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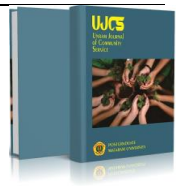

Socialization of the "Three Green Pillars" Program in Empowering Dharma Wanita

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Abstract: This research was conducted to explore the environment and culture of Tobongon Boltim village. This research also aligns with the theme assigned by the university to our Community Service Program students. We used observational, ethnographic, and historical methods. We used observational methods, observing directly how the community engages in gardening and plastic waste processing. In addition to observational methods, we also employed ethnographic methods, focusing on the community and specific groups in understanding natural or non-chemical pesticides. Furthermore, we used historical methods, which involved listening to stories from local residents who frequently visited our post. Using these three methods, we discovered that the Tobongon village community rarely uses natural pesticides and disposes of a lot of used cooking oil, which then hardens and clogs the drains. We also heard that children in Tobongon village hold daily TPQ (Quran study parks) during the day. Therefore, we took the initiative to create Syu'batul al-Lughatul Arabiyah in the afternoons to help the children learn to write the hijaiyah letters correctly. In addition to teaching the hijaiyah alphabet, we also teach Arabic vocabulary to familiarize them with vocabulary in other languages. Throughout our work program, the Tobongon village community has been very enthusiastic and has provided significant assistance. Nearly all of our programs have been implemented successfully.

Keywords: Community Empowerment, Ecobricks, Environmental Innovation, Natural Pesticides, Used Cooking Oil Recycling.

Introduction

Kuliah Kerja Nyata (KKN) is a program that involves students as an integral part of the university's tri dharma, focusing on honing students' ability to apply all forms of knowledge gained during their studies. Tobongon Village, Modayag District, East Bolaang Mongondow, is one of the locations for our community service program where we chose to research the daily lives of the people of Tobongon Village and the culture within it. With this community service program, we have several work programs in Tobogon village. Among

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them, the residents of Tobongon village themselves are not very familiar with waste management and natural plant poisons. Therefore, we, as community service students, created work programs for waste management and natural plant poisons (Yunus et al., 2022).

The waste management and natural plant poisons we created are herbal pesticides, aromatherapy candles, and recycling waste into handicrafts. In addition, we also conduct daily work programs, namely Syu'batul al-Lughatul Arabiyah, which means Arabic language courses held every afternoon at the al-Huda Mosque in Tobongon village. The work program we created is to help the people of Tobongon village (Kenarni, 2022).

The implementation of the KKN work program in Tobongon Village is not just a routine activity but a real form of integrating the three green pillars: ecotheology, environmental innovation, and local wisdom. The synergy of these three aspects forms the foundation of every program implemented. Ecotheology emerges through a spiritual approach that emphasizes the importance of preserving nature's sustainability as part of God's trust. This aligns with the activities of the Arabic language course (Shu'batul al-Lughatul Arabiyah), which not only focuses on improving linguistic abilities but also strengthens the religious values of society so that they become more concerned about the environment.

Environmental innovation is evident in the waste management program, which produces new and valuable products such as handicrafts from plastic waste and aromatherapy candles from used cooking oil. With this innovation, the community not only reduces the amount of waste but also gains new skills that have the potential to provide additional economic value. Processing household waste into aromatherapy candles has been proven to increase environmental awareness while also opening up creative business opportunities at the village level (Amril et al., 2025).

Local wisdom is an inseparable element in this KKN program. The community of Tobongon Village has a very strong tradition of mutual cooperation, making a participatory approach the key to program success. For example, in the production of plant-based pesticides, the community is involved from the education stage to direct practice, utilizing natural materials available around the village such as papaya leaves, water, and dish soap. This aligns with research presented by (Dyana et al., 2023), which showed that training on making botanical pesticides can improve farmers' skills while reducing their dependence on harmful chemicals.

Thus, the KKN activities in Tobongon Village not only provide short-term benefits in the form of new knowledge but also instill a collective awareness to protect the environment in an innovative way that is based on cultural and spiritual values. This integration of the three green pillars is what sets this KKN work program apart and makes it a strength.

Method

We, the independent KKN students of FTIK, conducted education and socialization that provided understanding on processing used cooking oil into aromatherapy candles, papaya leaves into pesticides, and plastic waste into handicrafts (*ecobricks*).

