

SCIENCE AND TECHNOLOGY FOR COMMUNITIES TOWARDS RECYCLING VILLAGES ON RT.01 & RT.03 / RW.01 IN PETUKANGAN UTARA, PESANGGRAHAN, JAKARTA SELATAN

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Abstract – One of the settlements in DKI Jakarta close to the location of Budi Luhur University is RT 01 and RT 03 / RW 01 Petukangan Utara Village, Pesanggrahan District, South Jakarta. The hallmark of this settlement is the density of the inhabitants and the density of buildings in the settlement, the unhealthy lifestyle of the residents, and the condition of the neighborhood which looks shabby. The main problem being faced at this time is the lack of public awareness in processing waste. This can be seen in the pattern of life of the people who independently or collectively dispose of rubbish at the Temporary Disposal Site, which has the effect of increasing the number of piles of garbage in Temporary Disposal Sites or Final Disposal Sites. Thus the Budi Luhur University Architecture Study Program will carry out the IbM program Towards Recycle Village in RT 01 and RT 03 / RW 01 Petukangan Utara Village, Pesanggrahan District, South Jakarta. The method of approach is to provide assistance to the community about living in a healthy environment and by providing assistance to the community to learn to reuse waste by recycling the organic and non-organic waste. From the IbM program to Kampung Recycle at RT 01 and RT 03 / RW 01 Petukangan Utara Village, Pesanggrahan District, South Jakarta, which was carried out by the Budi Luhur University Architecture Study Program, an output was produced which helped solve the waste problem which became the priority priority of partners in the form of: organic and non-organic in homes and along roads from new or used materials, natural fertilizers produced from organic waste recycled, handy craft produced from recycled non-organic waste, and the production of Waste Banks equipped with workshop and display areas. Recycle, Organic Waste, Non-Organic Waste

Keywords: Recycle, Organic Waste, Non-Organic Waste

INTRODUCTION

The increase in slums is one of the serious problems that still hit the capital city of Jakarta. In 2011, at least 416 RWs were slum which became the residence of more than 3 million capital residents¹. Those who live in slums face physical development problems such as improper sanitation, road infrastructure, houses and social facilities. The minimal conditions make it difficult for them to improve their quality of life except to wait for government assistance. From year to year, efforts to improve slum villages have indeed been carried out by the provincial government of DKI Jakarta. The provincial government of DKI Jakarta is targeting 360 slum areas in the Capital City to be repaired². Handling slum villages should be done simultaneously and on a large scale so that the results are more visible. This is because Jakarta is included in the top 6 capitals with the most slums.

Slum settlements are defined as settlements with small-size housing units and poor physical conditions of the environment (Drakakish, 1980). The factors driving the occurrence of settlement slums observed in the field include three major components, namely density, lifestyle of the inhabitants and the condition of the settlement environment. Density is intended as the density of occupants and the density of residential buildings. The more inhabitants in a house that is smaller in size will encourage slums. Components of the occupants' lifestyle include three aspects, namely the use of sanitation facilities, landfills and fulfillment of clean water sources. Components of the settlement environment

include four aspects, namely the layout of the settlement block, the construction conditions of the mukim house, the width of the road and the condition of the entrance surface.

One of the slum villages in DKI Jakarta that is close to the location of Budi Luhur University is RT 01 and RT 03 / RW 01 Kelurahan Petukangan Utara, Kecamatan Pesanggrahan, South Jakarta. This area is categorized as a slum because of the dense population and the density of buildings in the settlement, the unhealthy lifestyle of the residents, and the condition of the neighborhood which looks shabby. In RT 01 and RT 03 / RW 01 Petukangan Utara Village, Pesanggrahan Subdistrict, South Jakarta, the density of residents is below the normal requirement of 6-9 m² per person. Regarding the density of residential buildings, accurate information is obtained from the interpretation of aerial photographs, where most of the settlement blocks have building closures (mukim houses) on average above 25%, which can be classified into medium slum categories.

