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Utilization of Biobox (Biopori and Dropbox) to Increase Public Awareness of Inorganic Waste

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ABSTRACT

Problems such as flooding can be caused by the behavior of people who still litter, such as in rivers or streams. This can cause water to not flow smoothly and will cause water overflow to be hampered. The efforts of the Real Work Lecture (KKN) carried out by group 41 are to overcome these problems, one of which is by providing water absorption holes, namely Biopori and the establishment of a Waste Bank by making Dropboxes, which function to separate organic and inorganic waste. This research uses a qualitative description method with data collection techniques through observation, semi-structured interviews and documentation. The subjects of this research were 17 students who did KKN in one of the waste banks. The results showed that with the creation of Biopori infiltration holes and Dropbox inorganic waste containers, the RW 06 community was helped from the problems of overflow of water which is considered prone to flooding. In addition, in the waste bank program, the counseling that has been carried out has obtained good results, in the form of the participation of RW 05 residents who are starting to be aware of protecting the surrounding environment and the enthusiasm of residents to fill the Dropbox with their inorganic waste.
Keywords*: Organic; Inorganic Waste; Biopores; Dropboxes.*

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Introduction

Indonesia is one of the countries that is still vulnerable to natural disasters. This condition is caused by Indonesia has three types of climate, including monsoon climate, marine climate, and tropical climate, which causes differences in rainfall patterns in some areas. which causes differences in rainfall patterns in some areas. Differences in climate conditions make global warming and climate influences can cause an increase in temperature and sea level in the region of Indonesia, which is located on the equator, so that the incidence of natural disasters will be high natural disasters will also be high. One of the natural disasters that often occur in Indonesia is flooding. High rainfall in certain months can cause flooding. can cause flooding. Flooding is one of the natural disasters that to be aware of in several regions, especially in Indonesia.

Degraded natural conditions and loss of absorption land make flood disasters more threatening, especially in lower-lying areas. The loss and damage caused by flooding disrupts people's lives and livelihoods, so there is a need for countermeasures to overcome flooding problems to overcome the problem of flooding. Floods also have a negative impact on the psychological and health of people in flood-affected areas, especially on health issues such as dengue fever, diarrhea, skin diseases, and several other health problems. In addition, the problem of flooding can be caused by people who still litter such as in rivers or streams. This can cause water to not flow smoothly and will cause water overflow to be hampered. Flood events are also caused by the large number of people who litter, especially inorganic waste.

Many residents take waste care for granted. The concern and awareness of the community in Hamlet 2 Gunung Putri Tlajung Udik, especially around RW 05 towards waste is still lacking because there are still many people who litter and burn garbage. The surrounding community still cares less about the environment around them, so that garbage is scattered, many bottles and plastic waste in the river or waterways which can cause clogging of waterways and ultimately can cause flood disasters.

One of the efforts that need to be made to overcome these problems is to provide infiltration holes. The infiltration hole is known as Biopori. Biopori is an organic hole that functions as a place for water to flow or seep into the ground (Karuniastuti, 2014). The hole will be filled with organic waste and form the activity of organisms in it so as to cause higher water absorption. This infiltration hole is expected to be one of the solutions in minimizing and overcoming flooding. The making of Biopore Holes was carried out in RW 06. The making of Biopore Holes is one of the strategies that can be applied in areas prone to flooding. The community has a very important role in making and maintaining this Biopori hole.

The next strategy that can be done in flood disaster management is the creation of a Dropbox, which is intended as a garbage / waste box specifically for plastic bottle waste. This dropbox is placed in several corners of the place as a container for garbage collection. Specific waste containers can use dropboxes. This dropbox is intended as a waste box that is specialized for electronic waste (e-waste) which is classified as hazardous waste (Wilujeng, et al., 2021). Therefore, to overcome these two problems, the 41 KKN students created the idea of making BIOBOX (Biopori and Dropbox) and then educating the community.

Research Method

Research Design

The type of research used in this study is descriptive research with a qualitative approach. According to Krik and Miller quoted in (Suwandi & Basrowi, 2008), qualitative research is a certain tradition that fundamentally joins observations of humans in their own area and interacts with these people in certain languages and special terms. Meanwhile, research with descriptive methods means solving problems investigated by describing / describing the state of objects or research subjects, both individuals and society at the present time (Artiningsih, et al., 2012). Qualitative research involves researchers so that they will understand the context with the situation and setting of natural phenomena according to what is being studied (Fadli, 2021).

Participants

The subjects of this study were 8 informants consisting of KKN students, Village Head, Village Officials, Hamlet Heads, RT, RW, Youth Organization, and the Community have become primary data sources in this study.

Data Collection Techniques

The data collection techniques used in this study are: (1) observation; (2) semi-structured interviews; and (3) documentation. The methods mentioned above aim to extract information and also as data reinforcement from the perceptions of the surrounding community towards the making of biopore infiltration holes and waste banks in the form of dropboxes that have been made by KKN students in Tlajung udik village RW 05 & 06.

Location

The location targeted for data collection in this study is located in one of the waste banks in Gunung Putri Sub-district, Tlajung udik Village RW 05 & 06.

Result

Tools and Materials for Making Biopore Infiltration Holes. The tools and materials needed in making Biopore Infiltration Holes include:

1. Ground drill
2. Crowbar
3. PVC pipe and cover
4. Water

The steps for making a Biopore Infiltration Pit include:

1. Before starting to make biopore holes, first determine the location where the biopore holes will be made.
2. After determining the place of manufacture, flush the soil that will be used as a place to make biopores with water so that the soil becomes softer and easier to punch.
3. Perforate the soil using a soil drill, try to make it perpendicular.
4. Make a hole with a depth of approximately 1 meter with a diameter of 10-30 cm.
5. After that, line the hole using a PVC pipe that is the same size as the diameter of the hole.
6. Then, fill the hole with organic waste such as leaves, grass, fruit peels, and other plant-based waste.
7. After that, close the hole using iron wire, or you can also use a PVC pipe cap that has been perforated first.

