

Project Name:	Waste Minimization (Paradise/Paint Your Amazing Life 'D Save Environment)
Project Period:	September 2019 – June 2020
Reporting period	June 2020

Section One: Objective

The aim of this project is to reduce the amount of organic waste thrown in daily life. The project is divided into two parts. The first part aims to raise local people's awareness toward the importance of putting the litters in the proper place. The second part aims to initiate the management of domestic organic waste. This is of importance in order to maintain a sustainable waste management system. This project will be initiated in Nijang Village, an area in Sumbawa region.

Litters are easily found on the road in inhabited areas in Sumbawa. This is due to the fact that around 90% of local people throw their waste carelessly on the road, beaches and any public area. One reason for the waste problem is that the municipality has not provided a suitable system of waste management structure that covers the whole area and is able to handle all the generated waste. The impact of this waste situation is unarguable. The beauty of Sumbawa decreases dramatically so does its value since Sumbawa is one of the top tourist destinations decided by Indonesian government. On top of that, the dirty environment is also detrimental for the local inhabitant's health as well as it may destroy the living condition for wildlife and plants.

This circumstance is a wake-up-call and brings great concern for many people including our team, Paradise. Hence, we are coming up with the idea to take part in the movement of reducing waste. As it is mentioned previously the project is divided into two parts, to be accomplished through two stages. The first stage aims at raising Nijang societies' awareness of organic waste minimization. The main activities in order to achieve this goal is through a campaign directed to local people as well as the students in school either in elementary or high school. The second stage is initiating a system from domestic organic waste management.

For the first stage, our team will approach the local government and local leader to gain support and collaboration. Afterwards, data collection about local people awareness is of importance to gather baseline information about awareness level and perception of the working of existing waste collection systems. Moreover, focus group discussion along with the municipalities and local leaders will be conducted in order to identify the most efficient approach. Finally, the campaign will be delivered to every level of local people.

For the second stage, our team will initiate the implementation of domestic organic waste management. Local people will be trained to separate the waste from their home. Afterwards, the organic waste will be proceeded further into profitable products.

Regarding the organic waste, the local people will separate the waste from their home. Afterwards, it will be collected and composed by Black Soldier Fly's larvae (maggot). The cycle of growth of larvae from egg to adult stage is 5 days. During the period of growth, the larvae secretes (cut meat waste) a special substance which decomposes waste then makes it available for recycling. Through its metabolite seconder, all waste is converted into biomass and recycled substrate becomes an organic fertilizer. This fertilizer can be used directly by the local people for their own garden or be sold to the local farmer with reasonable price.

In order to create a sustainable system, organic waste should be managed by a local community. Hence, an organization consisting of local youth will be assigned. The committee will be responsible for the running and marketing of the products. In terms of this, we will collaborate with the local government to be able to be promoted and marketed locally. For example, the local government should encourage local farmers to use our products.

Section Two: Activities and Progress

1. The first stage was initiated by introducing our idea to the local leader of Nijang village. We met Mrs. Evi (The leader of sub region of Unter lwes) and Mrs Mastari (the local leader of Nijang village) to inform them about our idea which we would like to collaborate with them in initiating the organic waste management. We asked them for approval in involving their local people. This activity was done on 23rd of September 2019 (Picture 1).



Picture 1. Our Team Discussed and Coordinated with Community and The Leaders

2. As of the most important part of our project is to receive the support from local government of Sumbawa Region. Hence, on 22nd of October 2019, we had presentation at Regent's Office (the local government office) of Sumbawa. There were 17 attendees whom is general secretary of Sumbawa Region, and are the representatives of Sumbawa Technology and Informatics Commission, Environmental and Forestry Institution, Development Planning Agency of Sumbawa, the leader of Sumbawa sub region (Unter Iwes), Animal Husbandry Department, Regional Asset and Financial Management Institute of Sumbawa, also Population and Civil Registration Agency.

The presentation was divided into two part, first was introducing the Capacity Building by HIKS and secondly was brainstorming about our change project. The event went with high satisfaction. There were many inputs then was followed by Q and A as well as discussion. Almost all the participants were giving the inputs and comments. We would like to have a collaboration with the division of Animal and Husbandry division as well as Sumbawa Environmental and Forestry committee.



