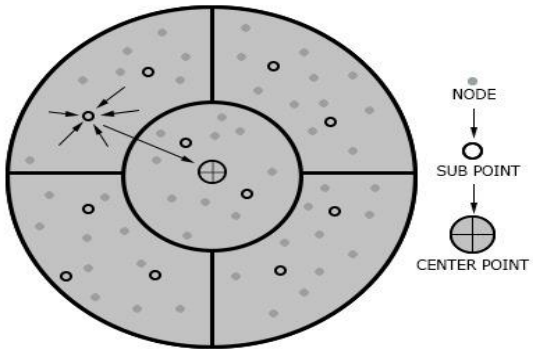

Figure 3. Schematic of Node, Sub Point, and Center Point Source: Integrated Waste Management (Kuncoro Sejati)

Furthermore, according to Law no. 18 of 2008, waste management is divided into waste reduction and handling. The reduction in question is the activity of limiting, reuse, and recycling. As for waste handling, this includes sorting, collecting, transporting, processing and final processing. Based on the Regulation of the Minister of Public Works of the Republic of Indonesia Number 03/PRT/M/2013, several facilities in waste management are mentioned, such as TPS 3R, SPA, TPST, TPA, leachate processing, and gas handling. The TPST building itself has requirements as stated in Article 32 of the 2013 Public Works Regulation, namely:

a. The area of TPST is larger than 20,000 m2
b. The TPST location can be in the city or at the TPA
c. The distance from the TPST to the nearest settlement is at least 500 meters
d. Waste processing uses technology such as ramps, compaction facilities, and leachate storage
e. TPST facilities are equipped with sorting rooms, waste processing installations, environmental pollution control, residue handling, and supporting facilities and buffer zones.

RESEARCH METHODS

The method used for this research is a qualitative method with a descriptive nature. This method is carried out by observing the object of research and followed by describing the results of observations in a narative and systematic manner. The scope of this research is the Padangtegal Traditional Village with the research object being the Padangtegal Traditional Village Compost House. The

analysis technique carried out is by collecting data and followed by analyzing it qualitatively descriptively.

RESULT AND DISCUSSION

This research is located in Padangtegal Traditional Village, Ubud District, Gianyar Regency, Bali Province. Padangtegal Traditional Village is one of the villages that has a TPST (Compost House) managed by the village itself.

Figure 4. Map of Padangtegal Traditional Village Source: Google Digital Maps

Compost House

Rumah Kompos is the name of the Padangtegal Traditional Village community for TPST located in the Central Parking Monkey Forest, Ubud. TPST (Integrated Waste Management Site) is a place for collection, sorting, reuse, recycling, processing and final processing of waste in accordance with Regulation of the Minister of Public Works of the Republic of Indonesia No. 03/PRT/M/2013.

Figure 5. Padangtegal Traditional Village Compost House Source: Personal Documents

In accordance with these regulations, the waste that is brought and processed in the composting house has been segregated according to its type. The waste that enters the Padangtegal Traditional Village Compost House has been sorted according to its type, namely organic and non-organic. The location of the compost house is also in accordance with the Regulation of the Minister of Public Works of the Republic of Indonesia Number 03/PRT/M/2013, which is a minimum of 500 meters from residential areas and the location of the compost house complies with this regulation where the compost house is located in the Central Parking Monkey Forest. which is approximately 2 km from the village center.

The Compost House itself has been established since 2012 and then in 2019 it was moved to the TPST building which is located in the Central Parking Monkey Forest. The vision of the Compost House is to make Padangtegal Traditional Village a clean and green village as well as a pilot village in terms of waste management.

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Figure 6. Compost House logo Source: Padangtegal Compost House

Padangtegal Traditional Village is located in Gianyar Regency. The average amount of waste generated per day in Gianyar Regency is around 1,500 m3 or around 375 tons. Of course this number is a fairly large number and must be addressed because it still allows for the addition of the amount of waste each year.

Waste Management System in the Compost House

The waste management system is divided into two parts, namely the waste transport system and the waste processing system at the Compost House

Garbage transport system

Starting from the community and entrepreneurs who put garbage in front of their homes or places of business, where this waste has been separated into 2 types, namely organic and non-organic waste. The garbage collection schedule is also different. Organic waste is transported every day from 04.00 to 07.00 WITA. As for non-organic waste, it is transported on every odd date (1, 3, 5, 7, etc.), namely from 20.00 to 02.00 WITA.

Figure 7. Dump Truck transporting garbage

This waste transportation uses a dump truck where for one truck there are 5 officers consisting of a driver and three garbage transporters. These officers use equipment such as uniforms, helmets, flashlights, gloves, masks, and boots. Apart from using trucks, garbage trucks also use carts or pick-up cars to reach houses that are in narrow alleys or streets. Furthermore, if the truck is full, the waste will be sent to the Compost House.

Waste processing

After the waste enters the compost house, the waste is sorted again in more detail. Even though the waste has been sorted by the community, sometimes there is also waste that is overlooked. For organic waste types like the picture below will be processed into compost.