The process of making Biopori infiltration holes

The stages carried out in making Biopore Infiltration Holes in RW 05 as a work program by KKN 41 students are as follows:

1. Biopore Planning Stage

   At this stage the UIKA Bogor KKN group 41 team conducted interviews with Tlajung Udik Village informants and the head of RT 03 / RW 06 Tlajung Udik Village as well as preliminary observations. Based on the results of the interview, information was obtained that there are still several places that can still be made biopori infiltration holes to prevent flooding and reduce inorganic waste. Although there are already several biopore infiltration holes in RT 03/RW 06, according to the head of the RT, it would be better to add more biopore infiltration holes.

   Therefore, it was concluded that the UIKA KKN-41 team would add 5 biopore infiltration holes in RT 03 / RW 06. By adding biopore infiltration holes, in addition to reducing organic waste that will be disposed of to the landfill, making biopores will also make the community used to sorting between organic and inorganic waste.
2. Biopore Implementation Stage

   The implementation of making Biopori infiltration holes was carried out on August 25 and 26, 2023. The implementation stage began with August 25, 2023 the UIKA Bogor KKN-41 team made 3 biopore infiltration holes and on August 26 continued by making 2 more biopore infiltration holes which were also assisted by the head of RT 03 / RW 06. This hole has a diameter between 10-30 cm and does not have a shallow groundwater table. The holes are then filled with organic waste that has a function as food for living things in the soil, such as worms and plant roots. A biopore is a cylindrical hole dug vertically in the ground.\

   Biopore holes function as holes made with the aim of overcoming standing water. Biopores are made by digging holes in the ground and filling them with organic waste. The utilization of organic waste aims to produce compost.

Figure 1. The process of digging the soil with a depth of 10 - 30 cm to make biopore holes

Figure 2. Installation of a 4-inch pipe into the biopore soil hole

Figure 3. The process of closing a biopore hole with a lid made of concrete

Dropbox

Dropbox is a place made for special waste management of inorganic waste such as plastic bottles and plastic cups. Dropbox aims to provide better waste management to prevent environmental pollution. With the Dropbox, the community can always get used to disposing of waste in its place and can dispose of inorganic waste in the Dropbox. Through this Dropbox, it is hoped that the level of public awareness of inorganic waste can increase so that people do not litter anymore.

Dropbox Planning Stage

At this stage, the UIKA Bogor KKN-T Group 41 team conducted interviews with the Head of Proklim Tlajung Udik Village and preliminary observations. Based on the results of the interview, information was obtained that in RW 05 Tlajung Udik village there was no waste dropbox as a place for special waste management of inorganic waste. Where in Hamlet 2 itself there are already several Dropboxes such as in RW 04, RW 27 and RW 30.

Therefore, it was concluded that the UIKA Bogor KKN-T Group 41 team would create a waste dropbox for RW 05. By creating a dropbox as a place for waste management specifically for inorganic waste, it is hoped that residents can make good use of it. With the existence of a Waste Bank in RW 05, it will greatly facilitate the process of sorting inorganic waste.

Dropbox Implementation Stage

The implementation of making Dropbox was carried out on August 27 and 28, 2023. The implementation stage begins with the purchase of materials such as wire (125) and Galfalum (1 meter). Dropbox as a place for special waste management of inorganic waste such as plastic bottles and plastic cups. Aims to provide better waste management and prevent environmental pollution. With the existence of the waste dropbox, people always get used to disposing of waste in its place and can recognize the types of waste such as organic and inorganic.

Figure 4. Shop for tools and materials for Dropbox creation

Figure 5. Measure the length of the RAM Wire, then cut the wire, with a circular position made linked to a fellow wire that has been made into a circular position from concrete.

Figure 6. Making an entrance for plastic bottles

Figure 7. Creation of a door to remove the bottles

Figure 8. Process and results of Dropbox creation

Figure 9. Submission of the results of making Dropbox by KKN students

Socialization Stage

Located in Al-Hamid musholla, the socialization of the importance of cleanliness and health was complemented by educating RW 05 residents about the difference between organic and inorganic waste. Appearing as a speaker from the Field Supervisor who is none other than a Post Lecturer at Ibn Khaldun University Bogor, Dr. Widyasari. M.Pd. Widya explained the factors that can cause environmental damage which can also cause various diseases. In addition to explaining the types of waste, at the end of the meeting a dropbox was handed over so that local residents could utilize it.

Figure 10. Socialization with UIKA Lecturers about the use of Dropbox and Biopore infiltration holes

Conclusion

Environmental problems, especially in RW 05 and RW 6 of Tlajung udik village, Gunung Putri sub-district, are about environmental cleanliness, including the discovery of garbage that is still messy, lack of water absorption. Both problems have the potential to cause environmental damage such as flooding, soil pollution, and can even cause disease. Based on the many benefits that biopores have on the environment, the community service activities carried out by the 41st group of Ibn Khaldun University students are in the form of counseling in the form of material presentation on the use of Biopores and also the use of Dropboxes as an effort to tackle organic waste and flood prevention as well as direct practice in making biopore holes and dropbox bins by KKN students and also assisted by the surrounding community. With the creation of biopore holes, the community is helped, especially if the rainy season has come. And after the socialization of dropboxes in the area, the local community can choose what type of garbage can be put into the dropbox. The enthusiasm of the community can be seen in the number of plastic bottles they take from their respective homes to put in the container.

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