

Socialization of processing plastic waste into ecobricks in Teratak Village, North Batukliang District

Syakirin¹, Baiq Suci Oktapia Ningrum², Malinda³, Bagus Aji Ramadhan⁴, I kadek Wira Sweda⁵

^{1,4}Program Studi Teknik Sipil, Fakultas Teknik Universitas Islam Al-Azhar

²Program Studi Ekonomi Pembangunan, Fakultas Ekonomi Universitas Islam Al-Azhar

³Program Studi Agribisnis, Fakultas Pertanian Universitas Islam Al-Azhar

⁵Program Studi Ilmu Hukum, Fakultas Hukum Universitas Islam Al-Azhar

Email: firmanyasin@gmail.com

Abstract

Household waste is the largest waste producer in Indonesia compared to other waste producers, where organic and non-organic waste, organic waste is the most abundant. Household waste management is a major challenge in various regions in Indonesia, including in Teratak Village, Teratak Village, North Batukliang District, Central Lombok Regency. There are many methods that can be used to process waste, including making ecobricks. Ecobrick is a visionary innovation developed as a plastic waste treatment solution. Taken from the two words eco and brick, it is simply defined as an environmentally friendly brick. Until now, ecobrick has not been widely known by Indonesian people, including the people in Teratak Village. The purpose of this community service is for the community to be able to produce and use ecobricks from the household organic waste they produce in their own homes without disposing of it in TPS. The method of implementing activities is carried out through the delivery of material and direct practice. This counseling and practice activity was well implemented as seen from the enthusiasm and response of the community in participating in the activity and being active in the practice of making ecobricks.

Keywords: Waste Problem, plastic waste, Ecobrick, Teratak.

Abstrak

Sampah rumah tangga merupakan penghasil sampah terbesar di Indonesia dibandingkan penghasil sampah lainnya, di mana jenis sampah organik dan non organik, sampah organik merupakan yang paling banyak. Pengelolaan sampah rumah tangga menjadi tantangan utama di berbagai daerah di Indonesia, termasuk di Desa Teratak, Kelurahan Teratak, Kecamatan Batukliang Utara, Kabupaten Lombok Tengah. Ada banyak metode yang dapat digunakan untuk mengolah sampah, diantaranya pembuatan Ecobrick. Ecobrick merupakan sebuah inovasi visioner yang dikembangkan sebagai solusi pengolahan limbah plastik. Diambil dari dua kata eco dan brick, secara sederhana didefinisikan sebagai bata ramah lingkungan. Hingga saat ini, Ecobrick belum banyak dikenal oleh masyarakat Indonesia, termasuk masyarakat di Desa Teratak. Tujuan pengabdian masyarakat ini adalah agar masyarakat mampu memproduksi dan memanfaatkan Ecobrick dari sampah organik rumah tangga yang mereka hasilkan di rumah masing-masing tanpa membuangnya di TPS. Metode pelaksanaan kegiatan dilakukan melalui penyampaian materi dan praktik langsung. Kegiatan penyuluhan dan praktik ini terlaksana dengan baik terlihat dari antusias dan respons masyarakat dalam mengikuti kegiatan dan aktif dalam praktik pembuatan Ecobrick.

Kata Kunci: Permasalahan Sampah, Sampah plastik, Ecobrick, Teratak

INTRODUCTION

Processing household waste is important and is the responsibility of every individual in society (Yunita et al., 2022). Household waste is a type of waste that results from daily activities at home, such as food scraps, paper, plastic, bottles, packaging and other unused objects. Unfortunately, the waste problem is becoming increasingly serious because the amount continues to increase and awareness of the importance of waste processing is still low in many places (Sriagustini & Nurazijah, 2022). In

this socialization, we will discuss the importance of processing household waste, the negative impacts if waste is not managed properly, as well as efforts that can be made by each individual to reduce the negative impact of waste on the environment and society (Mardhia & Wartiningsih, 2018).

Plastic waste is one of the urgent and complex environmental problems in this modern era (Nur El Fajri et al., 2022). Plastic is a durable, light and versatile material, so it is widely used in various industries and consumer products

(Sahertian et al., 2023). However, the durable nature of plastic is also a source of problems, because it takes hundreds of years to decompose naturally. As a result, the amount of plastic waste continues to increase in nature and threatens environmental sustainability and human health (Zulaidah et al., 2022). Processing plastic waste is an important effort to reduce the negative impact of plastic on the environment and society. In this socialization, we will discuss the importance of processing plastic waste, the negative impacts of plastic waste that is not managed properly, as well as several methods and strategies that can be applied to process plastic waste effectively and sustainably.

