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INTEGRATION OF ENVIRONMENTAL EDUCATION IN WASTE MANAGEMENT THROUGH ECOBRICK-BASED ECOLITERACY PARKS

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Abstrak

Kegiatan pengabdian ini bertujuan menanamkan pemahaman dan kesadaran masyarakat tentang pentingnya menjaga lingkungan, memperkuat budaya literasi melalui ruang terbuka, serta mendorong keterlibatan aktif warga dalam pengelolaan sampah plastik secara kreatif dan bermanfaat. Metode yang digunakan adalah Participatory Action Research (PAR) dengan melibatkan warga, pemerintah desa, pengelola TPS3R, mahasiswa, dan dosen sejak tahap perencanaan hingga pelaksanaan. Hasil kegiatan berupa pembangunan Taman Ekoliterasi menggunakan 1.500 ecobrick dari sampah plastik rumah tangga yang disusun menjadi kursi, gazebo, landmark desa, papan edukasi, serta pembatas taman. Sebanyak 25 orang berpartisipasi aktif dalam pembuatan dan penataan taman, dilengkapi penanaman tanaman hias dan mural bertema lingkungan. Dampak yang ditimbulkan adalah meningkatnya kesadaran ekologis masyarakat, terbentuknya perilaku baru dalam memilah dan mengolah sampah, serta bertambahnya partisipasi generasi muda yang memanfaatkan taman sebagai ruang belajar dan interaksi. Selain menghasilkan sarana fisik, kegiatan ini memperkuat nilai kebersamaan, gotong royong, serta menumbuhkan rasa kepemilikan terhadap ruang publik yang ramah lingkungan. Taman Ekoliterasi ini sekaligus menjadi sarana edukasi berkelanjutan dan model pengembangan komunitas berbasis lingkungan yang sederhana namun berdampak sosial tinggi.

Kata kunci: *Ecobrick, Ekoliterasi, Partisipasi, Taman Edukatif.*

Abstract

This community service program aimed to raise public awareness of environmental conservation, strengthen literacy culture through open spaces, and encourage active community participation in creatively managing plastic waste. The method applied was Participatory Action Research (PAR), involving residents, the village government, Waste Treatment Facilities for Reduce, Reuse, and Recycle (TPS3R) managers, lecturers, and students from the planning to the implementation stages. The outcomes included establishing an Ecoliteracy Park with 1,500 ecobricks from household plastic waste, arranged into benches, a gazebo, a village landmark, educational boards, and garden borders. A total of 25 participants actively contributed to the construction and arrangement of the park, which was also enriched with ornamental plants and environmental-themed murals. The impacts observed were the enhancement of ecological awareness, the emergence of new waste sorting and recycling practices among residents, and the growing involvement of young people who utilize the park as a learning and interaction space. Beyond the physical facility, this program strengthened social cohesion, collective ownership of public spaces, and environmental responsibility. The Ecoliteracy Park thus

serves as a sustainable educational medium and a replicable model of environmentally based community development with significant social impact.

Keywords: Ecobrick, Ecoliteracy, Participation, Educational Parks.

INTRODUCTION

Environmental problems are increasingly unsettling. The accumulation of waste causes various kinds of environmental pollution that will have an impact on Public Health (Armiani et al., 2021; Imelda et al., 2025). This is one of the significant challenges for every region (Oliveira & Medeiros, 2020). Including Bumi Rahayu Village in Tanjung Selor District. Bumi Rahayu Village has had Waste Treatment Facilities for Reduce, Reuse, and Recycle (TPS3R) since 2018, but has not been used optimally. There are not many waste management activities carried out at TPS3R (Budiarti et al., 2024). This is due to the uneven education related to household waste management, both organic and non-organic, in the broader community. Waste processing activities are only carried out by a few TPS3R administrators, so the existing activities are minimal (Nofiati, 2023).

Waste can be tangible, solid, liquid, and gaseous, which have a high potential for increasing environmental pollution (Setyorini et al., 2023). Waste sorting from households is an important step to reduce the burden of landfills and support the circular economy (Setyaningrum, 2020). The concept of the circular economy can be a solution to the problem of single-use plastics (Arijeniwa et al., 2024). Community behavior greatly determines the success of sorting from sources, which must be prioritized (Baechler et al., 2024). Therefore, it is necessary to provide adequate educational support, incentives, and facilities (Moeini et al., 2023). This emphasizes that the active role of the community is the key to success in efforts to reduce plastic pollution (Trushna et al., 2024; Zhang, 2023).

