

MAKING SOFAS BY UTILIZING PLASTIC WASTE THROUGH THE WASTE BANK PROGRAM (ECOBRIK) PURWOASRI VILLAGE

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ABSTRACT

The program to make sofas from plastic waste through waste banks (Ecobrick) is a recycling initiative to reduce plastic waste and produce eco-friendly furniture. Plastic waste such as PET bottles are processed into Ecobricks—plastic bottles that are compacted with other waste, used as the main material for making sofas. This program involves the community, especially farmer women groups such as Ria Melati RW 02 and Sami Jaya RW 07, in training and assistance in production and marketing through online media. This program aims to overcome environmental pollution while creating furniture that is durable, aesthetically valuable, and supports sustainability. Obstacles such as lack of knowledge are overcome through intensive training. With planning, training, evaluation, and reflection methods, this program has a positive impact on the environment, local economy, and public awareness of plastic waste management. This initiative proves that plastic waste can be turned into useful products.

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INTRODUCTION

Universitas Muhammadiyah Metro students started Community Service by preparing a work program to support the results of observation in the Ria Melati RW 02 and Sami Jaya RW 07 farmer groups in Purwoasri village, North Metro district. It is hoped that this Community Service activity and management will provide a useful learning experience for the community and students through the implementation of community development. The program to make sofas by utilizing plastic waste through the Waste Bank Program (Ecobrick) is one of the innovative initiatives to reduce the negative impact of plastic waste while creating useful solutions for the community. This program seeks to process plastic waste that often pollutes the environment into raw materials that can be used for products such as sofas. The technique used is Ecobrick, where plastic waste is processed into "bricks" or plastic bricks for construction purposes and product manufacturing, including sofas (Indrawati, 2020; Jonnala et al., 2024, Akbar et al., 2023).

This Ecobrick method is one of the simple and practical recycling techniques, where PET plastic bottles are filled with small pieces of plastic that are compacted to form brick units (Wijaya, 2021; Haque, 2019; Athithan, 2025). In this context, the Waste Bank has an important role in collecting plastic waste from the community, managing it, and distributing ecobricks to

be processed into products, such as sofas. The process of making sofas through ecobricks starts from the collection of plastic waste by the community which is then sorted and cleaned according to its type to ensure the quality of ecobricks (Santoso, 2022; Purwati et al., 2023; Leasa, 2024). The cleaned plastic is then cut into small pieces and put into used PET bottles with simple tools (Purwanto & Hidayat, 2019; Smith et al., 2022; Soong et al., 2022).

One of the main advantages of this program is the reduction in the volume of plastic waste that pollutes the environment. By being processed into ecobricks and used to make products such as sofas, the volume of plastic that is usually thrown into landfills or pollutes the environment can be drastically reduced (Amalia & Kurniawan, 2021; Kumar et al., 2024; Bharadwaaj, 2024). This program also has a positive economic impact by creating local job opportunities and supporting the community's economy (Suryani, 2019; Leigh, 2024; Weston, 2024). In addition, this program can be an effective educational tool in increasing public awareness of the importance of waste management and recycling (Lestari, 2020; Debrah et al., 2021, Tang & Asman, 2024).

A significant first step is the implementation of Community Service (PKM) by Muhammadiyah Metro University students in the farmer women group Ria Melati RW 02 and Sami Jaya RW 07 in Purwoasri village, North Metro. This group of students developed a work program based on observation results with the aim of strengthening and reactivating existing activities (Yulianto et al., 2022; Procopio et al., 2024; Shalaby & Badr, 2024). This service aims not only to provide benefits to the community, but also to improve students' skills and experience in carrying out real community development (Kurniawati, 2021).

IMPLEMENTATION METHOD

The service program is carried out through the following stages:

1. Preparation Stages

At the preparation stage, the actions taken are:

- a. Notify and give permission to the KWT group that is a service partner.
- b. Coordinate to discuss the technical implementation of service activities.
- c. Conducting socialization about training on Making Sofas by Utilizing Plastic Waste Through the Waste Bank (Ecobrick) Program of the Ria Melati RW 02 and Sami Jaya RW 07 farmer women groups in Purwoasri village.