Processing plastic waste in tourism potential villages is an innovative and important idea in overcoming the problem of plastic waste while exploiting tourism potential in the area (Sari et al., 2023). Villages around the world often face plastic waste management problems that affect the environment and public health. However, with the right approach, this problem can be turned into an opportunity to develop a sustainable tourism sector (Apri-yani et al., 2020).

In this outreach, we will discuss the importance of processing plastic waste in villages as an effort to preserve the environment and increase tourism potential (Se-tiawati et al., 2020). We will also discuss the benefits of integrated plastic waste processing with tourism activities, as well as steps that can be taken to achieve this goal.

The problem of plastic waste processing in Teratak hamlet, Teratak village and tourism potential can be overcome through a holistic and sustainable approach (Wynniet al., 2019). Integrating plastic waste processing efforts with tourism potential is a proactive step to achieve the goals of environmental conservation, improving the quality of life of village communities, and developing a sustainable tourism sector (Rijal et al., 2020).

In this approach, we will discuss strategic and collaborative steps to overcome the problem of processing plastic waste and increase tourism potential in the village (Jubaedah & Fajarianto, 2021). We will highlight the importance of active community participation, the role of government,

and the involvement of the tourism sector in achieving the expected goals (Rahmadi, 2021). Ecobrick production is a creative way and has a positive impact in reducing plastic waste that is not managed properly. Ecobricks are plastic bottles filled with non-organic solid plastic waste, such as plastic packaging, plastic bags, or other used plastic. By making eco-bricks, we convert plastic waste that is difficult to recycle into construction materials that can be used in various development projects.

In this outreach, we will discuss how ecobrick production can indirectly help overcome the problem of plastic waste and its negative impact on the environment (Irsyad, 2020).

IMPLEMENTATION METHOD

Socialization of waste processing can be carried out by involving representatives from each hamlet. The socialization methods used are as follows:

- a. Distribution of socialization invitation letters to every hamlet in the Teratak village environment.
- b. Identify the Goals and Targets of Socialization. The main aim of this outreach is to increase public awareness about the importance of processing plastic waste or invite the public to actively participate in plastic waste management programs. The target audience for the socialization is residents of Teratak Village, North Batukliang District, with a total of 12 (Twelve) Hamlets, each represented by 1 (one) person, namely the Hamlets of Teratak, Pediti, Bagik Nunggal, Montong Dao, Keluncing, Jengguar, Gontoran, Selalu, Barebunik, Kabar, Benjor and Ketangge and several representatives from KMPSS (Community Group Concerned with River Waste).
- c. Preparation of Socialization Materials. Socialization materials that are informative, interesting and easy to understand. The material includes information about plastic types, the environment and Ecobricks.
- d. Selection of Socialization Media. Socialization media that suit the target

audience and level of accessibility, namely presentation and practice.

- e. Organizing Socialization. The place, day and date of implementation are the Teratak Village Office Hall, on Saturday, August 12 2023, the series of socialization events can be seen in Table 1.

Table 1. Series of Socialization Events

| Time | Activity | Person responsible |
|-------------|--|--------------------------|
| 09.00-10.00 | Registration | committee |
| 10.00-10.05 | Opening | MC: Baiq Suci Oktapia N. |
| 10.05-10.15 | Welcome from Village Officials | Suparman |
| 10.15-10.20 | Greetings from the Chairman of KKN Group IV UNIZAR Mataram | Elfan Azhari |
| 10.20-10.50 | Presentation by the Speaker | Source person |
| 10.50-11.20 | Question and answer session | Source person |
| 11.05-11.20 | Quiz | Source person |
| 11.20-11.25 | Prize distribution | Committee |
| 11.25-11.30 | Closing | MC |
| 11.30-11.35 | Group Photo Session | Committee |

- f. Evaluation of Socialization Results. After the socialization is complete, evaluate the results with interviews to determine the audience's level of understanding and satisfaction with the socialization. Results of this evaluation For improve the quality and effectiveness of further socialization.