The appearance of RT 01 and RT 03 / RW 01 Kelurahan Petukangan Utara, Kecamatan Pesanggrahan, South Jakarta regarding the tendency towards slums in settlements is that there are many people who do not have their own sanitation facilities or do not want to use public sanitation facilities, but instead defecate freely on the river located throughout the region. The drive towards slums due to a less clean lifestyle from the elements of garbage disposal seems dominant, and this is indicated by the large number of people who litter. The availability of clean water for household needs is difficult to fulfill in the area, as indicated by the large number of people who meet the water needs of household needs by buying clean water. This shows that facilities for environmental settlements are not feasible. Slum conditions from the layout aspect were observed with the low quality of layout in most community settlements in RT 01 and RT 03 / RW 01 Petukangan Utara Village, Pesanggrahan District, South Jakarta. Likewise, the condition of the settler's house building towards the slums of settlements is evident from the large number of non-permanent houses that describe the bad environmental conditions. The majority of access roads in the study area have a width of less than 1.0 m. The narrow road causes the road to be unable to function properly as a flow of traffic, trash cans, placement of drainage channels or as a barrier between houses to homes. It is clear that this will trigger a bad environment that leads to slums. The road surface conditions encountered on the ground are mostly muddy and stagnant when it rains, giving impetus to poor environmental conditions and slums.

Based on the three major components which are the driving factors for settlement slums observed in RT 01 and RT 03 / RW 01 Petukangan Utara Village, Pesanggrahan District, South Jakarta, the area is classified as a medium slum. From the condition of the problem of density, the pattern of life of the inhabitants and the condition of the settlement environment in RT 01 and RT 03 / RW 01 Kelurahan Petukangan Utara, Kecamatan Pesanggrahan, South Jakarta, the main problem being faced at this time is the lack of public awareness in processing waste. This can be seen in the pattern of life of the people who independently or collectively dispose of rubbish at the Temporary Disposal Site, which has the effect of increasing the number of piles of garbage in Temporary Disposal Sites or Final Disposal Sites. To support the DKI Jakarta government's program in improving slums, the Budi Luhur University Architecture Study Program wants to participate in the improvement of slums in RT 01 and RT 03 / RW 01 Petukangan Utara Village, Pesanggrahan District, South Jakarta. This slum village improvement activity is focused on solving the main problems, namely the lack of public awareness in processing waste. Thus the Budi Luhur University Architecture Study Program will make improvements to the village with the theme of waste in accordance with the main problems in RT 01 and RT 03 / RW 01 Petukangan Utara Village, Pesanggrahan District, South Jakarta. This is because by providing assistance to the village community to solve the waste problem, this problem will actually become a local force from the village.\

METHOD

Healthy Environmental Assistance

Approach method by providing assistance to the community in RT 01 and RT 03 / RW 01 Petukangan Utara Village, Pesanggrahan District, South Jakarta, about living in a healthy environment.

- Assistance in the form of learning about how to create a healthy living environment as a motivation for the community to make their region a sustainable environmentally friendly village. As for the learning given to the community in the form of:

- The accumulation of waste at Temporary Disposal Sites and Final Disposal Sites.
- Effects resulting from the accumulation of waste (air pollution, water pollution and soil pollution).
- Classification of the separation of organic waste and non-organic waste.
- Waste management with recycling to organic waste and non-organic waste.
- Assistance by inviting the public to conduct a review of the location of the village that has been proposed by the DKI Jakarta Provincial Government as a Green Village.
- Assistance in the form of learning about processing organic waste and non-organic waste.
- Assistance in the form of learning about doing business by utilizing the results of processing organic waste and non-organic waste.

Recycling Village Recycle / Recycle Village

Approach method by providing assistance to the community in RT 01 and RT 03 / RW 01 Petukangan Utara Village, Pesanggrahan District, South Jakarta to learn to reuse waste by recycling the organic and non-organic waste.

- Assistance to change the culture of the community to be able to sort out organic and non-organic waste.
- Assistance in the form of motivation to provide organic and non-organic trash bins in homes and the surrounding environment.
- Assistance in the form of training to recycle organic and non-organic waste.
- Assistance in the form of making a waste bank.
- Assistance in the form of making the display area as a place to sell the recycled waste.
- Assistance in the form of cooperation with agencies that will buy waste recycled products.

