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UNP Community Service Students' Environmental Action in Muaro Bodi: From Trash to Benefits

Miftahul Khair[1], Muhammad Al Fiqri[2], Laviona Bella Sukma[3], Najwa Khoirunnisa[4], Giselsa Adifi[5], Rahmatika Suci Aprilia[6]
Universitas Negeri Padang, Indonesia
Corresponding author: miftah@fmipa.unp.ac.id [1]*alfiqripasirah@gmail.com*[2], *vionabella015@gmail.com*[3], *khoirunnisan023@gmail.com*[4], Adifigisel@gmail.com[5], *sucirahmatika01@gmail.com* [6],

ABSTRACT
The problem of waste, especially plastic waste, is a serious issue that threatens health and the environment. Improper waste management causes various negative impacts such as pollution and the spread of disease. This study aims to describe the implementation of an ecobrick-based waste management program and land use through the planting of Family Medicinal Plants (TOGA) carried out by KKN students from Padang State University in Nagari Muaro Bodi, Sijunjung Regency, West Sumatra. Using a descriptive qualitative approach, data were collected through observation, interviews, and documentation. The results of the activity show that making ecobricks from bottles and plastic waste can increase community awareness of the importance of waste management, while planting TOGA provides health benefits and beautifies the home environment. The combination of these two activities has proven effective in building community participation in maintaining environmental cleanliness and health in a sustainable manner. This program is an example of the implementation of sustainable development goals (SDGs) through a simple, educational, and applicable approach at the village community level.
***Keywords**: healthy and prosperous life, ecobrick, TOGA, Trash*

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INTRODUCTION

The World Health Organization (WHO) defines waste as anything unused, unwanted, or discarded that originates from human activities and does not occur naturally. Currently, waste is a serious problem we are facing. Household waste constitutes the largest source of daily waste, comprising organic, inorganic, and hazardous waste (Yuwana & Adlan, 2021). In West Sumatra, the waste problem is a major concern. The volume of waste generated continues to increase, reaching 875,143 tons in 2024. Meanwhile, waste management and facilities are not yet optimal.

Waste can be defined as a burden or a valuable resource, depending on how it is managed (Zaman, 2009). According to Law No. 18 of 2008, Chapter 1, Article 1, waste is the solid residue of daily human activities and/or natural processes. McDougall et al. (2001) define waste as anything of little use or value, or useless remains. Waste is a product of human activity.

Physically, it consists of the same material as useful items, only distinguished by its lack of value. Plastic waste is the most commonly discarded waste by humans because many people use plastic for their daily needs, whether individuals, shops, or large companies. Disposal of plastic waste into water and soil is also rampant, further triggering environmental damage because plastic waste is made of inorganic materials (Widiyasari et.al, 2021). The lack of value or usefulness can be linked to the mixing of waste and the unknown composition of waste. Waste can cause various negative impacts on the environment and human health. Something has shifted here. Waste, the use of plastic, which was previously only cared for or handled by certain people (scavengers, people from lower classes, dirty and dark places from various places), is now changing. Through ecobricks, more people, more groups, regardless of their social class, are becoming interested in working with plastic waste, especially that used in everyday life (Suminto. S, 2017). Environmental impacts include water, air, and soil pollution, ecosystem damage, and climate change. Meanwhile, health impacts include the spread of disease, respiratory disorders, and other health problems. One type of waste that requires attention is plastic waste. This is because plastic is widely used in the manufacture of all aspects of human equipment. This leads to large amounts of waste accumulation (Hidayati et al., 2020).

Wise waste management is crucial for protecting the environment and public health. Inadequate waste management (uncontrolled waste disposal) creates a suitable habitat for several organisms and attracts various animals, such as flies and dogs, which can transmit disease. Potential diseases that can arise include diarrhea, cholera, and typhus, which spread rapidly because viruses from improperly managed waste can mix with drinking water. Dengue fever can also increase rapidly in areas with inadequate waste management. Fungal diseases can also spread (e.g., skin fungus). Diseases that can spread through the food chain. One example is a disease transmitted by tapeworms (taenia). These worms previously entered the digestive tracts of livestock through their food scraps/garbage. Plastic waste management is a major challenge that is often overlooked in elementary schools, even though schools have significant potential as agents of change. Elementary schools are a strategic place to instill environmental awareness from an early age. Elementary school education can lay the foundation for developing environmentally conscious character in children (Ismail, 2021).