RESULTS AND DISCUSSION

The ecobrick socialization was held within the framework of KKN (Real Work Lecture), this socialization was held by the KKN group IV of the AL-Azhar Islamic University as an effort to introduce the concept of ecobricks to the Teratak village community. Ecobricks are a recycling method repeat plastic waste by packaging it in dense plastic bottles until it reaches a certain density. The aim of this outreach is to increase public awareness about the importance of managing plastic waste wisely and promote the reduction of single-use plastic use.

The expected results from the socialization of ecobricks in this KKN can involve active community participation in collecting and packaging plastic waste into ecobrick bottles. With proper packaging, ecobrick bottles can be used as an alternative construction material for making various structures, such as benches, tables and walls, especially in areas where conventional building resources are limited.

Discussions that emerged in ecobrick socialization activities in the context of KKN include:

The Importance of Managing Plastic Waste: In this outreach, the public will be given an understanding of the negative impact of plastic waste on the environment and human health. They will be invited to think critically about the use of single-use plastic and how to reduce its negative impacts.

Ecobrick Making Process: Socialization participants will be taught the correct steps for making ecobricks. This includes collecting and sorting the plastic, washing, cutting and packaging the plastic into plastic bottles until it reaches a certain density. This process will be explained in detail and also pay attention to cleanliness and safety.

Benefits and Use of Ecobricks: Socialization participants will be given information about the various benefits of using ecobricks in construction. This can include reducing the use of conventional materials, handling plastic waste, and economic empowerment through creativity in recycling.

Plastic Collection and Packaging Practices: How to effectively collect plastic and sort it so that it is suitable for use in making ecobricks will be discussed. It requires an understanding of the types of plastic that can be used and how to clean them before processing.

Environmental and Social Implications: Discussions may also involve the environmental and social implications of using ecobricks. How the use of ecobricks can reduce plastic pollution and provide a sustainable alternative in local development.

Measuring Impact: The socialization of ecobricks in KKN can also measure its impact, such as the number of ecobricks collected, the

reduction in the amount of plastic waste entering the environment, and the community's positive response to this effort.

Collaboration and Networking: This outreach can also be the start of collaboration and networking between KKN participants, the community, and related institutions or organizations. This can help in expanding the scope and impact of these outreach efforts.

It is important to note that the results and discussions of ecobrick outreach in KKN will be greatly influenced by the local context, available resources, and the level of community participation. The expected outcome is increased awareness and participation community in managing plastic waste sustainably through the ecobrick concept.

This encouraged the community service team to provide education to local residents, especially teenagers in Teratak Hamlet, Teratak Village, North Batukliang District, Central Lombok Regency, West Nusa Tenggara about how to process plastic waste using the Ecobrick method. It is hoped that this can help overcome and utilize plastic waste so that it is useful. This counseling was attended by 19 participants, fathers/mothers/relatives from Teratak village, Kec. North Batukliang, Central Lombok Regency, West Nusa Tenggara. The obstacles faced were, the time for distributing invitations was too limited, due to conflicts with village activities, the projector was not optimal in displaying the presentation slides and the audience did not arrive on time. In this activity the community service team collaborated with KMPSS. The atmosphere of socialization can be seen in Figure 1.



Figure 1. Socialization atmosphere

Figure 1 shows that the participants were ready to take part in the socialization which began by answering questions about ecobricks with the help of the quizizz application. The pretest results can be seen in Table 2.

Table 2. Participants' Pretest Results

| No. | Correct | Wrong | Not answered |
|------------|-----------|------------|--------------|
| 1 | 4 | 5 | 8 |
| 2 | 8 | 1 | 8 |
| 3 | 8 | 3 | 6 |
| 4 | 8 | 2 | 7 |
| 5 | 9 | 0 | 8 |
| 6 | 10 | 0 | 7 |
| 7 | 9 | 0 | 8 |
| 8 | 8 | 2 | 7 |
| 9 | 7 | 4 | 6 |
| 10 | 7 | 3 | 7 |
| 11 | 12 | 0 | 5 |
| 12 | 7 | 3 | 7 |
| 13 | 8 | 1 | 8 |
| 14 | 8 | 2 | 7 |
| 15 | 9 | 1 | 7 |
| 16 | 10 | 1 | 6 |
| 17 | 5 | 5 | 7 |
| 18 | 6 | 5 | 6 |
| 19 | 5 | 4 | 8 |
| 20 | 8 | 2 | 7 |
| 21 | 9 | 2 | 6 |
| 22 | 7 | 3 | 7 |
| 172 | 49 | 153 | |

Table 2 shows that the total number of questions created was 22 questions with 17 participants taking the pretest. The total answer if all participants answered correctly is $172+49+153=374$, which means that on average only 45% of all participants answered correctly. The graph of pretest results can be seen in Figure 2.