General Extension

The output generated from the IbM program Towards Recycle Village at RT.01 / RW.001 and RT.03 / RW.001 Petukangan Utara Village, Pesanggrahan District, South Jakarta organized by Budi Luhur University Architecture Study Program are:

- The ability of the community to separate organic and non-organic waste.
- The community has owned and used organic and non-organic trash bins in homes and neighborhoods around the houses.
- The ability of the community to process organic waste into souvenirs and produce liquid fertilizer (leachate) and compost through composter.
- The ability of the community to process non-organic waste into goods that can be reused.
- The ability of the community to manage waste through the Waste Bank is produced.
- The community has a display rack as a place to put the results of recycling organic and non-organic waste that is ready to be marketed.
- The ability of the community to sell recycled organic and non-organic waste is produced.
- With the result of the community culture of RT 01 and RT 03 / RW 01 Petukangan Utara Village, Pesanggrahan District, South Jakarta to process waste, the results of the waste processing can increase the economic value of the community independently.

RESULT AND DISCUSSION

Organic & Non-Organic Waste Separation Counseling

Counseling on the separation of organic and non-organic household waste in each residential house is aimed at the community RT.01 / RW.001 and RT.03 / RW.001, Petukangan Utara Village, Pesanggrahan District, South Jakarta. This activity aims to support the IbM program Towards Recycle Villages in RT.01 / RW.001 and RT.03 / RW.001 Petukangan Utara Village, Pesanggrahan District, South Jakarta. The mechanism for the implementation of counseling to the community RT.01 / RW.001 and RT.03 / RW.001 to separate organic and non-organic household waste in their respective houses starts with giving a prior introduction to waste. It is intended that the people of RT.01 / RW.001 and RT.03 / RW.001 can understand what is meant by garbage, sources of waste, to the garbage problems

that we are facing today, which in the end the community learns about house waste stairs included in the classification of organic waste and non-organic waste.

By knowing the classification of organic and non-organic household waste, in the next stage the RT.01 / RW.001 and RT.03 / RW.001 communities were given material about organic household waste processing systems into compost, fodder, biogas and pyrolysis. Then the community was also given material on non-organic household waste processing systems in the form of paper, cans, bottles, plastic, B3 waste and cloth to be used as reusable items.



Figure 1. Implementation of Organic and Non-organic Waste Processing

From the organic and non-organic household waste treatment systems to be used as items that can be used and reused, at the final stage of the community RT.01 / RW.001 and RT.03 / RW.001 are given business-related material from the results of the processing system.

Provision of Organic & Non Organic Environmental Trash

The activities of providing organic and non-organic waste to the environment around the house and counseling on the sorting of organic and non-organic environmental waste intended for the community RT.01 / RW.001 and RT.03 / RW.001 Kelurahan Petukangan Utara, Kecamatan Pesanggrahan, South Jakarta . This activity aims to support the IbM program Towards Recycle Villages in RT.01 / RW.001 and RT.03 / RW.001 Petukangan Utara Village, Pesanggrahan District, South Jakarta.

The mechanism for the implementation of the provision of organic and non-organic waste in the environment around the house as well as counseling on the sorting of organic and non-organic environmental waste at the RT.01 / RW.001 and RT.03 / RW.001 communities began by giving material on the classification of organic waste. and non-organic waste. It is intended that the community RT.01 / RW.001 and RT.03 / RW.001 can understand what is included in organic and non-organic waste, which in the end the community is able to sort organic waste and non-organic waste in the environment around the house. By knowing the classification of organic and non-organic environmental waste, in the next stage the community RT.01 / RW.001 and RT.03 / RW.001 were given the provision of organic and non-organic waste in the environment around the house. It is intended that the community RT.01 / RW.001 and RT.03 / RW.001 can see examples and provide their own organic and non-organic trash bins in the neighborhood around the house.



