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IMPLEMENTATION OF AN ECOBRICK PROGRAM AS A COMMUNITY-BASED SOLUTION FOR PLASTIC WASTE MANAGEMENT IN THE COMMUNITY SERVICE PROGRAM (KULIAH KERJA NYATA)

IMPLEMENTASI PROGRAM ECOBRICK SEBAGAI SOLUSI BERBASIS MASYARAKAT UNTUK PENGELOLAAN LIMBAH PLASTIK DALAM PROGRAM PENGABDIAN KEPADA MASYARAKAT (KULIAH KERJA NYATA)

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Abstract

Plastic waste is one of the environmental problems that requires proper and sustainable management. The limited utilization of plastic waste can lead to waste accumulation and negatively affect environmental cleanliness. One alternative approach to addressing this problem is to utilize plastic waste through the production of ecobricks. This activity aimed to implement an ecobrick program as a solution for community-based plastic waste management through the Community Service Program (KKN) in Huraba Village, East Angkola District, South Tapanuli Regency. The activity was conducted through socialization, material presentation, demonstrations, and hands-on practice in making ecobricks involving local residents, local NNB youth, the Village Head and village officials, and KKN students. The practice involved placing plastic waste into used plastic bottles gradually and compacting it until the bottles became solid and firm. The results showed that participants gained knowledge and practical experience in utilizing plastic waste through ecobrick production. The ecobricks produced were then utilized as one of the materials for constructing a gate bearing the name

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"Desa Huraba", supported by an iron frame. The implementation of this program not only served as an effort to reuse plastic waste but also encouraged community participation in creating a useful facility for Huraba Village. Therefore, the ecobrick program implemented through the KKN activity can serve as an alternative approach to supporting community-based plastic waste management and increasing environmental awareness.

Keywords : Ecobrick, Plastic Waste, Waste Management, Community Empowerment, Community Service Program (KKN).

Abstrak

Limbah plastik merupakan salah satu permasalahan lingkungan yang memerlukan pengelolaan yang tepat dan berkelanjutan. Minimnya pemanfaatan limbah plastik dapat menyebabkan penumpukan sampah serta berdampak negatif terhadap kebersihan lingkungan. Salah satu pendekatan alternatif untuk mengatasi masalah ini adalah dengan memanfaatkan limbah plastik melalui pembuatan ecobrick. Kegiatan ini bertujuan untuk menerapkan program ecobrick sebagai solusi pengelolaan limbah plastik berbasis masyarakat melalui program Kuliah Kerja Nyata (KKN) di Desa Huraba, Kecamatan Angkola Timur, Kabupaten Tapanuli Selatan. Pelaksanaan kegiatan mencakup sosialisasi, penyampaian materi, demonstrasi, dan praktik langsung pembuatan ecobrick yang melibatkan warga setempat, kelompok pemuda NNB, Kepala Desa beserta perangkat desa, serta mahasiswa KKN. Praktik ini dilakukan dengan memasukkan limbah plastik ke dalam botol plastik bekas secara bertahap, lalu memadatkannya hingga botol tersebut menjadi keras dan kokoh. Hasil kegiatan menunjukkan bahwa para peserta memperoleh pengetahuan dan pengalaman praktis dalam memanfaatkan limbah plastik melalui pembuatan ecobrick. Ecobrick yang dihasilkan kemudian digunakan sebagai salah satu material untuk membangun gapura bertuliskan "Desa Huraba" dengan dukungan kerangka besi. Implementasi program ini tidak hanya menjadi upaya untuk menggunakan kembali limbah plastik, tetapi juga mendorong partisipasi masyarakat dalam menciptakan fasilitas yang bermanfaat bagi Desa Huraba. Dengan demikian, program ecobrick yang dilaksanakan melalui kegiatan KKN ini dapat menjadi pendekatan alternatif untuk mendukung pengelolaan limbah plastik berbasis masyarakat sekaligus meningkatkan kesadaran lingkungan.

Kata Kunci : Ecobrick, Limbah Plastik, Pengelolaan Limbah, Pemberdayaan Masyarakat, Kuliah Kerja Nyata (KKN).

1. INTRODUCTION

Plastic waste has become one of the environmental problems that requires serious attention because of its increasing accumulation and difficulty in being naturally decomposed. Improper plastic waste management can cause various environmental problems, including reduced environmental cleanliness, blockage of drainage systems, and pollution of land and water. The increasing use of plastic in daily activities also contributes to the growing amount of plastic waste generated by households and communities. Therefore, appropriate and sustainable waste management efforts are needed to reduce the negative impacts of plastic waste on the environment.