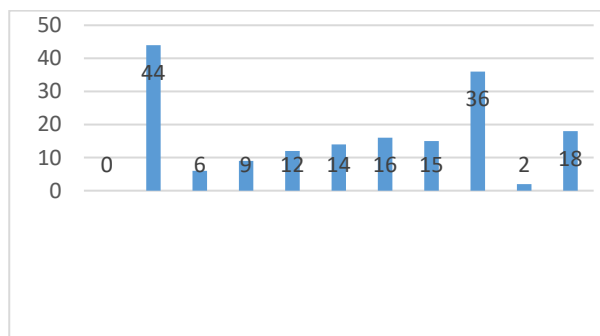


Figure 2. Pretest graph.

Figure 2 shows the correct values for each question which, if added up, results in 172 correct answers obtained from the Excel application. Counseling on non-organic waste processing using the Ecobrick method was carried out by displaying a power point with a projector which was carried out to provide general knowledge regarding the benefits of non-organic waste, Ecobricks, the advantages of Ecobricks, and the method of making Ecobricks. The material presented is correct with theory and also direct practice. Before delivering the material, the resource person asked the mothers who participated in the counseling regarding the benefits of non-organic waste, Ecobricks and the method of making Ecobricks so that information on the initial knowledge of the counseling participants was obtained as presented in Table 1. This counseling ran in an orderly and smooth manner, Ms. -The mothers of Teratak Village residents were very enthusiastic in participating in this counseling. Processing non-organic waste, including household waste such as detergent plastic and other household waste. The final product is an Ecobrick with the use of plastic waste in the form of mineral water bottles which are inserted into household plastic which is cut and compacted in the plastic bottle so that the density in the bottle can be used in ecobrick applications. Materials and tools for making Ecobricks:

- a. The tools needed to make this ecobrick are scissors, wood and a weighing tool. Scissors for cutting plastic and wood function to compact the plastic that has been cut and put

it into a plastic bottle and then put the plastic into the finished bottle and weigh the bottle that has been compacted with the contents of the plastic that has been cut out.

- b. Materials such as: plastic bottles and snack waste. How to Make Ecobricks:
 1. Prepare used plastic bottles of mineral water.
 2. Also prepare plastic waste and cut the plastic waste.
 3. Then put the chopped waste into a plastic bottle.
 4. Don't forget to prepare wood to compact the plastic waste that is already in the plastic bottles.
 5. After that, carry out the stage of weighing the bottles that have been filled with plastic waste.

To prevent damage to the ecobrick that has been made, namely by maximizing the weight content in the mineral plastic bottle, where the maximum weight of the ecobrick bottle is 200 grams for 600 ml, if it does not match the predetermined weight size, damage to the ecobrick bottle will occur, if it is more If it is larger than the specified weight, damage will occur and the bottle will break easily, if it is less than the specified weight, it will cause it to not be able to accommodate the strength of the ecobrick. the counseling. After the mothers and fathers of Teratak residents received counseling and practical training on the Ecobrick method,

it is hoped that this knowledge can be used independently in processing and utilizing most of the non-organic waste produced into Ecobrick products so that this can minimize the accumulation of non-organic household waste on site.final disposal. The enthusiasm of the residents is very participative, which can be seen in Figure 3.



Figure 3. Enthusiastic Participants

Figure 3. Shows that participants tried directly making ecobricks. A group photo at the end of the socialization can be seen in Figure 4.



Figure 4. Photo with resource person

Figure 4 shows all participants taking a group photo after the end of the socialization. If Teratak village residents are able to process large amounts of non-organic household waste into Ecobricks, this can be used as a business opportunity to sell it to the general public. Then outreach event This closed with a group photo with the resource person and residents of Teratak village and also from other universities' KKN teams who were also present at the ecobrick outreach, but before that a final evaluation was carried out on each participant with the results which can be seen in Table 3.