Figure 2. provide Organic and Non-Organic Trash in settlements

From the provision of organic and non-organic waste in the environment around the house, it is expected that the RT.01 / RW.001 and RT.03 / RW.001 communities will independently manage the organic and non-organic waste disposal system in the neighborhood.

Eco-Friendly Visiter

The visit of Banjarsari environmentally friendly settlement was intended for the people of RT.01 / RW.001 and RT.03 / RW.001 of Petukangan Utara Village, Pesanggrahan Subdistrict, South Jakarta. This activity aims to support the IbM program Towards Recycle Villages in RT.01 / RW.001 and RT.03 / RW.001 Petukangan Utara Village, Pesanggrahan District, South Jakarta. The implementation mechanism The activities of Banjarsari environmentally friendly settlement visits for RT.01 / RW.001 and RT.03 / RW.001 communities began by giving an introduction to the garbage. It is intended that the people of RT.01 / RW.001 and RT.03 / RW.001 can understand what is meant by garbage, sources of waste, to the garbage problems that we are facing today, which in the end the community learns about house waste stairs and environmental waste around the house which is included in the classification of organic waste and non-organic waste.



Figure 3. Waste Recycling workshop

Non Organic Waste Processing Training

Training activities on household waste processing and environmental waste around organic and non-organic residential houses are intended for the community RT.01 / RW.001 and RT.03 / RW.001 Petukangan Utara Village, Pesanggrahan District, South Jakarta. This activity aims to support the IbM program Towards Recycle Villages in RT.01 / RW.001 and RT.03 / RW.001 Petukangan Utara Village, Pesanggrahan District, South Jakarta. After how to recycle household waste and environmental waste around organic living houses into compost, in the next stage the community RT.01 / RW.001 and RT.03 / RW.001 were given materials about recycling of household waste and environmental waste. around non-organic residences in the form of paper, cans, bottles, plastic, B3 waste and cloth to be used as items that can be reused.



Figure 4. Training of Organic and Non-Organic Waste Processing.

Making a Waste Bank

Garbage bank making activities as well as counseling on waste bank management are aimed at the community RT.01 / RW.001 and RT.03 / RW.001 Petukangan Utara Village, Pesanggrahan District, South Jakarta. This activity aims to support the IbM program Towards Recycle Villages in RT.01 / RW.001 and RT.03 / RW.001 Petukangan Utara Village, Pesanggrahan District, South Jakarta.



Figure 5. Scientific Waste Bank at Budi Luhur University

Continuous Settlement Training

The public lecture program "Sustainable Society" is aimed at the community RT.01 / RW.001 and RT.03 / RW.001 Petukangan Utara Village, Pesanggrahan District, South Jakarta. This activity aims to support the IbM program Towards Recycle Villages in RT.01 / RW.001 and RT.03 / RW.001 Petukangan Utara Village, Pesanggrahan District, South Jakarta. By knowing about the definition of a sustainable society, in the next stage the RT.01 / RW.001 and RT.03 / RW.001 communities were given material about the benefits of a sustainable society.



Figure 6. Public Lecture "Sustainable Society"

From the material about the benefits of sustainable communities, at the final stage of the community RT.01 / RW.001 and RT.03 / RW.001 were given examples of sustainable communities.

Composter Supply

The activity of providing composter for processing organic waste is intended for the people of RT.01 / RW.001 and RT.03 / RW.001 of Petukangan Utara Village, Pesanggrahan Subdistrict, South Jakarta. This activity aims to support the IbM program Towards Recycle Villages in RT.01 / RW.001 and RT.03 / RW.001 Petukangan Utara Village, Pesanggrahan District, South Jakarta.



Figure 7. Provide Composter for the Community

By having a composter for processing organic waste, in the next stage the community RT.01 / RW.001 and RT.03 / RW.001 will process organic waste into liquid fertilizer (leachate) and compost.

It is intended that the RT.01 / RW.001 and RT.03 / RW.001 communities can process their own organic waste into liquid fertilizer (leachate) and compost fertilizer. From the composter for processing organic waste in the environment around the house, it is expected that the RT.01 / RW.001 and RT.03 / RW.001 communities will independently manage the disposal system. organic and non-organic waste in the neighborhood around the house.

