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Planning Of Septic Tank And Involvement For Household Waste Treatment For The Community In Nagarasari Kelurahan, Cipedes District, Tasikmalaya City

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ABSTRACT

This service aims to increase public understanding of septic tank and infiltration planning for proper household waste treatment and in accordance with community needs. The problems found in the field are the capacity of the septic tank, the length, width and depth of the tank are not in accordance with the requirements, the slope of the bottom of the tank is not enough and with only one mud chamber, when sucking the mud it will smell because what is sucked in is mud that has not decomposed completely, and the lack of information about environmental diseases caused by poor handling of household waste. The implementation method in this service is carried out in a 5 W 1H way, namely solving problems from the questions: what, who, where, when, why, how. The planned activities that will be carried out are in collaboration with local health centers to carry out socialization and together with the community to build a septic tank design that is in accordance with the Indonesian National Standard (SNI). The solution to the problems found in the field is the provision of a stimulus in the form of repairing septic tanks and infiltration in partner areas, collaborating with the Cigeureung Health Center in the field of public health to disseminate public health regarding environmental health in household waste disposal, and collaborating with partners in the community service area. make a model of a septic tank in accordance with SNI.

Keywords: Septic Tank, Household Waste, Open Defecation

INTRODUCTION

Every day the family's residences dispose of dirty water that must be accommodated and processed in a sanitary manner. What is meant by dirty water is waste water originating from toilets, toilets, bidets, and waste water containing human waste originating from other plumbing tools. Soufyan in Morimura (1984) quoted by Sudarmadji and Hamdi (2013) states that most of the existing dirty water management methods do not meet health requirements, both in urban and rural areas, still using a local wastewater treatment system (on-site). which is a septic tank. This treatment was chosen because centralized wastewater treatment (dirty water) is still not widely available in Indonesia. In addition, local systems also do not require large costs when compared to centralized systems. Both development and operational costs can still be borne by the users. The implementation and operation of the local system is also simpler so that it can be accepted and utilized by the community, either individually, as a family or by a group of people (communal).

Technology in wastewater treatment can be divided into 2 (two) types based on the user of the facility, namely individual domestic wastewater treatment and communal domestic wastewater treatment. The individual domestic wastewater treatment technology commonly used is the septic tank. A septic tank is a watertight room consisting of a space compartment that functions to accommodate/treat household wastewater with a very slow flow rate so as to provide an opportunity for the deposition of suspended solids and the opportunity for decomposition of organic materials by anaerobic microbes. This process runs naturally so that it separates between solids in the form of a more stable mud and liquid (supernatant).

The anaerobic process that occurs also produces biogas which can be utilized. The treated liquid will come out of the septic tank as an effluent and the gas formed will be released through the ventilation pipe. Meanwhile, the mature (stable) sludge will settle to the bottom of the tank and must be drained periodically every 2-5 years depending on conditions. The effluent from the

septic tank still requires further processing because of the high organic content in it. Further processing that can be used is in the form of infiltration wells and small bore sewerage. Based on the type of further treatment, septic tanks can be divided into septic tanks with infiltration wells, evaporation/evaporation known as filters and septic tanks with small bore sewerage. In its utilization, septic tanks require flushing water, permeable soil type (not impermeable to water) and deep enough ground water for the infiltration system to take place properly. Therefore, septic tanks are suitable for use in areas that have clean water supply either by piping systems or local shallow wells, soil conditions that can pass water, the location of the groundwater table is quite deep, and the population density level is still low, not exceeding 200 people/person. ha (Bintek, 2011 in Lumbangaol and Simanjuntak, 2017).

Septic tanks are considered the best way to treat wastewater, but in fact there is still contamination of soil and water through seepage. Distance requirements in rural areas are easier to meet due to lower occupancy densities. Septic tanks are actually not suitable for use in densely populated cities. Even for a very simple house with a narrow yard, it is impossible to build a septic tank that meets the requirements in every house. However, if one septic tank is made for several houses, it is difficult to manage. In the old residential area, which already uses a septic tank, it is not easy to convert it into a piping system. The cost of sewerage piping, which usually ends with a sewage treatment plant, is indeed very expensive. Excavation of a very large pipe in the middle of a crowded city will cause problems to disrupt the smooth flow of traffic and the comfort of residents. Sewerage piping systems with sewage treatment plants may only be feasible (feasible) to be built in new residential areas. For this kind of area, it is also easier to require residents to connect to the dirty water pipe. Limited costs force us to temporarily settle for a septic tank even though the knowledge of building installations and wastewater treatment technology is far more advanced. Advanced technology is only applied in the scale of companies (industry, hotels and so on), institutions (hospitals) and luxury residential groups.