Health issues are integrated into the SDGs, including their goal of a Healthy and Prosperous Life, which ensures a healthy life and promotes well-being for all people at all ages. Health issues pose significant challenges in Indonesia, including the reformulation of the integrated development concept and the placement of health as part of a series of development management processes encompassing input, process, output, outcome, and impact of development. Furthermore, fostering a shared understanding of the substance of health development, which must be implemented collaboratively in the current era of decentralization and democratization. The program promoted to realize the SDGs in the health sector is the Healthy Indonesia Program, with three pillars: a healthy paradigm, Health services and national health insurance, including:

1. The health paradigm is an approach that prioritizes promotive and preventive concepts in health services and places health as an input into the development process.
2. Health services are implemented and directed towards improving access and quality of services. Primary health care is aimed at promoting and preventing services through a continuum of care approach and health risk-based interventions within clinical governance, management, and program governance.
3. National Health Insurance: The state is committed to ensuring health services for all residents and foreign nationals residing in Indonesia.

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Muro Bodi Village is a village located in IV Nagari District, Sijunjung Regency, West Sumatra. It covers an area of 28.76 square kilometers, or 18.28% of IV Nagari District. This village is renowned for its rich history, including the story of the origin of the name Muaro Bodi by Datuak Bramban Basi. —believed to be the origin of the name "Muaro Bodi"—this village offers a significant opportunity to build collective environmental awareness. As a form of community service, Padang State University (UNP) Community Service Program (KKN) students initiated a program themed "From Waste to Benefits" in Muaro Bodi Village. This activity focused on waste management and land utilization through ecobrick making and planting medicinal plants (TOGA).

The goal of this activity was to increase community understanding of the importance of sustainable waste management and to encourage awareness of environmental cleanliness. During the implementation, students utilized used bottles as ecobrick media, arranged in the shape of flowers to serve as planting media for medicinal plants. The entire series of activities used a descriptive qualitative approach to obtain a comprehensive picture of the program's impact on growing community awareness and involvement in environmental sustainability at the village level.

RESEARCH METHODS

Our research was a descriptive qualitative study to describe the implementation process and outcomes of the waste management and land use program implemented by UNP Community Service Program students in Muaro Bodi Village, Sinjunjung Regency, West Sumatra Province. The main focus of this program was the creation of ecobricks from plastic waste and the cultivation of Family Medicinal Plants (TOGA). During the program, data was collected through direct observation of community participation, casual interviews with local residents, and documentation such as photographs and recordings of daily activities. The results of the ecobricks and TOGA also formed an important part of the documentation. All of this data was then analyzed descriptively to determine the extent to which this activity impacted community involvement and increased awareness of the importance of environmental protection in Muaro Bodi Village.

Research Location and Subjects

The research was conducted in Muaro Bodi Village, IV Nagari District, Sijunjung Regency, West Sumatra Province, a region known for its community initiatives in plastic waste management through ecobricks and TOGA cultivation in their yards. The research subjects were residents actively involved in ecobrick and TOGA activities, Family Welfare Movement (PKK) leaders, and local community leaders.

Data Collection Techniques

Data were collected using the following techniques:

1. Observation

Researchers directly observed ecobrick-making and TOGA (traditional vegetable garden) maintenance activities. Observations were conducted in a participatory manner to obtain more natural and contextual data.

2. Interviews

Semi-structured interviews were conducted with key informants, including:

a. Residents actively making ecobricks
b. TOGA (traditional vegetable garden) managers
c. Village officials or community leaders
d. PKK (family welfare family) cadres or environmental activists

These interviews aimed to determine the motivations, benefits, obstacles, and community perceptions of the ecobrick and TOGA programs.

3. Documentation

Documentation was conducted by collecting photos of activities, village program notes, educational brochures, and ecobrick and TOGA products.

Data Analysis Techniques

Data analysis was conducted qualitatively using the interactive model by Miles and Huberman, which involved three stages:

1. Data reduction – filtering data from observations and interviews, and compiling data relevant to the research focus.
2. Data presentation – presenting data in narrative form, tables, or figures to facilitate interpretation.
3. Conclusion drawing – summarizing the main findings that answer the research problem formulation and objectives.

Data Validiaty

To ensure data validity, source and technique triangulation techniques were used, namely by comparing data obtained from various sources (informants) and various techniques (observation, interviews, documentation). In addition, member checking was also conducted by reconfirming the interview results with informants for validation.

RESULTS AND DISCUSSION

Concern for the environment and health is increasingly becoming a major concern in everyday life. In the face of global challenges such as the climate crisis, environmental pollution, and the growing need for healthy living, many people are turning to simple yet effective solutions that can be made right at home. Two of these solutions are ecobricks and TOGA, each of which offers significant benefits for environmental sustainability and family well-being.

Ecobricks: Managing Plastic Waste Creatively

Plastic waste is one of the most difficult types of waste to decompose naturally. Every day, millions of snack wrappers, plastic bags, and other single-use packaging are simply thrown away and pile up in landfills. If not managed properly, this plastic will pollute the environment for hundreds of years. To address this challenge, the idea of ecobricks emerged—transforming plastic waste into a reusable solid material.