Figure 8. Organic Waste Source: Padangtegal Compost House

The organic waste processing process is as follows. First, the collected waste will then be chopped using a machine into small pieces. Then it will be put into the holding tank and processed into compost. This process takes approximately three months. After three months the compost is sieved and then packaged and sold. Villagers who buy fertilizer at the compost house will also get a 20% discount.

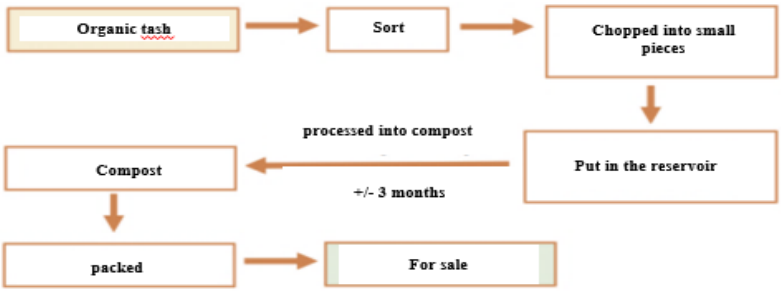

Figure 9. Organic Waste Processing Scheme Source: Personal Documents

Furthermore, non-organic waste is sorted again according to the criteria. There are 11 criteria determined by the Compost House according to the type of waste, namely plastic bags, PET (plastic bottles), cardboard, glass, cans/aluminum, duplek (rice boxes, paper, books, etc.), tetrapacks, large beer bottles, bottles small beers, mixed junk, and used cooking oil.

Figure 10. Non-organic waste Source: Padangtegal Compost House

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The sorted waste will then be distributed to collectors where it will be reused or recycled into goods that have economic value.

Compost House Effectiveness

The existence of this compost house is considered quite effective in dealing with waste problems in the Padangtegal Traditional Village. The management and performance of the compost house is directly supervised by the village apparatus and the community because the compost house is a village-owned enterprise. The village itself makes rules or known pararem regarding this facility. There are several rules that must be met by the community and entrepreneurs who are in the Padangtegal Traditional Village area. With this rule there will also be sanctions that apply to violators. These rules are contained in the Pararem of the Padangtegal Traditional Village No. 06/DPP/III/2015 where every citizen and business can sort waste and subscribe to garbage collection services at the Garbage House. If the waste is still mixed between organic and non-organic, it will not be transported until proper and correct segregation occurs. In addition, customers or people whose waste is mixed will also be informed by attaching paper and short messages from the Compost House.

Some obstacles

In the waste processing process at the Compost House this cannot be 100% implemented. Sometimes the Compost House also disposes of waste to the Temesi TPA. The waste that is sent to the TPA is generally residue from waste processing at the Compost House. Apart from residue, sometimes there is also waste in the form of tree trunks which are quite large which the chopping machine cannot process. Furthermore, non-organic waste in the form of tissue also cannot be recycled.

CONCLUSION

Based on the results of the discussion, an analysis can be carried out based on the location of the research object and the waste management system on the object. The results are as follows.

Location

Based on the location of the Padangtegal Traditional Village Compos House, it has complied with the government's provisions in the Minister of Public Works Regulation Article 32 of 2013. The location of the Compost House is also quite hidden, which is located in the Central Parking Monkey Forest area where this area is a fairly large public parking facility. The existence of this compost house also does not interfere with residents' activities or tourism in the Padangtegal Traditional Village.

Waste management system

The facilities and waste management system at the Padangtegal Traditional Village Compos House are in accordance with the Regulation of the Minister of Public Works Article 32 of 2013, which is equipped with sorting rooms, waste processing installations, environmental pollution control, residue handling, and supporting facilities and buffer zones. In addition, the Pararem from Padangtegal Village has also regulated the separation of waste into organic and non-organic for residents and entrepreneurs in the village environment complete with sanctions for those who violate it.

The Pdangtegal Traditional Village Compos House is an example of a fairly good waste management facility and system that can be used as an example for the surrounding villages. The existence of the Padangtegal Traditional Village Compost House has a considerable influence on waste management in Padangtegal Village itself. Good facilities and systems as well as binding rules also help in keeping the environment clean. Indirectly, the community will become accustomed to managing waste, in this case sorting their household waste according to existing village regulations. By sorting the waste alone, the community has helped in maintaining environmental sustainability (environmental sustainability). Moreover, Padangtegal Village is a village located in the Ubud Tourism Area where there is one of the Sacred Monkey Forest Sanctuary attractions or often called the Ubud Monkey Forest. In the Padangtegal Village area there are also many homestays, villas, restaurants, and other tourism supporting facilities. With so many tourism supporting facilities, it is

certainly very important for the village and its people to pay attention to the environment and the waste it produces. So that the sustainability of tourism in Padangtegal Village will also be maintained and the economy of the people can be better. So the role of the Padangtegal Traditional Village Compost House is very important for environmental resilience and sustainability.

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