A septic tank is one of the equipment in a building where its function is as an installation for processing dirty water (waste water), especially from latrines or toilets. Therefore, the design of a building must be equipped with a wastewater treatment plant, if this dirty water installation is not considered, the consequences will be pollution for the environment, dirty and disgusting for the surrounding houses. Applications in the field of forms of septic tanks vary in shape and type, but ideally the shape and parts of the sewerage system are as shown in Figure 1 below:

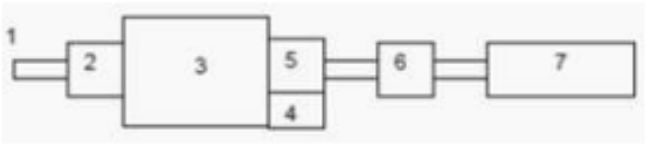

Figure 1 Dirty Water Disposal System Plan (Source: Yudirachman, 2012)
Description :

1. The sewer pipe from the latrine or WC to the chute or crushing chamber.
2. The crushing room must be provided with ventilation pipes to regulate air pressure with 1" pipes.
3. Septic tank, as a place of decay of sewage material into mud. A new septic tank before use should be filled with just a bucket of water that is dirty black, already contains seeds of decay. With the intention of being given as the beginning of the decay process in the septic tank.
4. The mud collection room is made separately so that it does not interfere with the decay process and makes it easier to take cooked sludge. For removal of sludge from the septic tank at least once every 2 years.
5. The space for draining water from the septic tank to the infiltration/seepage room. The placement of the outlet pipe is lower than the intake pipe with a height difference of approximately 10 cm.

6. The receptacle serves as a place to liquefy sediment from the septic tank that will infiltrate or seep.
7. Construction of infiltration, with the intention that water from the septic tank is channeled to the infiltration. This infiltration construction consists of gravel and sand which is surrounded by palm fiber.

Based on field observations, it is shown that many septic tanks do not meet the construction requirements so that the septic tanks fill up quickly or pollute the environment. The problems that are often encountered in the field include:

1. The capacity of the septic tank, the length, width and depth of the tank do not meet the requirements.
2. Effluent is too close to influent; there is no permeation channel, so the effluent is directly discharged into water bodies in a state that endangers health; there is no bulkhead after the influent and is contained in SNI 03-2398-2002.

METHOD

This community service activity is carried out by providing socialization to the community with the theme of septic tank and infiltration planning for household waste treatment for the community. As for before and before the socialization, a questionnaire was given to see the competence on the theme. At the socialization stage, it is carried out by delivering information from competent sources in their fields through lectures, discussions, and questions and answers. The population in this community service is the entire village of Nagarasari and the sample is 40 people consisting of representatives in the community. The sampling technique used is purposive sampling, which is determining the sampling by determining special characteristics that are in accordance with the purpose of service so that it is expected to answer community service. For data collection techniques used by using field notes, questionnaires and observation sheets.

RESULTS

Lecturers of the Civil Engineering Department, Faculty of Engineering, Siliwangi University (Unsil) carry out community service activities in RW 01 Nagarasari Village, Cipedes District, Tasikmalaya City, with the theme "Septic tank and infiltration planning for household waste treatment for the community", RW01 was chosen as a community service location because the area is located along the Ciloseh River, where most of the people dump their household waste from bathrooms and toilets directly into the Ciloseh river. This community service activity is divided into several stages, the first activity starting with a site survey and socialization with residents in RW 01 on Saturday (4/9) at the Al-Istiqomah Mosque, RW 01, Nagarasari Village, Cipedes District, Tasikmalaya City. The community using public MCK then proceeded with the community to conduct site surveys and measurements for the manufacture of septic tanks and their infiltration.

