

TONGSIS BUNG-BUNG PAH: Means of save garbage as a social facility to manage the environment of Kelampaian Ilir Village, South Borneo



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ABSTRACT

Garbage is an environmental health problem that will cause the impact of morbidity on the community if not managed properly. Based on the observation in Kelampaian Ilir Village, Astambul Sub-district, Banjar Regency, almost all household heads do not have garbage disposal outside the house that is 87.06% of all to the families surveyed. The problem of garbage in Kelampaian Ilir village is caused by the low knowledge and awareness of the environment, the absence of health cadres calling for and supervising the cleanliness of the local environment, the unavailability of standardized waste bins and the absence of waste management, and the housing environment close to the river. The purpose of this study is to explain the difference in average knowledge and attitude of society before and after counselling. This type of research is quasi experimental by using pre-test and post-test. Instruments in this study using questionnaires. The data analysis uses the T-Test if the normal distribution and Wilcoxon test if it does not meet for paired t test. The result of data analysis showed that after giving counselling and community empowerment through *Tongsis Bung Bung Pah* activity, the respondents experienced an increase of knowledge and attitude from less good to 100%. The result of analysis through Wilcoxon test $\alpha = 5\%$ indicates that there is difference of knowledge and attitude (p-value = 0.0001) of society before and after follow the counselling about waste management and implementation of *Tongsis Bung Bung Pah*.

Keywords :

Garbage, cadre bung-bung pah,
 knowledge,
 attitude

I. INTRODUCTION

Waste has become a national problem so that management needs to be done comprehensively and integrated from upstream to downstream, waste management required legal certainty, clarity of responsibility and authority of government, local government, and society so that waste management can run professionally, effectively and efficiently. So the president issued the Law Republic of Indonesian Number.18 of 2008 on Waste Management which aims to reduce the problem of waste in Indonesia¹.

The rate of waste production continues to increase, not only parallel to the rate of population growth but also in line with the increasing pattern of public consumption. On the other hand the capacity of waste management conducted by the community and local government has not been optimal. Waste that is not managed properly will affect the environment and the health of the surrounding community. The average waste generation per household is 1.46 liters / person / day or 0.38 kg / person / day, equivalent to the category of Indonesian National Standard 19-3964-1994 for municipal solid waste generation unit².

Burned waste is an activity that has a role to the occurrence of air pollution. Trash burning process although small scale but very instrumental in increasing the amount of pollutants in the air, especially dust and hydrocarbons. The pollutants are not only harmful to the environment but also directly harmful to humans. In the Law of the Republic of Indonesia Number 4 of 1982 on Basic Principles of Environmental Management, Chapter III, Article 7, Paragraph 1 says every person who runs a business field is obliged to maintain the sustainability of a harmonious and balanced environmental capability to support sustainable development . Then in Article 20 (1) Waste Reduction as referred to in Article 19 letter a covers the activities of limitation of waste generation, recycling of garbage, and reuse of garbage³.

The emergence of a waste bank as an effort to implement the Law No.18 of 2008, is a way of waste management in real action through 3R movement (reduce, reuse, recycle) by directly involving the community⁴. In the profile book of Bank Sampah Indonesia 2012 published by the Ministry of Environment (Kementerian Lingkungan Hidup), the statistics of the development of waste bank development in February 2012 are 471 pieces already in operation, with 47,125 depositors and 755,600 kg / month of waste with the turnover Amounting to Rp 1.648.320.000/month. This statistic number increased to 886 pieces of waste bank running according to the data of May 2012, with the number of savers 84,623 people and the amount of waste managed by 2.001.788 kg / month and make money of Rp. 3,182,281,000 / month. These statistics include the regions of Java and Borneo. According to Research Tien Aminatun, et al (2012) entitled "Empowerment of Housewives and Young Women in Berbah Sleman in Garbage Processing Kitchen with Simple and Environmentally Friendly Technology that Can be Economic Value and Powerful" found that the amount of kitchen garbage generated per house Ladder per day on average as much as 2.67 kg. Meanwhile, according to M. Hakim (2011), 1 kilogram of organic garbage can produce 0.6 kilograms of compost. Thus, it is known that in a day a household can produce a compost of about 1.6 kilograms and in 1 month produce about 48 kilograms. Thus, if 1 kilogram of compost is sold at Rp2,500.00,- / kg, the organic garbage produced by household per month is Rp120.000,00. As for the handling of inorganic trash after collected from the household is by depositing directly to the collectors. According to data of Waste Bank Gemah Ripah Banjarbaru (2015), inorganic trash produced by a household can reach Rp50.000,- / month. By segregating this garbage, the use of organic garbage becomes easier. Based on the above, it is known that the economic potential of organic and inorganic waste in a household can produce an average of Rp170.000,00,- / month⁵.