Plastic waste management should not only focus on the final disposal of waste but also involve efforts to reduce, sort, reuse, and recycle waste from its source. Community participation is an important factor in supporting effective waste management because environmental cleanliness cannot be achieved only through government efforts. Communities need to have adequate knowledge and skills to manage waste independently and responsibly. Community-based waste management can

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encourage people to participate directly in reducing waste while creating opportunities to transform waste into materials or products with functional value.

One alternative for utilizing plastic waste is the ecobrick method. An ecobrick is made by placing used and clean plastic waste into a plastic bottle and compacting it until the bottle becomes dense and solid. This method provides an opportunity to utilize plastic waste that is difficult to recycle through conventional methods. The resulting ecobrick can be used as a material for various simple structures and creative products. Thus, ecobrick can serve not only as an alternative method for reducing plastic waste but also as an educational medium for increasing environmental awareness and community participation.

The implementation of an ecobrick program requires not only technical knowledge but also active community involvement. Socialization and direct practice are important stages because participants can understand the concept of ecobrick while simultaneously learning how to produce it. Through direct involvement, the community can gain practical experience in sorting and utilizing plastic waste. This approach is expected to encourage behavioral changes in waste management, particularly the habit of reusing plastic waste rather than immediately disposing of it.

Community empowerment through waste management programs can also produce benefits beyond environmental cleanliness. When waste is processed into useful materials, the community can develop creativity and skills while producing facilities that can be used within the village. The use of ecobricks as part of a village facility can therefore demonstrate that environmental management and community empowerment can be implemented together. Such activities also provide opportunities for communities to work collectively in addressing environmental problems in their surroundings.

In this context, the Community Service Program (Kuliah Kerja Nyata or KKN) provides an opportunity for university students to contribute directly to community development. Through KKN activities, students can share knowledge, provide assistance, and introduce practical solutions to problems encountered in the community. The implementation of an ecobrick program through KKN is therefore expected to strengthen community participation in plastic waste management while producing a useful product for the village.

Huraba Village, East Angkola District, South Tapanuli Regency, was selected as the location for the implementation of this program. The activity focused on introducing plastic waste management through ecobrick production and providing direct practice to community members. The program involved local residents, local NNB youth, the Village Head and village officials, as well as KKN students. The ecobricks produced through the activity were subsequently utilized as one of the materials for constructing a gate bearing the name “Desa Huraba”, supported by an iron frame.

The implementation of this program is expected to provide a practical solution for utilizing plastic waste while strengthening community awareness and participation in environmental management. The program also demonstrates that plastic waste can be transformed into useful materials through simple techniques and collective participation. Therefore, this activity aims to implement an ecobrick program as a solution for community-based plastic waste management through the Community Service Program (KKN) in Huraba Village.

2. RESEARCH METHOD

The implementation of the ecobrick program was carried out in Huraba Village, East Angkola District, South Tapanuli Regency, on August 10, 2026, as part of the Community Service Program (Kuliah Kerja Nyata or KKN). The activity involved local residents, local NNB youth, the Village Head and village officials, as well as KKN students. The program was implemented as a community-based activity focusing on the introduction and utilization of plastic waste through ecobrick production.

The implementation method consisted of socialization, material presentation, demonstration, and hands-on practice. The activity began with a socialization session aimed at providing participants with an understanding of plastic waste problems, their environmental impacts, and the importance of

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proper waste management. Participants were also introduced to ecobrick as an alternative method for utilizing plastic waste.

The next stage was the demonstration of ecobrick production. Participants were introduced to the materials and equipment used, including used plastic bottles, collected plastic waste, and a compacting tool. The plastic waste was first prepared and then placed gradually into the used plastic bottles. The waste was subsequently compacted repeatedly until the bottles became sufficiently dense and solid.

The activity was then continued through hands-on practice involving the participants and KKN students. Through direct practice, participants were able to follow each stage of ecobrick production and gain practical experience in utilizing plastic waste. The ecobricks produced were then prepared to be utilized as one of the materials for constructing a gate bearing the name “Desa Huraba”, supported by an iron frame.

The implementation of the program emphasized direct community participation throughout the activity. This approach was used to ensure that the program was not limited to theoretical knowledge but also provided participants with practical skills in managing and utilizing plastic waste. The resulting ecobricks were expected to become a useful material while supporting community-based environmental management in Huraba Village.

3. RESULT AND DISCUSSION

The implementation of the ecobrick program in Huraba Village, East Angkola District, South Tapanuli Regency, resulted in several activities focused on increasing participants’ knowledge and practical experience in utilizing plastic waste. The activity was conducted on August 10, 2026, and involved local residents, local NNB youth, the Village Head and village officials, and KKN students.