The socialization activity began with filling out a questionnaire by each counseling participant to measure the participants' knowledge regarding general MCK behavior. The presentation of the socialization material was carried out by the service team in turns and ended with a discussion session. The counseling participants who attended seemed enthusiastic to take part in this socialization activity. This is known from the active participation of the participants in the discussion session in asking questions and statements according to conditions that occur in the community. After the socialization, a questionnaire was also given to see the extent of the knowledge gained after participating in this activity. In this evaluation activity, the service team was assisted by 4 (four) students in distributing questionnaires to each participant of the socialization. This is done to ensure that the answers obtained from the counseling participants are correct based on the results of their own thoughts according to what is known from the material provided during the counseling. The results of the knowledge measurement before and after were then processed and analyzed descriptively to get a general picture of the knowledge of the participants in the socialization.

Then the second activity which was carried out on Monday (13/9) was the implementation of making a septic tank model for household waste treatment for residents of RT 04 RW 01 as well as an explanation for maintenance and control so that the process of decomposition in the septic tank runs well, so that the septic tank can withstand long. The activity carried out is together with the community to make a septic tank according to the planning drawings made by the Siliwangi University Community Service Team.

The existence of this activity aims to provide understanding and knowledge or pilots to the public regarding good Septic Tanks according to national standards. The role of the community is quite high, where in making this septic tank the people of the Nagarasari village are very enthusiastic about helping the service team in the process of making the septic tank. The stages of making a septic tank start from determining the location, preparing materials, then the process of excavating the septic tank to a depth of approximately 3 meters. The existing hole is then inserted a ring that has been adjusted to the size of the dug hole. After that, the hole is closed using the ring cover that has been provided, then the process of installing the pipe from the toilet to the septic tank hole is carried out. The next process is the installation of the toilet which is arranged with red stones. Thus, after that, the process of plastering the bathroom floor was carried out and the last was the process of making the walls and roof of the bathroom.

The next third activity was carried out on Wednesday (22/9) at the Al-Istiqomah mosque with all residents of RW 01, the form of activity carried out was collaborating with the Cigeureung health center and the Nagarasari village to disseminate Open Defecation Free (ODF). In this last activity, the enthusiasm of the community was greater due to the involvement of the Nagarasari village and the Cigeureung Health Center in this activity. The reason for carrying out several activities is because the unsil service team does not only want to convey information, but also wants to directly show real actions from the socialization material.

The existence of this collaboration certainly makes service activities feel more leverage. Indra Mahdi as the chairman of this service team said that the element of cooperation with the Nagarasari village and the Cigeureng health center is important in the implementation of this service activity because this collaboration complements the solutions we offer to the community regarding the problems they are currently facing. Finally, Indra Mahdi added that it is very important to make a septic tank in accordance with the Indonesian National Standard (SNI) because it can protect our surrounding environment from various kinds of pollution, such as diarrhea, worms, or other skin diseases.

This activity was held at the Al-Istiqomah Mosque Rt 4 RW 1, Nagarasari Village, Cipedes District, Tasikmalaya City. The reasons for carrying out this activity are still finding septic tanks that are not in accordance with the Indonesian National Standard (SNI) and the lack of information about environmental diseases caused by poor handling of household waste.

The existence of this activity provides good benefits for the surrounding community. This is evidenced by the results of an open questionnaire from participants who took part in this activity. As stated by Dadang that “I thank the unsil service team because with this activity I know more about a good septic tank, so it doesn't have a bad impact on the surrounding environment. In addition, this activity also motivates me to pay more attention to health, especially from the surrounding environment which is close to the river.” Another thing was expressed by Firman that “This activity can reach various groups, such as mothers, fathers, young people, puskesmas, RT, RW, and Lurah. Besides that, everyone joins in and supports all these activities for great benefits in the future.” Ayu also added that "in the future hopefully there will also be activities like this because there are so many things that have not been resolved by the residents due to lack of knowledge to solve existing problems". Furthermore, Roni added that "This activity made us think about being disciplined in protecting the surrounding environment and reminding each other to our fellow community members so that no one would open open defecation near our environment"

DISCUSSION

The results of this service are in accordance with the theory put forward by Notoatmodjo that one way that can be done in influencing the health behavior of individuals, groups or communities is through health education, where health education is one of the health education media that is able to increase participants' knowledge. following it (Notoadmodjo, 2012). Health education can influence people's behavior to achieve more optimal health conditions (Fadmi, 2019). Public knowledge before being given counseling is still low due to the lack of information obtained from the media, reading books and information obtained from social media (Yulinda & Fitriyah, 2018). In addition, the extension method with lectures is considered capable of increasing public knowledge quite well (Ramadani, 2017). Extension with the lecture method is an extension technique by providing information and explanations of an idea and a message orally addressed to the target group to obtain information about Health (Widayati, 2020).