The environment has an essential role in shaping people's attitudes and responsibilities for caring for nature (Maulana et al., 2021). Protecting the environment is very important because nature preservation has a direct effect on human life (Putriani et al., 2024). The concept of ecoliteracy refers to the understanding of human relations with the environment and awareness to maintain its sustainability (Kurniasari, 2019). Ecoliteracy is not only related to cognitive aspects, but also involves social, emotional, and spiritual intelligence that encourages individuals and communities to live in harmony with nature (Oktapyanto, 2017).

Several previous service activities have developed the concept of ecoliteracy through reading gardens or environmental education programs in various regions (Arusliadi, 2022; Uyun, 2023). However, most still emphasize reading literacy and have not specifically integrated the issue of plastic waste management through practice-based learning spaces (Christopher, 2022; Julia, 2024). The novelty of this service activity lies in integrating the concept of ecoliteracy with the direct practice

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of ecobrick-based waste management, which is manifested in the form of an Ecoliteracy Park. It provides a literacy space and a participatory learning facility where the community actively processes household waste, builds public facilities, and fosters collective ecological awareness.

Thus, this activity not only focuses on the cognitive aspects of literacy but also on social, practical, and transformative dimensions that support behavioral change and strengthening socio-ecological resilience at the community level. This service aims to instill public understanding and awareness of the importance of protecting the environment, strengthen literacy culture through open space media, and encourage active involvement of residents in managing plastic waste creatively and beneficially.

MATERIALS AND METHODS

This community service activity will be carried out in January 2025 using the Participatory Action Research (PAR) approach, which emphasizes residents' active involvement from the planning, implementation, and evaluation stages (Falcón, 2022). This approach was chosen so that the program would produce an ecoliteracy garden and build social capacity and a sense of belonging to the community.

Bumi Rahayu Village was chosen as the subject of assistance because it is one of the villages with serious waste management problems. Although it has had TPS3R since 2018, its utilization has not been optimal due to the community's low education and ecological awareness. Therefore, constructing an ecoliteracy park at TPS3R Bumi Rahayu Village is designed as a recreational space and a means of learning, interaction, and sustainable waste management practices.

The number of participants directly involved was 25, consisting of the TPS3R management group, the surrounding community, the village government, students, and the Faculty of Economics lecturers. The main stages of the activity include:

Identification and Mapping of Potential Locations

Field observations and discussions with TPS3R managers and village governments to determine strategic locations for park development, map the potential of local materials (ecobricks, plants, used goods), and prepare area planning plans.

Ecoliteracy Park Design

The preparation of park design collaboratively with residents includes: (1) Education zones (information boards, environmental murals, educational installations from recycled waste). (2) Green zone (ornamental plants, TOGA, vertical garden from used goods). (3) Creative zone (ecobrick seating and open discussion room).

Implementation of Garden Creation

Physical development cooperates with residents, including land clearing, making paths, installing seats and information boards, planting plants, and making educational installations from plastic waste.

Socialization and Launch of the Park

The park's launch involved the community, schools, and village stakeholders. The activity included environmental education for children and adolescents, community-based waste management discussions, and the reading of a joint commitment to protect the park.

Monitoring and Evaluation

It is carried out periodically by the service team through field observations, brief interviews with residents, frequency of park use for educational activities, and impact on increasing environmental awareness.

The overall duration of the activity, including preparation, construction, and launch, was four weeks. Initial monitoring was conducted two weeks after the park opened to assess the utilization level and citizen engagement.

RESULTS AND DISCUSSION

This community service activity focuses on developing the Ecoliteracy Park as an educational and recreational space based on sustainability principles and citizen participation. The mentoring process was carried out in stages and collaboratively between the service team, the Village Government, TPS3R managers, and the residents of Bumi Rahayu Village. The process began with identifying environmental problems around TPS3R, such as the lack of attractive and environmentally friendly educational facilities for the community, especially children and adolescents. One of the problems that arises is the abundance of household plastic waste that has not been fully managed optimally.

