

IMPLEMENTATION OF RECYCLING SYSTEM BY MAKING ECOBRICKS AT PAUD PELITA HATI BANGSA , TIPES , SURAKARTA

Dewi Sekar Harum Rahmatulloh^{1*}, Herlina Nur Fadhilah², Maulida Nurul
Mufidah³, Muhammad Anwar Prasetia⁴, Nafisah Tsabita Putri⁵

UIN Sunan Kalijaga, Yogyakarta
*21104070035@student.uin-suka.ac.id

Abstract - *Ecobricks is a process of recycling plastic waste. The purpose of making ecobricks is to stimulate a sense of love for the environment and maintain cleanliness in children from an early age. This effort is a step to reduce the amount of scattered waste, especially plastic because it can pollute the environment and takes hundreds of years to decompose. This ecobrick is made from used plastic bottles filled with small pieces of plastic food wrappers, plastic bags, and other plastic materials so that it is easy enough for children to make. One of the most important benefits of using ecobricks in early childhood is to improve children's fine motor skills and art. Not only as recycling, ecobricks can also be used to create works of art in the form of decorative plant pots. Therefore, we also teach starting from the process of planting flowers.*

Keywords: *Ecobricks, Recycling Plastic Waste, Children, Reduce*

1. INTRODUCTION

Plastic waste is the most discarded waste by humans because many people use plastic for their daily needs, whether it is individuals, stores, or large companies (Majida et al., 2023). Plastic does not decompose, or is *photodegrade*. This means that the plastic will slowly break down into small pieces and then seep into the soil or water. Because these pieces are very small they are easily absorbed by the plants, fish and animals that we eat (Suminto, 2017). Data from the Ministry of Environment and Forestry shows that plastic waste is one of the most dominant types of waste in Indonesia, with a contribution of 17 percent, or around 11.6 million tons of total waste produced every day. The large use of plastic by the community leads to the accumulation of a large amount of plastic waste, which ultimately contributes to environmental pollution. According to Rochman et al., (2013), non-biodegradable plastics can pollute water and soil sources, and harm marine life and humans. Plastic carries harmful chemicals such as *Polychlorinated biphenyls* and *Pesticides* which can poison aquatic habitats and living things in them. When marine animals consume plastic, these toxins can enter the human body through the food chain (Rochman et al., 2013). This emphasizes the need for serious efforts to reduce the use of single-use plastics and find sustainable waste management solutions.

Ecobrick is a plastic bottle that is filled densely with non-biodegradable plastic waste, which can be reused as a building material or furniture. With *ecobrick*, plastic waste will be stored and maintained in bottles so that it does not need to be burned, piled up, buried and others. The technology of *ecobrick* allowing us not to make plastic in one of the industrial recycle systems, thereby staying away from the biosphere and saving energy. *Ecobrick* keeping these plastic materials releasing CO₂ which will ultimately contribute to global warming (zerowaste.com). Manufacturing process *ecobrick* is very easy, just by putting the cleaned used plastics into the used plastic bottles until they become solid and hard. These bottles can then be used as construction materials to create various structures such as walls, tables, and chairs (Ni Wayan Sri Suliartini et al., 2022).

Therefore, one of the prominent projects in our KKN service activities is to overcome plastic waste by recycling through the *ecobrick* or the use of waste with innovative and environmentally friendly plastic bottle media. To instill awareness and behavior of caring for the environment from an early age, we took the initiative to invite PAUD (Early Childhood Education) children to carry out activities to make *ecobrick* together. *Ecobricks* have the advantage of being easy to understand by various groups of people and the equipment needed to make them very easy to find. Through waste management activities to become *ecobrick*, PAUD children are not only taught to recognize and sort plastic waste, but also invited to develop creativity in processing waste into something of useful value. Inorganic waste processing activities into *ecobrick*. This can reduce the negative impact of inorganic waste buildup (Ni Wayan Sri Suliartini et al., 2022) and the resulting works can be used as a learning medium to stimulate the physical, social, creative, artistic development of

children's fine motor skills, and can be used to stimulate children's cognitive development (Palupi et al., 2020).