Ecobricks are defined as a visionary innovation developed as a solution for plastic waste management. According to sources cited in (Universal Eco, n.d.), ecobricks were originally created by a Canadian artist in the Philippines, using plastic or plastic waste, which possesses the basic properties of plastic: strength, water resistance, and durability.

An ecobrick is a used plastic bottle filled with cleaned and dried plastic pieces. This plastic waste is then compacted using a wooden stick until the bottle feels hard and cannot be easily compressed. The end result is a strong plastic "brick" that can be used as an alternative material for making various objects, from simple chairs to eco-friendly building elements like garden walls.

Ecobricks are a creative way to process plastic waste into useful objects, reducing the pollution and toxins caused by plastic waste. Ecobricks are a creative way to manage plastic waste. Their purpose is not to destroy plastic waste, but rather to extend the life of the plastic and process it into something useful, usable for the benefit of humanity in general. However, the goal of ecobricks is to reduce plastic waste and recycle it using plastic bottles into something useful (Widiyasari et.al, 2021). The process of making ecobricks is actually very easy and can be done by anyone at home. Not only does it help reduce the amount of

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plastic waste, but this activity also serves as an interesting educational tool, especially for children, to learn about the importance of protecting the environment and managing waste wisely.

The stages carried out in processing plastic waste into ecobricks (benches) include: a) the author collected plastic waste obtained from piles/heaps in the Alue Lhok village area in particular, and in the Bubon sub-district in general; b) washing the plastic waste until clean; c) drying the washed plastic waste; d) the dried plastic waste was placed into plastic bottles until it was solid and hard like a brick; e) the plastic bottles, firmly filled with plastic waste, were assembled into a bench or circle using insulation or duct tape; f) the plastic bottles that had been formed into a bench were installed/surrounded with foam and covered with cloth. In carrying out this activity, of course many parties are involved and help in the process of collecting materials to produce a work, especially among children.







TOGA: Family Medicinal Garden, a Source of Health from the Yard

On the other hand, with increasing awareness of the importance of a healthy and natural lifestyle, many families have begun growing TOGA, or Family Medicinal Plants, around their homes. TOGA is a collection of herbal plants that offer various health benefits and can be used as traditional remedies for minor, everyday ailments.

Plants such as ginger, turmeric, Javanese ginger, betel leaf, lemongrass, and aloe vera are examples of TOGA that are easy to find and grow. Ginger, for example, is known to relieve colds and strengthen the immune system. Turmeric is often used to aid digestion and reduce inflammation. Meanwhile, betel leaf contains antibacterial compounds that are good for maintaining body hygiene and treating minor irritations. Family medicinal plants (TOGA), commonly referred to as a living pharmacy, are the cultivation of medicinal plants in the yard or garden as a preventative measure or for self-treatment using existing medicinal plants. Medicinal plants themselves are plants whose parts or entire plant parts are used as medicine, ingredients, or herbal remedies (Nugraha, S.P., 2015).

Planting medicinal plants not only brings health benefits but also makes your yard greener, more beautiful, and more productive. Furthermore, families become more independent because they can treat minor health problems without always relying on chemical medications.

Both ecobricks and medicinal plants are small steps that can have a big impact if implemented widely. Ecobricks help solve the problem of plastic waste that has been polluting the environment, while medicinal plants provide a natural solution to maintain family health. Neither requires sophisticated technology or large costs—just awareness, a willingness to try, and a concern for the future of the earth and future generations.

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By implementing small habits like these, we contribute to creating a cleaner environment and a healthier life. Let's start at home, because big changes always begin with small, consistent steps.





CONCLUSION

Waste, especially plastic waste, remains a serious environmental problem due to its difficult-to-decompose nature and the constant accumulation of waste. If left untreated, this waste can pollute the environment and harm living things, including humans. Therefore, it is crucial for us to start taking concrete steps in waste management, starting with small steps around the home.

One way to do this is by making ecobricks, which are used plastic bottles filled tightly with plastic waste to create an alternative building material. In addition to reducing waste, ecobricks can also be used to create environmentally friendly furniture, plant pots, or building elements. This is a simple method yet has a significant impact if implemented consistently.

Meanwhile, planting TOGA (Family Medicinal Plants) also offers significant benefits, particularly in maintaining family health naturally. Herbal plants such as ginger, turmeric, Javanese ginger, or betel leaves can be used as traditional remedies to treat various minor ailments, while also greening the home garden.

By combining these two good habits—managing waste through ecobricks and maintaining health through TOGA—we contribute to creating a cleaner, healthier, and more sustainable environment. Although it seems simple, if done together and continuously, this step will have a positive impact on the earth and future generations.

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