Result and Discussion

A. Three Green Pillars

1. Botanical Pesticides

   Botanical pesticides are a type of pesticide derived from plants, and their residues are easily broken down naturally. Some plants have been identified as containing chemical compounds with the potential to control plant pests (Saputra & Prasetyo, 2023). Organic pesticides, or plant-based pesticides, are pesticides derived from organic materials. These pesticides function as plant medicine, protecting plants from pest attacks due to the aroma and natural ingredients that pests dislike. As also stated by (Kahar et al., 2024), plant-based pesticides are pesticides whose basic ingredients come from plants, which are relatively easy to make with limited capabilities because plant-based pesticides are easily biodegradable.

   Plant-based pesticides are made from the fermentation process of organic materials. Some household organic waste, such as onion, garlic, and shallot peels, papaya leaf waste, and vegetable scraps, can be used in the production of botanical pesticides.

2. Aromatherapy Candles

   Cooking oil is one of the essential human needs for food handling. Cooking oil as a burning medium is very important, and the demand for cooking oil is increasing. "Cooking oil" is oil derived from refined vegetable or animal fats that is liquid at room temperature and is often used for frying food. Vegetable cooking oil is typically produced from plants such as coconuts, grains, nuts, corn, soybeans, and canola (Octavia et al., 2023).

   Used cooking oil is oil that has been used and can be obtained from various types of cooking oil, such as corn oil, vegetable oil, ghee, and so on. This type of oil is used oil that is utilized for general household needs. Used cooking oil is cooking oil that has been used multiple times (4 times), and its quality has deteriorated. " Fat in food should not contain more than 50% free fatty acids." (Jannah & La Daiba, 2024).

Waste cooking oil that is disposed of directly without prior treatment can cause environmental damage. Pollution from used cooking oil can contaminate water, soil, and air, which can threaten human health if left unchecked (Reni Diah Setiowati & Robi Santoso, 2024).

To address this issue, developments are needed in processing used cooking oil into goods or products with financial value. One thing that can be done is to process used cooking oil into scented candles, commonly known as fragrant healing candles. Candles have been widely used throughout history for lighting and as a method of creating a climate. "The candles referred to are scented candles. Scented candles are candles that contain aromatic substances that can be used for diffusion, relaxation, and headache treatment. Scented candles can be used for various purposes, including reducing stress and anxiety" (Reni Widiana Ningsih & Anggifatul Hana, 2024)

3. Waste Recycling

Plastic waste continues to pose a real threat to environmental sustainability, especially in rural areas where management is often inadequate. Ecobrick is one creative solution to address this problem. An ecobrick is a plastic bottle tightly packed with non-biological used plastic, resulting in a reusable building block that minimizes the plastic footprint on the ecosystem (Ishak et al., 2023).

In Indonesia, the innovation of utilizing plastic waste to create ecobrick crafts has been implemented in several villages. For example, in Kuripan Village, the processing of inorganic waste into ecobrick crafts as an architectural element is beginning to be introduced, although it is not yet widely known by the local community (Candra et al., 2023).

Against that backdrop, students participating in the FTIK IAIN Manado Independent KKN (Community Service Program) took the initiative to implement a similar program in Tobongon Village: transforming accumulated plastic waste into an ecobrick monument, serving as an icon of local crafts and a symbol of environmental concern.

The objectives of this work program include:

a) Reducing the volume of plastic waste in Tobongon Village by collecting waste and processing it into ecobricks.
b) Creating an Ecobrick monument craft that has esthetic and symbolic value for the village.
c) Increasing the capacity of the community, especially residents and KKN participants, in ecobrick-making techniques and plastic waste management.
d) Raising ecological awareness and pride through functional and representative works.

In making ecobricks, we, the students of the FTIK IAIN Manado 2025 Independent KKN, collected and sorted plastic waste. Residents are invited to collect various types of used plastic (food packaging, bottles, and cigarette packs), which will then be washed and dried. Wet or contaminated plastic will be difficult to compact and can reduce the quality of the ecobrick. After collecting and sorting the trash, we began the process of making ecobricks.