3. The third step of our program is data collection of local people awareness toward reducing waste through questionnaires. This activity was conducted during February 2020. The date is used in order to acquire the data baseline before the main activity is executed. The questionnaire consists of 29 questions which was divided into four sections. The first section was about garbage collection services that are available in Nijang village. The second section was about environmental awareness, whilst the third section was about Willingness to Pay for Better Solid Waste Management. Lastly, the section was about general information about the respondents. The result and the explanation can be found at the archived below.

Section Three: Outputs and Deliverables

The outputs of the activities were

1. Having noticed by the local leader about the PARADISE team and the program hence the local leader supported the next activity.
2. Initiated the collaboration with the regional civil servants and/or Sumbawanese decision maker.
3. Having the baseline data regarding the local people awareness toward waste minimization.

Section Four: Challenges

The main bottleneck of this program was Covid-19 as the next step was raising local people and student's awareness toward reducing waste through campaigns and socialization. Moreover, the remaining activities of the first stage requires crowd. On the other hand, local regulation forbids all the activities that tent to be attended by more than 10 people.

Section Five: Future Steps

1. Campaign and socialization to local people and students about the importance of organic waste management.
2. Focus group discussion along with the Sumbawa Municipality and community leader.
3. Installing a technique as a prototype for the domestic organic waste conversion into fertilizer.

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June 2020



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ARCHIVE

2020

Waste Management Program Evaluation in Nijang Village Unter Iwes Subdistrict Sumbawa District

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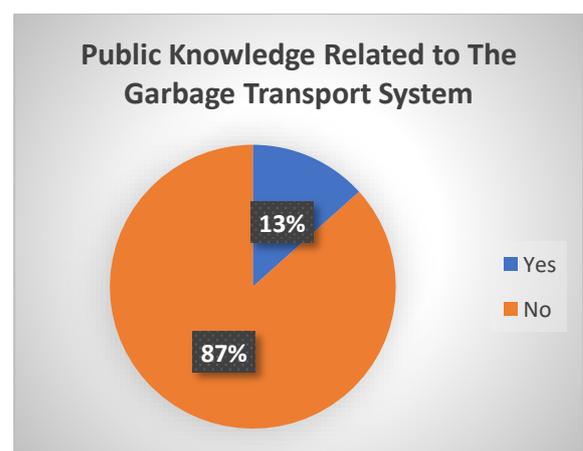
Waste management in residential areas of Indonesia is being actual problem along with increasingly population growth rate impacted on the increasing amount of waste resulting from. Several studies analyse the cause of waste issue that happened to waste management in Indonesia. Chaerul, et al (2007), analyse problem encountered in waste management in Indonesia, such as lack of firm legal basis, inadequate landfills, lack of effort in composting, and lack of proper management of landfill. Kardono (2007) said that waste management issue in Indonesia seen from several indicators, such as the high amount of waste produced, low waste management service level, a limited number of landfills, then waste management institutions and cost issues.

Several studies were also done to decide the priority of important aspects that need attention in waste management. According to Amurwaraharja (2003), in order to determine alternative waste management technologies, there are four aspects to consider, such as social, economics, environment, and technical aspects. The criteria of social aspects, including employment, low conflict potential with the community, growing business fields, growing formal and informal sectors, strengthening community participation. Economics aspect could be broken down into three criteria, such as low investment, low operating costs, and generating high regional income. As for the criteria of environmental aspects could be translated to be criteria, such as minimising water pollution, air, smell, and soil, then minimising habitat for germs and aesthetic decline/beauty of environment in accordance with the direction of regional development. The criteria of technical aspects could be translated to the level of effectiveness in reducing waste piles, overcome the problem of limited land,

location and technology availability, the ease of technology application, and resource utilisation. Mahyudin (2010) found aspects that need to be noted in considering selected waste management strategy based on the priority by using *Analytical Hierarchy Process*, including government policy, environment, financing, health, and public perception.