South Borneo is a region of a thousand rivers. Where the river is used as a center of daily necessities by the community, such as for bathing, drinking and washing all originated in river water, especially for people living on the river banks. But now people are making rivers for landfills. There are several reasons why people throw waste into the river. Among other things, throwing waste into the river is considered more practical and free, the lack of means to dispose of waste around the river that has become a culture. This is in line with Dinajarti Eka Puspitasari's research in the Journal of Law Mimbar 2009, saying that this could happen due to the lack of public sensitivity to environmental conservation and ultimately harming the community itself by throwing waste into the river by not considering the impact it generates.

Kelampaian Ilir Village is one of the villages located in Astambul sub-District, Banjar District, Province of South Borneo. Based on the observation in Kelampaian Ilir Village, Astambul sub-District, Banjar District, found the problem in the village is garbage. In Kelampaian Ilir Village, almost all household heads have no garbage disposal outside the house, 74 households (87.06%) and only 11 households (12.94%) have landfills. The average volume of organic garbage in Kelampaian Ilir Village is 1.82875 m³ / day and the average volume of inorganic waste is 4.090625 m³ / day while the total weight average volume of waste per day is 5,919375 m³ / day. The average weight of organic garbage in Kelampaian Ilir village is 17.7 kg / day and the average weight of inorganic waste in Kelampaian Ilir is 6.2 kg / day, while the average weight of total waste in Kelampaian Ilir is 23, 9 kg / day⁶.

The habit of littering the garbage has become a habit, because according to them throwing waste behind the house, empty land, or directly burned considered more practical⁷. Besides being already a culture, the unavailability of facilities and infrastructure to dispose of waste also affect the behavior. Waste discharged into the environment will cause problems for the life and health of the environment, especially human life⁸. In addition, dumped waste can clog sewage canals. Conditions such as this can cause flood hazards due to inhibition of drainage and rain water⁹. The problem of waste in Kelampaian Ilir village is caused by the lack of knowledge and awareness of the environment, the absence of environmental hygiene cadres appealing to and supervising the cleanliness of the local environment, the lack of funding for waste bins, the lack of attention and the government's supervision on waste management, the unavailability of standardized waste bins and the absence of waste management, the residential neighborhood close to the river flow, which often disposes waste in the river, and the lack of facilities / infrastructure for the construction of trash cans¹⁰.

Therefore, based on the description of the problem, there needs to be efforts made so that the garbage problem in Kelampaian Ilir village can be solved. The activity that we will do is to form the cadre of Bung-Bung Pah (saving the garbage) to procure the trash bins that will be recycled and made compost which will be used for the plants in the yard of the community house to support the government program of the Ministry of Agriculture Sustainable Food Home Area Model (Sustainable Food Home Area Model).

II. MATERIALS AND METHODS

TONGSIS (Inovative and practical trash bin) as a means of bung-bung pah (saving garbage) is a form of innovation for the means of social learning habit of managing the environment for the people of Kelampaian Ilir Village, South Borneo by utilizing trash can or trash bin for modified inorganic waste. This technology is one way of being integrated to the environment so that the operation is easy and safe. While the organic waste will be left decomposed to be used as compost for the plants in the yard of the community house Kelampaian Ilir Village, South Borneo.

1. Planning and Preparation

At the planning and preparation stage, PKM team (Student Creativity Program) Community Service in Kelampaian Ilir Village works together with local health institutions, both Puskesmas in the work area of activities to be carried out and advocacy to community leaders in the village of Kelampaian Ilir. At this stage the determination of parties to be involved in this idea includes preparing the facilities and infrastructure used in the implementation of activities. Holds an initial meeting between the chairperson and team members, sets the time frame of the activity, establishes the devotion design, creates the instrument, drafts the Tongsis Bung-Bung Pah cadre training module, reproduces the kader questionnaire and cadre module, establishes the training location, and the preliminary survey.

2. Implementation

Approach method in this community empowerment is by the establishment of Bung-Bung Pah Cadres (saving garbage). The selection of cadres is done with the community and local village officials. After the establishment of the cadre is finished the next stage is making TONGSIS (innovative and practical trash bin).

- a. Socialization of Tongsis (innovative and practical trash bin) : Prior to the implementation of the TONGSIS establishment program (innovative and practical trash bin), it will be socialized first to the community of Kelampaian Ilir Village, South Borneo to introduce the program to be implemented.
- b. Program implementation : After the socialization and formation of cadre structure, the next step is to establish TONGSIS (innovative and practical trash bin). For the establishment of TONGSIS, the team of PKM (student creativity program) Community Service will cooperate with the people to provide one of the land (in the field or empty land owned by the citizens) to be the place of TONGSIS. Where the land is so wide as to enable cadres and communities to carry out organic and non-organic waste separation activities.