Some steps that will be taken:

a. Cut the plastic into small pieces so it's easier to put into the bottle.
b. Leave a little space so there are no air pockets, making the ecobrick more solid.
c. Weigh each bottle to reach a certain weight standard so that the quality of the ecobrick is relatively homogeneous.
d. Color the bottles that have been filled with trash.

After a sufficient number of ecobricks have been successfully made, the next step is to design and assemble the ecobrick monument. The ecobrick bottles will be arranged in a pre-shaped and colored steel frame, according to symbolic writing, as a support. The final step is planting. The planting will take place at the Tobongon village hall on September 6, 2025.

B. Benefits, Challenges, and Objectives

Plastic bag waste poses a significant threat to environmental sustainability. The difficulty in the decomposition process makes plastic waste require proper handling to prevent it from accumulating. One solution is to use ecobricks (Nuruzzaman et al., 2021). Ecobricks are a way of managing plastic waste that can be easily done by anyone and has a significant impact on environmental protection (Ikhsan & Tonra, 2021). The community service activity we conducted was to expand the benefits of ecobrick and provide training on how to implement ecobrick with the residents of Tobongon.

The benefits of making ecobricks are as follows:

a) Helps reduce the volume of plastic waste that is difficult to decompose naturally.
b) Raises public awareness about waste management.
c) Increases community creativity in managing plastic waste.
d) Can be used as an alternative for making simple furniture or decorations.

The challenges of making ecobricks are as follows:

a) Managing plastic bottle waste requires more detail and patience because the plastic waste is packed tightly.
b) Many people are still not very interested in ecobricks.
c) Some types of plastic are not suitable for use, especially those containing food scraps or oil.

d) Washing used bottles is an obstacle because many bottles are filled with mold and other dirt.
e) If the ecobrick-making process is not followed according to procedure, it can be less durable and not strong.

The objectives of making ecobricks are as follows:

a) Preventing further plastic pollution in the environment.
b) Providing creative examples of utilizing single-use plastic waste.
c) Creating new job opportunities from plastic waste creations.
d) Encouraging the public to be more mindful in using and managing plastic waste.

C. Expected Outcomes of Ecobrick Production

It is hoped that ecobrick production will have a positive impact on various environmental, social, and economic aspects. Ecobricks reduce the volume of plastic waste that is difficult to decompose and typically pollutes the land and water ecologically (Lestari et al., 2024). Converting plastic into non-structural building materials can help communities reduce the amount of waste going to landfills and decrease the practice of burning waste, which is harmful to the environment and health (Nuruzzaman et al., 2021).

From a social perspective, making ecobricks raises public awareness about the importance of proper waste management. From an early age, this activity can teach values such as caring, discipline, and creativity, especially if implemented in schools (Masitoh et al., 2025). Making ecobricks involves many parties, which increases community cooperation and a sense of ownership toward the surrounding environment.

Ecobricks can be used as an alternative material for building various facilities (Zuska et al., 2023). This includes tables, benches, plant pots, fences, a reading garden wall, and creative spaces. These products are not only beneficial but also a tangible representation of the community's sustainable practices (Supriani et al., 2023).

On the other hand, economically, ecobrick production has the potential to reduce construction costs by using waste as a raw material (Wanti et al., 2025). In the future, this activity has the potential to open new businesses, especially if the ecobricks produced are processed into marketable goods such as recycled furniture and home decor.

Generally, ecobricks not only serve as a way to address the problem of plastic waste but also act as a means of empowering communities (Nuruzzaman et al., 2021). This can enhance understanding of the environment, strengthen social connections, develop innovative learning areas, and provide local economic opportunities related to the environment (Nurul Islami & Suyuti, 2023).

Conclusion

The Community Service Program (KKN) activities in Tobongon Village have successfully integrated the three green pillars—ecotheology, environmental innovation, and local wisdom—as the foundation for implementing the work program. Through a spiritual and educational approach, the community not only gains new knowledge but also increases its awareness of environmental conservation.

The program for processing used cooking oil into aromatherapy candles, making natural pesticides from natural ingredients, and recycling plastic waste into ecobricks has proven to have a positive impact on the environment and the community. This activity enhances creativity, fosters the value of mutual cooperation, and opens up new economic opportunities for village residents.

Overall, the implementation of this KKN demonstrates that the synergy between scientific knowledge, religious values, and local wisdom can be an effective model for achieving sustainable development at the village level.

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