In response to these problems, the village government and the service team agreed to build a small garden in the TPS3R area by utilizing ecobricks or plastic bottles densely filled with non-organic plastic waste as the central element of the park's decoration. The park will be constructed for four weeks in December 2024 - January 2025. Some of the key achievements include: (1) The use of 1,500 ecobricks from the collection of household plastic waste. (2) The construction of 6 ecobrick chairs, one Village Landmark, one gazebo, and one educational board containing waste management information. (3) Planting of ornamental plants and family medicinal plants (TOGA) arranged in an area of ±120 m^2. (4) Making an environmentally-themed mural on the walls of TPS3R to attract the interest of children and adolescents.

Building the Ecoliteracy Park began with technical activities such as collecting and sorting plastic waste from households, which was carried out in a coordinated manner with residents. The collected plastic waste is of various types, such as food packaging, single-use plastic bags, and beverage bottles, which previously only ended up in temporary landfills or were burned by residents. Through socialization by the service team, the community began to understand the importance of sorting waste from home and choosing non-organic plastics that are

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difficult to decompose as the primary material for making ecobricks. The sorting process is carried out cooperatively, where everyone actively separates the plastic that can still be recycled. At the same time, youth and children help collect used bottles that will be used as ecobrick containers, as described in Figure 1.

Figure 1. Used Plastic Bottle Sorting Process for Ecobrick

Each plastic bottle is filled with pieces of plastic until it is solid enough to have enough strength to be used as an alternative building material. This activity is not only technical, but also serves as a direct educational tool that fosters new awareness in the community that plastic waste has a valid value if managed correctly. Furthermore, this sorting activity became the starting point for the emergence of new habits in residents' daily lives, where they began to distinguish between organic and inorganic waste and reduce the practice of careless disposal. Thus, waste collection and sorting not only support the technical needs of park development but also become a social transformation process that strengthens ecological awareness, a sense of shared responsibility, and the value of togetherness in managing the environment.

After collecting and compacting plastic waste into bottles, the ecobricks that have been produced are then used for the preparation process into various functional artistic installations in the Ecoliteracy Park. Through a cooperation system, this activity was carried out collaboratively by involving residents, students, and TPS3R managers. Ecobricks are neatly arranged and combined with supporting materials such as cement, sand, and colored paint to make them stronger and visually appealing. From the preparation results, several main facilities were created, including village landmarks that became the new identity of TPS3R, park dividers that add aesthetics while clarifying the green zone, and six ecobrick chairs that the community can use to sit and interact in the park area. In addition, ecobricks are also assembled into decorative ornaments such as wall decorations and geometric patterns that beautify the garden layout to provide visual appeal, especially for children and adolescents, as explained in Figure 2.

Figure 2. Manufacture and Painting of Ecobricks

This preparation process not only produces physical facilities, but also has educational value because the public can witness firsthand that plastic waste that was previously considered useless can be transformed into works of aesthetic and functional value. This fosters a sense of collective pride among the residents because their work beautifies the environment and becomes tangible evidence of their shared contribution to preserving nature. Thus, the arrangement of ecobricks into artistic installations is a technical aspect of park construction and a symbol of collaboration, creativity, and ecological awareness of the people of Bumi Rahayu Village.

The next stage in constructing the Ecoliteracy Park is the arrangement of the park area, which is focused on strengthening aesthetic and educational functions. Residents and the community service team planted various types of ornamental and family medicinal plants (TOGA) on an area of approximately 120 m^2. These plants were chosen to beautify the atmosphere and provide ecological and health benefits, such as aloe vera, ginger, turmeric, and several types of flowering plants that can attract children's attention. The presence of ornamental plants and TOGA creates a shady, beautiful, and environmentally friendly green space so that the park not only functions as a place of recreation, but also as a means of learning about the benefits of plants in daily life. In addition to plants, the park is also equipped with an environmental education board that contains easy-to-understand and straightforward information about the importance of waste management, how to make ecobricks, and steps to sort household waste.

This board is placed in a strategic area so that all visitors can read it, including schoolchildren who come to study. To strengthen the environmental message creatively, a mural with the theme of ecological love was also made on the walls of TPS3R. The mural displays communicative, colorful, and easy-to-understand images, so it is an effective educational visual medium in instilling the message of nature conservation. The arrangement of the garden that integrates ornamental

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plants, academic boards, and murals makes the Ecoliteracy Park a beautiful open space and a non-formal learning center that can form environmentally friendly behavior and foster community pride in the public space they build independently.