Trash Design Competition

The design contest for organic and non-organic waste at residential homes was intended for the community RT.01 / RW.001 and RT.03 / RW.001 Kelurahan Petukangan Utara, Kecamatan Pesanggrahan, South Jakarta. This activity aims to support the IbM program Towards Recycle Villages in RT.01 / RW.001 and RT.03 / RW.001 Petukangan Utara Village, Pesanggrahan District, South Jakarta.



Figure 8. Organic and Non-organic Waste Design Competition

From the results of the design competition for organic and non-organic waste in residential houses, it is expected that the RT.01 / RW.001 and RT.03 / RW.001 communities will be able to independently make their own organic and non-organic trash cans.

Provision of Display Racks

The activity of providing display racks that are used as a place to sell recycled waste and find networks for the public to sell recycled organic and non-organic waste to RT.01 / RW.001 and RT.03 / RW.001 Petukangan Utara Village, Kecamatan Pesanggrahan, South Jakarta aims to support the IbM program Towards Recycle Village at RT.01 / RW.001 and RT.03 / RW.001 Kelurahan Petukangan Utara, Kecamatan Pesanggrahan, South Jakarta.



Figure 9. Sales display of waste processing results

From the provision of display racks that are used as a container to sell the recycled waste and find a network for the public to sell recycled organic and non-organic waste, it is expected that the people of RT.01 / RW.001 and RT.03 / RW.001 will independently can manage production from waste recycling.

Sales of Waste Recycling Results

Network opening activities for the community to sell recycled organic and non-organic waste to RT.01 / RW.001 and RT.03 / RW.001 Petukangan Utara Village, Pesanggrahan Subdistrict, South

Jakarta aims to support the IbM program Towards Recycle Villages in RT .01 / RW.001 and RT.03 / RW.001 Kelurahan Petukangan Utara, Kecamatan Pesanggrahan, South Jakarta. At the next stage, collaborating with Pancasila University is to sell the results of recycling organic and non-organic waste through the exhibition. It is intended that the community RT.01 / RW.001 and RT.03 / RW.001 can expand cooperation related to the production of waste recycling.



Figure 10. Cooperation in Selling Waste Recycling Results

At the last stage, a collaboration with SMESCO was established to sell recycled organic and non-organic waste through the exhibition. Thus, it is expected that the RT.01 / RW.001 and RT.03 / RW.001 communities will be able to independently manage the production of waste recycling.

CONCLUSION

The problems in RT.01 / RW.001 and RT.03 / RW.001 in Petukangan Utara Village, Pesanggrahan Subdistrict, South Jakarta are that people still throw organic and non-organic household waste together in their respective homes, such as leaf litter, leftover vegetables, paper, plastic, cans and others are still mixed into one. In order to change the culture of the community in applying waste, IbM activities were conducted towards Recycle Villages in RT.01 / RW.001 and RT.03 / RW.001 Petukangan Utara Village, Pesanggrahan Subdistrict, South Jakarta by the IbM implementation team from the University Architecture Study Program Nobility.

1. After holding various activities related to the IbM program Towards Recycle Village at RT.01 / RW.001 and RT.03 / RW.001 Petukangan Utara Village, Pesanggrahan Subdistrict, South Jakarta, the community's capacity was generated.
2. The community is able to sort organic and non-organic waste.
3. The community owns and uses organic and non-organic waste places in homes and neighborhoods around the house.
4. People process organic waste into souvenirs and become liquid fertilizer (leachate) and compost through composter. The community processes non-organic waste into items that can be reused.
5. The community can manage waste through the Waste Bank.
6. The community has a place to sell recycled products.
7. People sell recycled organic and non-organic waste products.

With the result of community culture RT 01 and RT 03 / RW 01 Petukangan Utara Village, Pesanggrahan Subdistrict, South Jakarta to process waste, the results of the waste processing can increase the economic value of the community independently.

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