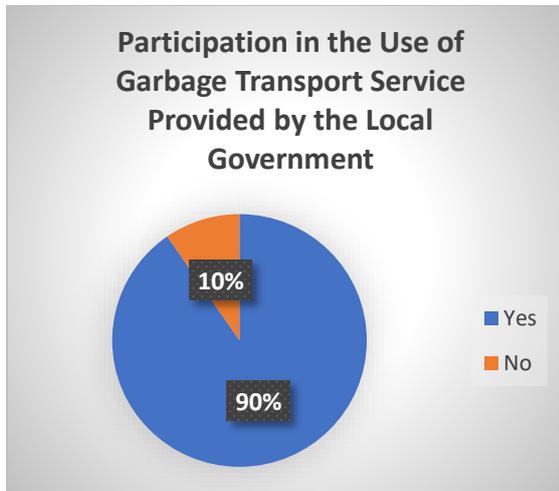
One of area that is trying to tackle waste issue in its community is Nijang Village, Unter Iwes Subdistricts, Sumbawa Districts. There are several patterns of waste management carried out by the government of Nijang Village Nijang, such as collaborating with local government in community waste transportation to designated landfill sites, and community-based waste bank managed by community with the direction from village and subdistrict authorities. The following are some of the survey result was conducted independently to evaluate waste management program in Nijang Village. The respondent is the chosen community by random sampling method and scattered in three hamlets, including Nijang Atas, Nijang Tengah, and Nijang Bawah Hamlet. Survey result would be showed by questions and its replies in percentage form.

1. Is there a routine garbage transport system in your residence area?



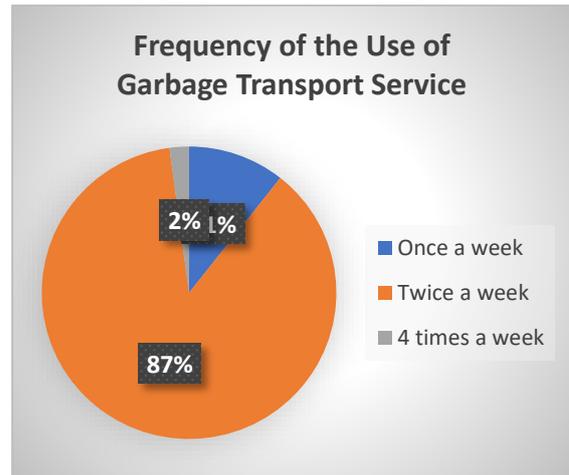
The respondents who answered “no”, on average came from Nijang Atas Hamlet located actually not too far from Nijang Village Office. The community of the hamlet admitted that they usually manage their own waste by being discharged to certain unplanned locations as landfill or just burnt it. Moreover, some people in Nijang Tengah Hamlet also still burn the garbage personally. This certainly will affect air pollution in the surrounding environment which also will interfere the health problem, such as respiratory disorder.

2. If yes, do you participate in?



Some people claimed to know of the existence of garbage transport system in Nijang Village still do personal management for the waste by burn it. This is recognised because the community members do not need to pay attention to the transportation schedule or take care of the garbage that will be transported first. Thus, the community members feel free to determine the time and manner of their waste management.

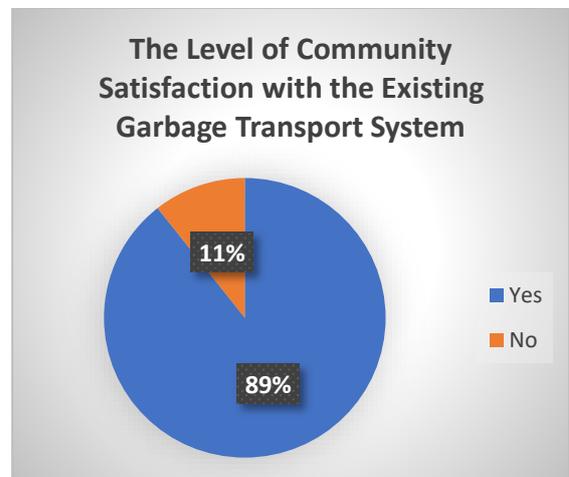
3. How often do you use the garbage transported service?



The average frequency of people using garbage transport service in their village is twice a week, on Thursday dan Sunday. However, there are also people who use garbage transport service 4 times a week, where they use waste bank facilities in other frequencies managed by the community of Nijang Village.

Garbage transported by waste bank is only certain waste that has separate selling points at prices determined by the waste bank.