2. Stages of implementation of actions

To carry out this action, the following must be done:

- a. Tell all KWT members about the benefits and Ecobrick, the Waste Bank Program, which uses plastic waste to make sofas.
- b. Providing training on how to make sofas by utilizing plastic waste through the Waste Bank (Ecobrick) program.
- c. Providing direct assistance on how to make sofas by utilizing plastic waste through the Waste Bank (Ecobrick) program.

1. Evaluation stages

Stages Evaluation Done after implementation training on Making Sofas by Utilizing Plastic Waste Through the Waste Bank (Ecobrick) Program, we conducted an evaluation to discuss what shortcomings need to be improved from the stages of the training activity with the aim of being even better in the future.

2. Stages of reflection

To improve people's mastery and skills in the use of technology in learning, reflection is carried out to evaluate the activities that have been carried out. The purpose of this reflection is to identify the shortcomings and strengths of the activity and make recommendations on how the activity can be maintained or developed. In addition, partners who participate in this service activity are mentioned as follows:

- a. To ensure the success of the PKM Service program that has been mutually agreed, Partners actively participate in the socialization of the work plan and the determination of the realization of the work program.
- b. Partners are directly involved in each stage of the process of resolving specific problems that partners face.
- c. Partners follow a training process to improve partner skills and understanding

RESULTS AND DISCUSSION

There are fourteen types of activities in this service program, including: 1) Socializing the making of sofas through plastic waste processing (ecobricks), 2) Conducting training in making aromatherapy candles from used cooking oil, 3) Conducting routine recitation with RW02 children every Tuesday and Friday, 4) Participating in the August 17 competition with local residents, 5) Filling in the 10 Muharram event, 6) Peak 17s with youth organizations and pamong in Purwoasri village, 7) Attending the opening of the futsal competition between RWs in Purwoasri Village. 8) Participating in the healthy walk of Purwoasri Village, 9) Participating in blood donation activities at SMK IB Khalifah Bangsa, 10) Attending the peak night of the colossal drama performance at RW03, 11) Attending the mayor's workshop in Purwosari, 12) Observing the needs of Purwoasri Village at the Purwosari Health Center, 13) Carrying out cleaning together with the residents of RW 02. 14) Become a committee of 17s in Rw 02 (2 weeks).

The implementation of the socialization of training on Making Sofas by Utilizing Plastic Waste through the Waste Bank (Ecobrick) Program on Saturday, September 8, 2024 was practiced directly and attended by KWT Ria Melati and Sami Jaya. The service team consisting of Nurul Farida, M.Pd, Mudaim, M.Si, Athi Atu Azzahro, Adhelia Zalianty, Rofiana, and Septa Safei was responsible for the socialization activities. The purpose of this socialization activity is to increase public knowledge about various ways to turn plastic waste into useful products. Based on preliminary analysis, 100% of KWT members have minimal knowledge in plastic waste processing. KWT members only use plastic waste only as waste, have never used it to make sofas or chairs by processing plastic waste into sofas, we can reduce plastic that pollutes the environment and overcome pollution problems. In addition, the plastic recycling industry can create new jobs in the collection, processing, and production of final products such as sofas.

Furthermore, practical activities for making sofas by utilizing plastic waste through the Waste Bank (Ecobrick) program were carried out. Nurul Farida, M.Pd., one of the members of the service team, gave an explanation of the procedure for Making Sofas by Utilizing Plastic Waste Through the Waste Bank (Ecobrick) Program. One lecturer, Mudaim, M.Si, and four students, Athi Atu Azzahro (21130023), Septa Safei (21130022), Rofiana (21340024), and Adhelia Zaliyanti (21130011), helped the service team.