The final stage of the series of activities to build the Ecoliteracy Park is the cleaning and painting the area around TPS3R, which is also the park's central location. This activity is carried out in cooperation by residents, students, and the service team to create a clean, comfortable, and better visual appeal. The cleaning began with removing garbage and weeds around the land, then continued with soil leveling and the arrangement of paths so that access to the park was more orderly. After the area is cleaned, painting is carried out on the walls of the TPS3R building, support poles, and garden elements made of ecobricks to make them appear more attractive and colorful. Painting uses bright colors that beautify the garden and give visitors a friendly and educational impression, especially children and teenagers. The construction of the Ecoliteracy Park in the painting stage is explained in Figure 3.

Figure 3. Ecoliteracy Garden Painting

This activity indirectly builds residents' awareness that environmental aesthetics are essential in improving the comfort of public spaces while strengthening the park's function as an educational center. The final result of this cleaning and painting can be seen from the significant changes in the TPS3R area, which previously seemed shabby and poorly maintained, and is now a clean, beautiful, and fun open space. This transformation fosters a sense of community pride because it has transformed ordinary land into an attractive and functional public space. More than that, painting activities also strengthen social ties because they are carried out together, where everyone contributes according to their abilities, to create a warm collaborative work atmosphere full of togetherness.

The final result of this service activity is the realization of an Ecoliteracy Park in the TPS3R area of Bumi Rahayu Village as a functional, educational, and environmentally friendly public space. The physical changes in the TPS3R area that previously seemed slum have now become cleaner, beautiful, and attractive, thus

providing pride for the community. This park provides recreational facilities and becomes an ecoliteracy learning center that strengthens citizens' awareness of the importance of waste management and environmental conservation. The active participation of the community in each stage of development shows that this activity has succeeded in fostering the spirit of cooperation, a sense of belonging, and building socio-ecological resilience at the community level. Thus, this Ecoliteracy Park can be a real model of community-based community development that is simple, low-cost, but has a high social, educational, and ecological impact. The final result of the Ecoliteracy garden is described in Figure 4.

Figure 4. Final Results of Making Ecoliteracy Gardens

The socialization stage and the launch of the Ecoliteracy Park are important moments that mark the success of this series of community service activities. The launch event was held openly by involving the people of Bumi Rahayu Village, school representatives, village officials, and TPS3R managers as a form of multi-stakeholder collaboration. The activity began with socialization about the importance of maintaining environmental cleanliness and creative plastic waste management, which was packaged as interactive education for children and adolescents. Educational materials are delivered in simple language, visual media, and hands-on practice to make them easy to understand and attract the younger generation's interest. In addition, discussions were held with residents and stakeholders regarding community-based waste management strategies, especially the practice of making ecobricks and their use in developing public spaces.

This discussion allows the community to convey their ideas, experiences, and commitments supporting the park's sustainability. As the highlight of the event, a joint commitment was read and signed by representatives of residents, village governments, schools, and TPS3R managers as a symbol of collective responsibility to maintain the Ecoliteracy Park sustainably. This launch is not only a physical

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inauguration event, but also a means of strengthening residents' sense of ownership of the park and fostering the spirit of cooperation and community pride in the joint work that has been successfully realized.

The service team periodically conducts the monitoring and evaluation stage to assess the effectiveness and sustainability of using the Ecoliteracy Park. This activity includes direct observation in the field, brief interviews with residents, and recording the frequency of park use for educational activities. Based on the results of observations two weeks after the park was officially launched, there was an increase in the activities of residents who used the park, both as a recreational space and as a place to study. Primary school children began to visit frequently with their teachers to get acquainted with the concept of ecobricks and waste sorting. At the same time, youth groups used the garden gazebo for discussion and community activities. Interviews with several residents also showed positive changes in waste management behavior. One of the housewives said,

> "I used to throw away plastic. Now I have started collecting it and filling bottles with it to be used as ecobricks. It turned out to be easy and useful."

Meanwhile, a teenager added,

> "If there is a park like this, we will be enthusiastic about collecting plastic waste, especially if we can make chairs that we can use together."