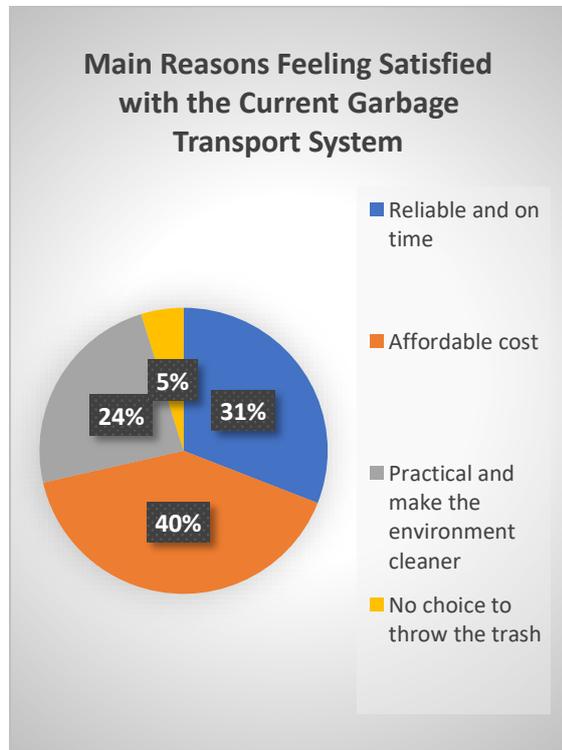
4. Are you satisfied with the current garbage transport service?



The level of community satisfaction with the current garbage transport system is also relatively high, which is about 89% of respondents said they are satisfied. This is

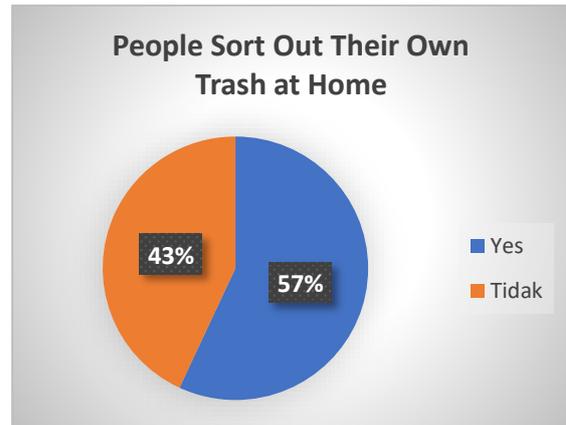
because the community feels helped by their household waste management by having the system compared to if they must manage it personally.

5. What is your main reason for determining satisfaction?



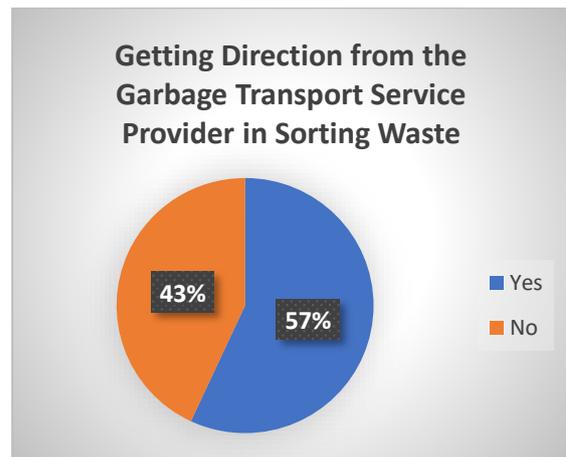
The main reason that most people feel satisfied is the affordable cost and suitable with their ability, which is IDR 3,000-5,000. Then, the next reason is that the transport fleet could be relied on or often arrives on time and in accordance with the scheduled day, on Thursday and Sunday. Then, the next reason most is making the environment cleaner than before and more practical than they have to take care of the waste personally.

6. Do you sort trash according to type at home?



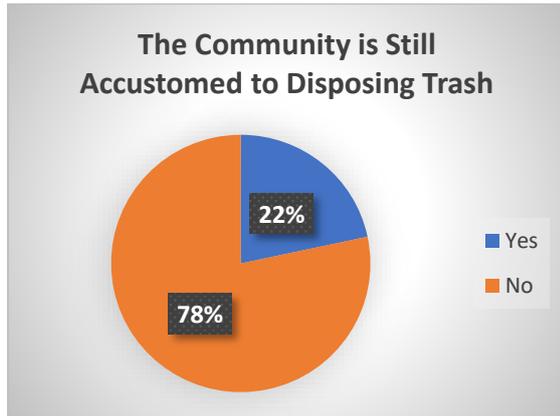
Currently, the community members of Nijang Village have begun to sort out their own garbage at home. The reason is that some of the waste will be sold or distributed to the village-managed waste bank.