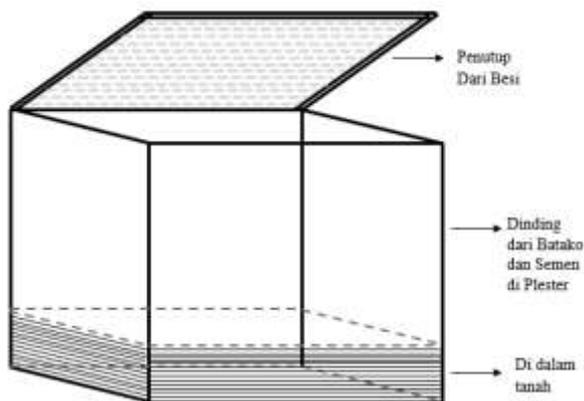


Figure 1. Design of The Trash Bin (1,5m x 1,5m x 1,5m)

- c. Selection of Bung-Bung Pah Cadres :The managers cadre of TONGSIS is someone selected from the community who want, know, and able to manage TONGSIS. Therefore, the cadres will be given prior knowledge about TONGSIS, minimal stewardship to manage TONGSIS, as well as the duties of each unit.

The selected cadres come from the local community with the following criteria:

- 1. The selected cadres have more time to manage TONGSIS (innovative and practical trash bin).

- 2. The selected cadres have good communication skills with the local community.
- 3. The selected cadres are committed to carrying out the tasks for the sustainability of these activities.



Figure 2. Logo from Bung-Bung Pah (saving garbage)

III. STATISTICAL ANALYSIS AND GRAPHICAL PRESENTATION

The analysis used to determine the average difference before and after the intervention was done by the Dependent T-Test if the normal distribution and Wilcoxon test if it did not meet for paired t-test. Prior to testing on the variables of knowledge and attitude, it must be tested before and after knowledge and attitude before and after the intervention is normal distribution or not. Based on the normality test results obtained before and after intervention knowledge variable is not normally distributed because the value of sig (0.0001) < 0.05. Result of analysis by using Wilcoxon test with hypothesis:

- H0: d = 0** (There is no difference in public knowledge before and after being given counseling on waste management).
- H1: d ≠ 0** (There is a difference in public knowledge before and after being given counseling on waste management).

IV. RESULTS

Kader Bung-Bung Pah has a chairman. The chairman is assisted by the secretary and treasurer and 6 person in charge of each unit namely the administrative unit and the composting unit as in figure 3.

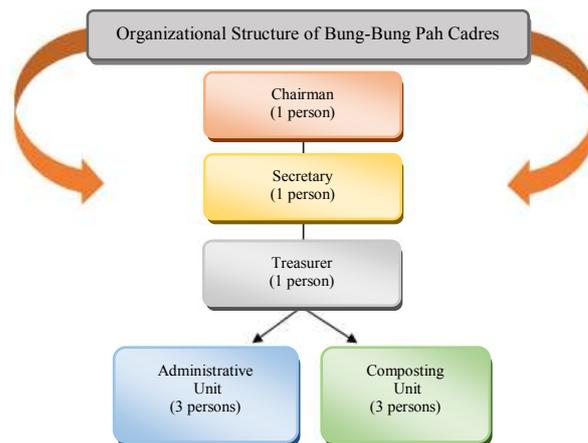


Figure 3. Structure of Cadres

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Pre-post test conducted in the framework of measurement of change, done before the activity begins. The result of observation of knowledge level before and after giving the material of education about waste management showed a change where previously there were 12 people who have low knowledge, after giving counseling increased 100% to 30 people having good knowledge level.

While the result of the observation on the attitude before and after giving the extension materials about the waste management showed a change of attitude where previously there were 13 people who have less good attitude, after being given counseling increased 100% to 30 people who have good attitude. In other words as much as 100% improvement in community attitudes in Kelampaian Ilir Village in maintaining environmental health.

V. DISCUSSION

Waste is a consequence of all human activities. If there is no community capacity in waste management, waste can cause environmental problems. The ever-increasing waste dump every year causes many problems to occur. Waste processing has been done by the local government since 2008. The effort is by building a composter unit with community participation. But the application of the community is not directly involved because they think the management of this trash is the responsibility of the government.