The steps to make a sofa from plastic waste are as follows:

1. Prepare the necessary tools and materials to make a sofa out of plastic waste, as shown in the Table 1.

Table 1. Tools and Materials

It	Tools and Materials	Sum
1	Used Bottles	19
2	Plastic Waste	19 x 500 gr
3	Wood Board/ribbed	5
4	Iron	1 x 10
5	Oscar Fabric	1
6	Lakban/solasi	1
7	Steples Shooting	1
8	Scales	1
9	Busa	1
10	Lem	1

2. Wash used Plastic Waste thoroughly



Figure 1. Washed plastic waste

3. Dry the plastic waste so that it is easy to put in the bottle.



Figure 2. Garbage is drained

4. Cut plastic waste into small pieces.



Figure 3. Plastic waste cut into pieces

5. Slowly insert plastic waste through the bottle hole.



Figure 4. Plastic waste is put into bottles

6. The garbage that has been put into the bottle is then mashed so that the bottle will contain according to the dosage to be used.



Figure 5. Press the bottle until solid

7. Weigh bottles that have been filled with plastic waste so that each bottle has the same size.



Figure 6. Bottle weighing

8. If it has been glued according to the shape like a sofa and tied with duct tape to make it easier to form later.



Figure 7. Whole bottle gluing process

9. If the sofa is shaped as desired, then insert supports such as iron and wood so that the shape of the sofa is more sturdy for use by the community.



Figure 8. Input supports such as iron and wood

10. Next, the chair is given unused foam for the top and glued using shot staples and glue to be hooked with wood so that it is strong and does not come off.



Figure 9. The sofa is given foam, in the staples and in glue

11. Then, this almost finished sofa is covered with Oscar leather to make it look more quality and good.



Figure 10. The sofa is covered with Oscar kulis

Based on the results of the evaluation related to the trainees' understanding of the delivery of material from the devotees, the trainees were very active and enthusiastic judging from the many questions they asked from the beginning of the training to the end. After the practical activities were completed, KWT members Ria Melati and Sami Jaya RW 07 used the sofa from plastic waste that our group had previously made and the members were enthusiastic and also gave a very positive response.

Based on the results of the evaluation of the community service implementation program in the form of training in making sofas from plastic waste, the implementation of activities cannot be done only one meeting but there must be several days of meetings because the process of making sofas from plastic takes time such as collecting plastic waste from the community and must be sorted out which plastic can be used for making sofas. The implementation of the training also took place not according to the set time because KWT members arrived late.

From the community service activities that have been carried out from July to October 2024, the service team plans to make further assistance to partners, namely training in making sofas from plastic waste to chairs that can be used by all ages.

CONCLUSIONS AND SUGGESTIONS

The 2024 Muhammadiyah Metro University Community Service (PKM) activity took place from July to September 2024 at RT 06 RW 02, Purwoasri Village, North Metro District, Metro City. This activity received a very good response and attention from community leaders and local residents. Overall, the Community Service (PKM) activities of the University of Muhammadiyah Metro in 2024 are going well. The planned programs can be implemented well and run smoothly. Basically, the provisions we provide to the community are support and knowledge that can improve the welfare of the community, with a positive impact directly or indirectly from our presence. As students, we must inspire, help, and be role models for the residents of RT 06 RW 02 Purwoasri village. The PKM that we carried out in RT 06 RW 02 Purwoasri Village with the aim of bringing positive memories from the positive activities that we carried out during this PKM period, we are Serving the community of RT 06 RW 02 Purwoasri Village. Of course, the PKM activities held for Muhammadiyah Metro University students have the objectives of establishing a close relationship between higher education institutions as a source of knowledge, with the community and the local government getting better, so that the bond of brotherhood will remain well established. The purpose of PKM activities carried out by Muhammadiyah Metro University students is to build relationships between higher education institutions as a source of knowledge, with the community and the local government, and to strengthen the bond of brotherhood

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