2. METHOD

The method used is a descriptive qualitative approach or often called a naturalistic method (carried out in natural conditions) then the data collected is analyzed based on a literature review and relevant supporting data. This service aims to be a step in reducing plastic waste through implementing a recycling system and to instill a sense of love for the environment in young children through making ecobricks at PAUD Pelita Hati Bangsa Surakarta.

Data collection techniques generally include observation, interviews and documentation which is called triangulation (Sugiyono, 2010). The initial stage is to make observations regarding what activities need to be taught to young children as well as an initial step to overcome troubling problems in the community. After the observation, the interview stage continued with the teacher as well as discussions starting from planning, implementation, to evaluation. Then the final stage is to analyze the results based on the documentation results during the implementation of the activity.

1) Planning stage

To ensure the smooth running of activities, planning is carried out starting from the collection of tools and materials, namely plastic waste, plastic bottles, scissors, glue guns, plant pots, planting media and plants. All of this was prepared long before the activity was carried out because it required large quantities.

2) Implementation

On the day the work program was implemented, namely August 5 2024 at PAUD Pelita Hati Bangsa Surakarta, it began with the delivery of material and procedures for making ecobricks to children using lecture, demonstration and question and answer methods. The lecture method is carried out by providing understanding to children with easy-to-understand explanations about the dangers of waste, especially plastic, so that it needs to be handled, one of which is by recycling waste into useful ecobricks. According to the KBBI, a demonstration is a demonstration or demonstration of how to do or do something (Cecep et al., 2022). This is done to provide direction so that children can learn and practice directly the steps for making ecobricks together. The question and answer aims to determine the child's level of understanding in making ecobricks through simple questions about the activities that have been carried out (Kusuma et al., 2023).

3) Evaluation

Evaluations are carried out for future improvements so that they can be maximized during preparation and implementation because there are still several shortcomings such as too few pots and plants so that when practicing planting with children they are too crowded together and difficult to condition.

3. RESULTS AND DISCUSSION

Based on the method that has been carried out, the results obtained are the implementation of the recycle system activity by making ecobricks which took place in the first week of August. The use of ecobricks is a process of recycling plastic waste. Ecobricks are a smart and practical solution for turning plastic waste into useful items. The word ecobrick comes from English, consisting of "eco" which means environmentally friendly and "brick" which means brick, so it literally means environmentally friendly bricks.

The making of ecobricks aims to stimulate a sense of love for the environment and maintain cleanliness in children from an early age. This effort is a step to reduce the amount of scattered waste, especially plastic because it can pollute the environment and takes hundreds of years to decompose. This activity was carried out by all members of KKN and children of PAUD Pelita Hati Bangsa.

The making of Ecobricks is made from used plastic bottles filled with small pieces of plastic food wrappers, plastic bags, and other plastic materials so that it is easy enough for children to make. One of the most important benefits resulting from the use of ecobricks in early childhood is to improve children's fine motor skills and art. In addition, ecobricks can also be used as works of art in the form of decorative plant pots.

This activity began by first consulting with the PAUD, which then received a very good response and was supported by the principal and teachers of the PAUD. The equipment needed to make ecobricks is plastic waste, plastic bottles, plant seeds, planting media, and glue guns.

Learning begins with class conditioning, ice breaking, then continues with providing education about plastic waste, explaining how to make ecobricks, planting flowers together, to decorating plant pots with our help and the class teacher. For time efficiency, the collected plastic waste has been cut first by the parents of the students so that the children can immediately put the waste into 600 ml bottles so that it does not take too long in the making process. The last step after finishing putting the waste into the bottle is to decorate the plant pot by sticking the ecobrick results.

The implementation of ecobricks in schools not only provides a practical solution to the problem of plastic waste, but also teaches students about the importance of recycling and environmental conservation. Active involvement of students in this activity can build collective awareness and create a school culture that cares about the environment. The concern for the environment that is instilled through the ecobrick program can also strengthen relationships between students and encourage teamwork. When students work together to collect plastic waste and make ecobricks, they learn about the importance of cooperation, shared responsibility, and togetherness in achieving greater goals. This activity not only builds practical skills but also strengthens important social values.