To handle the waste problem as a whole, management alternatives need to be done. Landfills are not an appropriate alternative because landfills are unsustainable and cause environmental problems. The alternative should be able to deal with all waste disposal issues by recycling all waste disposed in order to be valuable again, thereby reducing the pressure on natural resources. In general, in the North or South, the system for handling organic garbage is the most important component of a garbage management system. Organic garbage is composted, composting is defined as a biochemical process involving microorganisms as an aggregate that breaks down organic matter into a material similar to humus. This composting can provide several benefits, among them can solve abundant garbage problems, can support organic agriculture for agricultural development and can open employment for the community, even can increase the local government revenue.

The result of observation of knowledge level before and after giving the material of education about waste management showed a change where previously there were 12 people who have low knowledge, after giving counseling increased 100% to 30 people having good knowledge level.

Knowledge is one of the internal predisposing factors influenced by individuals in behaving, so that high participation and low participation of the individual is influenced by the knowledge that the better the knowledge of a person, the easier it is to participate in an activity¹¹. Good knowledge is gleaned from a variety of sources such as experience, and obtained through print, radio and television media that have a major impact on the formation of opinions and beliefs. New information about something provides a cognitive foundation for increased knowledge^{12,13}.

In Kelampaian Ilir Village, the level of less knowledge is influenced by information and extension activities to the people who are lacking. This is caused by extension activities in Kelampaian Ilir Village more focused on health education such as dengue fever, malaria, polio, but still very minimal counseling about the harmful impact of waste that is not managed properly. This results in awareness of managing waste is low. Public knowledge about the dangers of waste should be given because the potential of this waste hazard is very large. While, in the daily life of society can not be separated from the use of organic and inorganic waste¹⁴.

Increased knowledge can be done with formal and informal education. In the community, knowledge enhancement is done informally with socialization, counseling, dissemination of health promotion media in the form of posters and leaflets to the public. Community empowerment begins with improving community understanding of the activities to be carried out, including waste management¹¹.

Community empowerment in managing waste begins with socialization and understanding of waste management problem. After counseling and training, community knowledge is largely good, demonstrating increased knowledge. The training influences people's knowledge in managing waste, and knowledge influences waste management in everyday life¹⁵. Counseling is very important for the community as a means of socialization so they are willing to participate and behave waste management according to the provisions or rules that apply¹⁶. Through counseling, the community accepted the idea of waste processing properly. It is important and beneficial for the environment and for themselves¹⁷.

While the result of the observation on the attitude before and after giving the extension materials about the waste management showed a change of attitude where previously there were 13 people who have less attitude, after being given counseling increased 100% to 30 people who have good attitude. In other words as much as 100% improvement in community attitudes in Kelampaian Ilir Village in maintaining environmental health.

Attitude is an organization of opinion, a person's beliefs about an object or situation, accompanied by a certain feeling and provides a basis for the person to make a response or behave in a particular way he chooses¹⁸. Attitude is a reaction or a person's response to a stimulus or object received¹⁹. That attitude is not yet an act, but it is a predisposition to practice (action). Behavior or action is an attitude that automatically manifested in an action (overt behavior). For the realization of the attitude to be a real action required supporting facilities, including waste facilities. Based on the observation result, it is known that the attitude of the society is formed from the experiences experienced by themselves or the people closest, such as parents, relatives and neighbors. This is consistent with the statement that the formation and change of attitude does not happen by itself. The immediate environment has a key role in behaving²⁰. There is a low relation between attitudes and practices supported by the notion of attitude that states that attitudes are a tendency to act. Krech and Crutch Field mention that the practice or action of a person will be colored or motivated by the attitude that is in the person concerned¹⁸.

Based on the results of observation, with the existence of community empowerment activities in Kelampaian Ilir Village such as pelathan and counseling activities can improve the knowledge and attitude of the community not to throw garbage carelessly because the waste can be used as an item of economic value, one of them is by re-utilizing organic waste into a compost. With the change in the form of improvement of knowledge and attitudes of society towards the better, then the community will make changes in changing the culture towards a more advanced orientation, that is by having good behavior. The ultimate goal of the community empowerment process is to encourage citizens to improve their standard of living and to optimize their resources.

VI. CONCLUSION

This study concludes that there is an increase in knowledge and attitude of the community before and after being given 100% counseling. The result of statistical test through Wilcoxon test (p value = 0,001) shows that there is difference of knowledge and attitude of society before and after follow the

counseling about waste management and implementation of Tongsis Bung Bung Pah activity. Therefore, it is necessary to further develop the empowerment model of Tongsis Bung Bung Pah in the community to solve the garbage problem that happened and monitoring and evaluation from the health cadre who become the facilitator in this activity.

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