One of the activities carried out in this service activity is the socialization of Open Defecation Free ODF. Stop Open Defecation (Stop Defecation) is one of the government's efforts which became the first pillar of the Community-Based Total Sanitation (STBM) program based on the Decree of the Minister of Health of the Republic of Indonesia Number 852/Menkes/SK/IX/2008) (Depkes, 2014). Stop defecation is one of the efforts in total sanitation in breaking the chain of contamination of human waste to drinking, eating and other raw water. The purpose of Stop defecation is to change the behavior of community groups in improving environmental sanitation conditions so that an Open Defecation Free (ODF) condition is achieved in a village where 100% of the population has access to defecate in healthy latrines (MUNAH, Leonardo, & Susilowati, 2019).

The existence of this activity has a good impact on the community because people increasingly understand the importance of health. This means that the community needs a stimulus in order to increase this understanding and very few people are looking for the meaning of health on their own. This is also in accordance with the service activities carried out by Saparina and Ali (2021) that health counseling provides increased public awareness about health, especially defecation in its place. Another thing added by Safriani and Putri (2019) is that health education activities can have a positive impact in terms of knowledge and behavior

CONCLUSIONS AND RECOMMENDATIONS

Service activities are carried out through several stages, firstly socialization with the public using public toilets and then continuing with the community to conduct site surveys and measurements for the manufacture of septic tanks and their infiltration. Second, the implementation of making a septic tank model for household waste treatment for residents of RT 04 RW 01 as well as explanations for maintenance and control so that the decomposition process in the septic tank runs well, so that the septic tank can last a long time. The last is collaborating with the Cigeureung health center and Nagarasari village to carry out socialization of Open Defecation (BABS) and Open Defecation Free (ODF).

The purpose of this community service activity has been achieved by increasing knowledge about environmental diseases caused by poor handling of household waste. Producing an environmentally friendly septic tank prototype 4). Increase community participation in order to lead a healthy life in areas near rivers and suppress the act of open defecation (Stop defecating). Based on the results of the evaluation carried out after this activity with interviews and the results of an open questionnaire, it was found that the community's knowledge was getting better regarding the use of septic tanks and the cleanliness of the environment around their homes.

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APPENDIX

Figure 1. Socialization with residents of RT 4 RW01 at Alistiqomah mosque

Figure 2. Making a septic tank and how to maintain it.

Figure 3. Socialization of ODF and open defecation in collaboration with the Cigeureung Health Center and LPM in Nagarasari Village

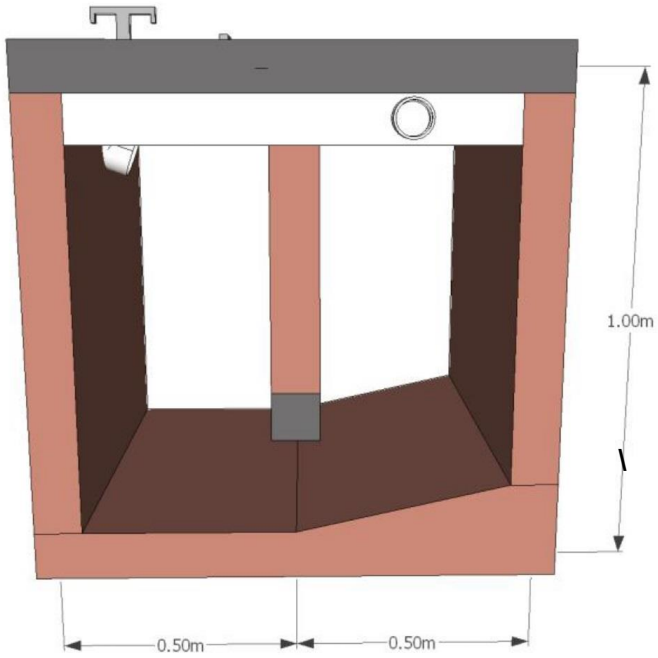

Figure 4. Septic Tank Planning Model