Table 3. Test Evaluation Results

| No. | Correct | Wrong | Not yet rated | Not answered |
|------------|-----------|----------|---------------|--------------|
| 1 | 15 | 1 | 0 | 3 |
| 2 | 13 | 3 | 0 | 3 |
| 3 | 12 | 5 | 0 | 2 |
| 4 | 15 | 2 | 0 | 2 |
| 5 | 16 | 1 | 0 | 2 |
| 6 | 17 | 0 | 0 | 2 |
| 7 | 17 | 0 | 0 | 2 |
| 8 | 16 | 1 | 0 | 2 |
| 9 | 15 | 2 | 0 | 2 |
| 10 | 14 | 3 | 0 | 2 |
| 11 | 17 | 0 | 0 | 2 |
| 12 | 16 | 2 | 0 | 1 |
| 13 | 13 | 4 | 0 | 2 |
| 14 | 14 | 3 | 0 | 2 |
| 15 | 16 | 1 | 0 | 2 |
| 16 | 16 | 0 | 0 | 3 |
| 17 | 14 | 3 | 0 | 2 |
| 18 | 12 | 5 | 0 | 2 |
| 19 | 13 | 4 | 0 | 2 |
| 20 | 14 | 3 | 0 | 2 |
| 21 | 16 | 1 | 0 | 2 |
| 22 | 12 | 4 | 0 | 3 |
| 323 | 48 | 0 | 47 | |

Table 3 shows that there were 19 participants who took part in the evaluation with an increase in the number of correct answers for each question answered, namely 323. Figure 5 will show a graph of the correct scores.

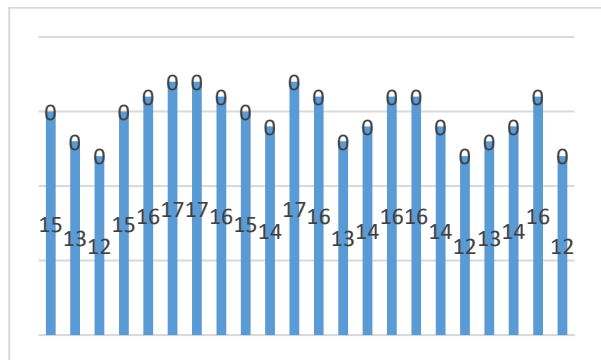


Figure 5. Final Evaluation Results Graph

Figure 3 is a graph of correct scores with a presentation of 77% who answered the question correctly, which means an increase of 32%. At the start of the outreach, it was discovered that the majority of Teratak residents had minimal knowledge in handling non-organic household waste, so that the non-organic waste produced could not be utilized optimally. Many outreach participants do not understand what Ecobricks are and what their benefits are and how they are made. After being given counseling material, participants came to understand that Ecobricks are a type of non-organic waste, for example plastic bottles filled with plastic waste. Many of the mothers and fathers who participated in the counseling were initially still hesitant about practicing household non-organic waste processing materials using the Ecobrick method. After being given assistance with direct practice, the participants then became enthusiastic and became more determined to make Ecobrick products independently at home.

CONCLUSION

Counseling and direct practice of processing non-organic waste using the Ecobrick method involving residents, especially fathers, teenagers and KMPSS of Teratak village, Teratak Village, North Batukliang District, West Nusa Tenggara Regency, went orderly and smoothly, Teratak residents were very enthusiastic in participating in this socialization. The result of this socialization activity is an increase in residents' knowledge regarding ecobricks, namely 32%. It is also hoped that it can increase awareness about environmental cleanliness in order to achieve the ecotourism potential that will be built together. Making

ecobricks, which is the process of packaging plastic waste into dense and hard plastic bottles, has various indirect benefits that can have a positive impact on the environment and society, namely: Reduction of plastic waste entering the environment. By packaging plastic into ecobricks, the plastic will not decompose or pollute the environment for years, increasing environmental awareness about the problem of plastic waste and its negative impact on the environment. This can stimulate more sustainable actions in waste management and plastic consumption. The process of making ecobricks can be used as an effective environmental education tool, especially among children and teenagers. This helps teach values about waste management, recycling and environmental protection, Ecobricks can be used as an alternative construction material. Using ecobricks in simple construction projects such as making chairs, tables or other small structures can reduce the use of conventional construction materials. Making ecobricks can be used as a social and collaborative activity in the community. This can strengthen social bonds, teach cooperation, and help create a more inclusive environment. Making ecobricks encourages creativity in processing plastic waste into useful products. This can stimulate innovation in waste management and plastic reduction.

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