7. If do so, is that done because of the direction of the garbage transport service provider?



The role of garbage transport service provider is not only to transport the waste from the community to the landfill, but also influential in the process of quite effective education about waste management. Therefore, there is a need for government direction to educate the garbage transport fleet before they carry out their duties in the community.

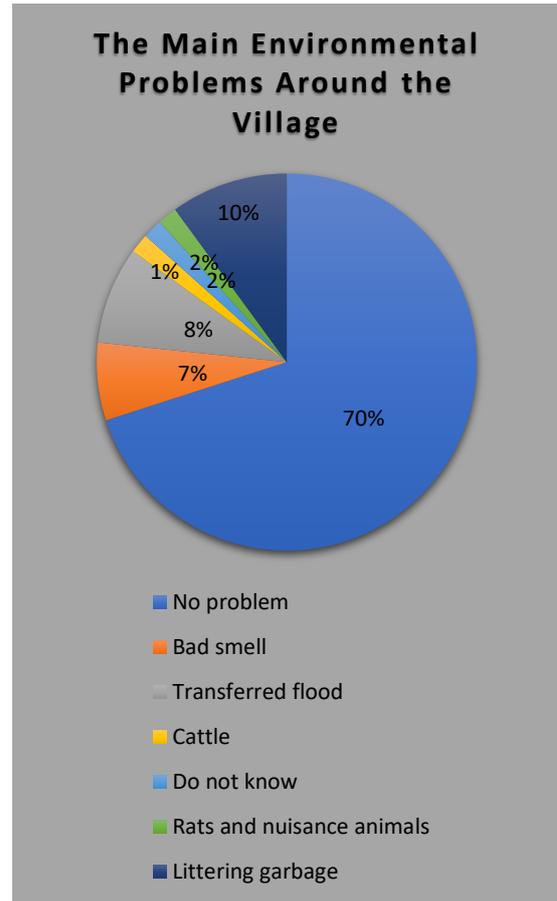
7. Do you still litter?



However, from all routines and education that have been provided by the government of Nijang Village, it turns out there are still people who litter about 22% of the community members. The reason for those who are still accustomed to littering is when they do not find a trash can around them.

This means there are still people who have not made this habit as their true identity, but they still depend on the conditions around them. Therefore, the participation of community that has had an awareness of the importance of disposing of trash in its place is also needed to transmit their good habits to some community members who have not done it optimally.

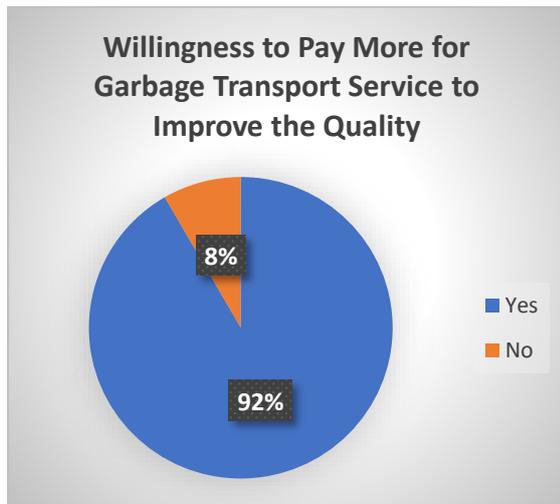
8. What are the main environmental problems around you?



Most people assume there are no significant environment problems around them after the garbage transport system program launched in Nijang Village. However, there are several problems that occur occasionally and quite disturbing for them, such as bad smell and transferred flood from damaged dykes in different villages and not too far away from Nijang Village.

The embankment is reconised as having a not in accordance with the load requirement. Thus, it is not uncommon for this infrastructure to suffer damage, especially in the rainy season.

9. Would you like to pay more if the quality of waste management service in your village increases?



The community has agreed to pay more for garbage transport service in Nijang Village if the quality of service and management better. This is also related to their level of satisfaction.

The average community claims that they are ready to pay up to IDR 10,000 to get better service. However, they are basically satisfied with the current service system. There are a number of recommendations given by the community as input to improve the service of the garbage transport system in Nijang Village, such as:

1. There is a waste recycling place that collaborates with the village community in its management.
2. Provision of more trash cans or bins in certain locations of village.
3. Increased collecting time or transportation schedule, for example 3-4 times a week.