The activity began with a socialization session on plastic waste management through ecobrick. Participants were introduced to the problems caused by plastic waste, the importance of proper waste management, and the concept and benefits of ecobrick. The socialization was conducted as an initial stage to provide participants with knowledge before carrying out the ecobrick production practice.

The socialization was followed by a demonstration and hands-on practice of making ecobricks. Participants were shown how to prepare plastic waste and insert it gradually into used plastic bottles. The plastic waste was then compacted repeatedly until the bottles became dense and solid. Through this practice, participants were directly involved in the process of utilizing plastic waste and gained practical experience in producing ecobricks.

The ecobricks produced from the activity were subsequently utilized as one of the materials for constructing a gate bearing the name “Desa Huraba.” The gate was designed using an iron frame as its supporting structure, combined with the ecobricks produced from plastic waste. This utilization provided a tangible form of the program by transforming plastic waste into a material that could be used to create a useful facility for the village.

Overall, the activity provided participants with knowledge and practical experience in utilizing plastic waste through ecobrick production. The program also encouraged direct community involvement and demonstrated that plastic waste can be processed into materials with functional value. The results of this activity therefore support the implementation of community-based plastic waste management through a simple, participatory, and applicable approach.

DISCUSSION

The implementation of the ecobrick program in Huraba Village demonstrates that plastic waste management can be carried out through a simple and participatory approach. The socialization activity provided participants with information about plastic waste and its potential utilization through ecobrick. This approach is important because community-based waste management requires not only facilities but also knowledge and active participation from the community.

The combination of socialization and hands-on practice provided participants with both theoretical understanding and practical experience. Through direct practice, participants were able to

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observe and follow the process of inserting plastic waste into used bottles and compacting it until the bottles became dense and solid. This practical approach can make the process of learning about waste management more applicable because participants are directly involved in the utilization of waste rather than only receiving information through explanations.

The use of ecobrick also provides an alternative for utilizing plastic waste that may otherwise be discarded. Plastic waste that has been collected can be processed into a more durable material through the compacting process. In this activity, the resulting ecobricks were not merely produced as an end product but were planned for further utilization in constructing the "Desa Huraba" gate. This demonstrates that plastic waste can be given additional functional value when it is managed creatively and collectively.

The involvement of local residents, NNB youth, the Village Head and village officials, and KKN students also reflects the community-based character of the program. Collaboration among these participants is important because sustainable environmental management requires shared responsibility. The KKN students acted as facilitators by introducing the ecobrick concept and assisting participants during the practical process, while community members were directly involved in the activity and utilization of the resulting material.

Furthermore, the utilization of ecobricks in the construction of the "Desa Huraba" gate provides a tangible outcome of the program. The combination of ecobricks with an iron frame demonstrates an effort to transform plastic waste into a useful village facility. This aspect strengthens the relationship between environmental management and community empowerment because the activity does not only address plastic waste but also produces a material that can contribute to the physical environment of the village.

The implementation of this program is therefore relevant to the concept of community empowerment, in which communities are encouraged to gain knowledge, skills, and opportunities to participate in solving problems within their own environment. Through the ecobrick program, plastic waste management becomes a collective activity that can encourage environmental awareness and creativity. The program also shows that simple waste-management practices can be introduced through KKN activities and adapted to the conditions and needs of the local community.

Overall, the ecobrick program implemented through KKN in Huraba Village can be considered an alternative approach to community-based plastic waste management. The combination of socialization, demonstration, hands-on practice, and utilization of the resulting ecobricks provides an integrated approach to addressing plastic waste while involving the community directly. Continued implementation and community participation are needed so that the knowledge and practices introduced through this program can be maintained and developed sustainably.

4. CONCLUSION

The implementation of the ecobrick program through the Community Service Program (KKN) in Huraba Village demonstrated that plastic waste can be managed and utilized through a simple, participatory, and community-based approach. The socialization, demonstration, and hands-on practice provided participants with knowledge and practical experience in processing plastic waste into ecobricks.

The involvement of local residents, NNB youth, the Village Head and village officials, and KKN students supported the implementation of the program and encouraged collective participation in plastic waste management. The ecobricks produced were further utilized as one of the materials in constructing the "Desa Huraba" gate using an iron frame. This provided a tangible form of plastic waste utilization and demonstrated that waste can be transformed into materials with functional value.

Therefore, the ecobrick program can serve as an alternative approach to community-based plastic waste management while supporting community empowerment and environmental awareness. Continued community participation and consistent waste management practices are needed to ensure that the benefits of the program can be maintained and developed sustainably in Huraba Village.

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