In essence, the implementation of the recycling system by utilizing ecobricks to decorate plant pots is an effort to stimulate all aspects of development in children, especially fine motor skills, art, cognitive, and social aspects. In addition, it is also hoped that children will have an attitude of love for the environment and maintain cleanliness from an early age.

4. CONCLUSION

The project of creating ecobricks with young children at PAUD Pelita Hati Bangsa Surakarta demonstrates an effective approach to reducing plastic waste while fostering environmental awareness from an early age. Ecobricks, made by densely packing non-biodegradable plastic waste into bottles, offer a practical recycling solution that prevents plastic from entering ecosystems. The activity encourages children to engage with waste management in a hands-on manner, enhancing their creativity, fine motor skills, and cognitive development. By integrating environmental education into early childhood learning, the project instills a sense of responsibility for the environment and emphasizes the importance of recycling.

Moreover, the involvement of students, teachers, and parents in making ecobricks fosters teamwork and collective environmental awareness. This initiative highlights the potential of ecobricks as a sustainable solution for managing plastic waste while also promoting social values such as cooperation and shared responsibility. Overall, the project provides valuable lessons in environmental stewardship and practical recycling methods that can have a long-lasting impact on the participants.

REFERENCE

- Cecep, C., Thosin Waskita, D., & Sabilah, N. (2022). Upaya Meningkatkan Konsentrasi Belajar Anak Usia Dini Melalui Metode Demonstrasi. *Jurnal Tahsinia*, 3(1), 63–70. <https://doi.org/10.57171/jt.v3i1.313>
- Kusuma, A., Herawati, S., Sarwiti, S., & Kholifah, S. (2023). Penggunaan Eco-Brick Sebagai Media Pembelajaran Anak Prasekolah Di Paud Kendedes. *Jurnal Anak Bangsa*, 2(2), 279–288. <https://doi.org/10.46306/jas.v2i2.47>
- Majida, A. Z., Muzaki, A., Karomah, K., & Awaliyah, M. (2023). Pemanfaatan Sampah Plastik dengan Metode Ecobrick Sebagai Upaya Mengurangi Limbah Plastik. *Profetik: Jurnal Pengabdian Masyarakat*, 1(01), 49–62. <https://doi.org/10.62490/profetik.v1i01.340>
- Ni Wayan Sri Suliartini, Isnaini, Popi Ulandari, Muhammad Zaki Alhannani, I Gede Esha Adyana Nando, Baiq Martina Safitri, Halimatussakdiah, & Akhsanul Amru. (2022). Pengolahan Sampah Anorganik Melalui Ecobrick Sebagai Upaya Mengurangi Limbah Plastik. *Jurnal Pengabdian Magister Pendidikan IPA*, 5(2), 209–213. <https://doi.org/10.29303/jpmpi.v5i2.1741>

- Palupi, W., Wahyuningsih, S., Widiyastuti, E., Nurjanah, N. E., & Pudyaningtyas, A. R. (2020). Pemanfaatan Ecobricks Sebagai Media Pembelajaran Untuk Anak Usia Dini. *DEDIKASI: Community Service Reports*, 2(1), 28–34. <https://doi.org/10.20961/dedikasi.v2i1.37624>
- Rochman, C. M., Hoh, E., Kurobe, T., & Teh, S. J. (2013). Ingested plastic transfers hazardous chemicals to fish and induces hepatic stress. *Scientific Reports*, 3, 1–7. <https://doi.org/10.1038/srep03263>
- Sugiyono, D. (2010). Metode penelitian kuantitatif kualitatif dan R&D. In *Penerbit Alfabeta*.
- Suminto, S. (2017). Ecobrick: solusi cerdas dan kreatif untuk mengatasi sampah plastik. *PRODUCTUM Jurnal Desain Produk (Pengetahuan Dan Perancangan Produk)*, 3(1), 26. <https://doi.org/10.24821/productum.v3i1.1735> <https://zerowaste.id/zero-waste-lifestyle/ecobricks/> accessed on September 02, 2024