The monitoring results also noted an increase in ecological awareness, shown by the increasing number of residents who began to sort waste from their homes and participate in maintaining the cleanliness of the garden area. This initial evaluation confirms that the Ecoliteracy Park functions as a physical means and has also succeeded in encouraging behavior change, strengthening social participation, and fostering broader environmental awareness in Bumi Rahayu Village.

Despite its success, this activity faced several obstacles, such as many plastic bottles initially not being filled solidly, so they did not meet strength standards. Technical assistance is needed so that residents get used to it. Due to daily work, some residents have difficulty attending regularly, so the park's progress has slowed. Some children initially consider the park as just a playground, so an additional educational approach is needed so that its function as a learning space can be understood. However, these obstacles are part of the collective learning process that enriches the community's experience. The service team responded to this challenge by providing simple technical guidance on the correct ecobrick manufacturing standards, providing flexibility in the community service schedule so that residents can continue to participate in their free time, and developing fun interactive educational activities for children so that they can understand that the

park has a dual function, namely as a place of recreation as well as an environmental learning space.

This adaptive approach has proven effective as the quality of ecobricks has gradually improved, citizen engagement has stabilized, and children have begun to show interest in learning about waste management through activities in the park. Thus, the obstacles that arise do not reduce the essence of the activity, but rather strengthen the community's social resilience and affirm that participation-based development always requires a process of adaptation, dialogue, and patience in realizing sustainable change.

The approach of this activity reflects the active learning model as described by Silberman, (2020) Effective learning occurs when participants engage directly in activities relevant to their lives. In the community development literature, this is in line with the theory of Ecological Literacy (Panieri et al., 2024). The ability of the community to understand the basic principles of the ecosystem and apply them in their daily lives to create sustainability. This experience strengthens the concept of participatory action research Chevalier, et al (2019), where society is not only an object, but a subject in social change. These values are evident in the way residents help each other, donating materials, time, and energy to create a Joint garden (Wahyuningsih, 2024).

The park is also a means of collective environmental awareness, a kind of social stage where new values are formed, namely appreciation for nature, active involvement in waste management, and pride in the community's own work (Yasin, 2024). In the long term, this is expected to strengthen social resilience and enrich the adaptive capacity of the community to environmental challenges (Sakdapolrak, 2024). This process of service shows that social transformation can grow from simple actions that contain ecological and participatory values, such as the construction of ecobrick parks by the community (Majida, 2023). This approach is in line with the concept of ecological literacy, which, in the current context, is emphasized as the ability of individuals and communities to understand ecological relationships and act consciously for environmental sustainability (Nahar et al., 2024).

This activity also reflects a participatory action research approach that places the community as the subject of change, not as an object of external intervention (Kemmis et al., 2014). The collaborative process from collecting ecobricks to arranging garden elements encourages dialogue between citizens, the distribution of leadership, and shared decision-making without technocratic dominance (Inguane & Galvin, 2020). More than just a physical park, this space is a means of collective awareness and a symbol of citizen involvement in socio-ecological transformation (Larkin et al., 2019). Values such as togetherness, concern for the environment, and community pride began to grow (Aprilia, 2024). It strengthens

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the social resilience of communities' ability to survive, learn, and adapt to ecological and social pressures (Cinderby et al., 2021).

Ecobricks have the potential to become a long-term social space that not only strengthens social relationships between communities, but also expands adaptive capacity to environmental challenges in the future (Saputra et al, 2024). With the existence of a park management structure that was formed voluntarily (Herlina, 2024). Ecobrick has laid a solid foundation for the sustainability of the program and the expansion of its benefits to other sectors, such as environmental education for children or recycling-based entrepreneurship (Brata, 2024). Therefore, ecobricks can be a model of low-cost, relevant, and socially impact-based community development (Sunandar, 2020).

This process is also a reminder that significant changes often start with small steps taken together with a spirit of collaboration and trust in local capacity (Ningrum, 2023). Although some obstacles are still faced, this activity can still be helpful for the community and can have a real impact. This challenge is an important part of the collective learning process. As shown in the study Fauzi et al, (2020) Barriers in community-based development can be the starting point for the formation of social resilience and people's ability to learn and adapt to environmental challenges.

CONCLUSIONS AND SUGGESTIONS

Community service activities in Bumi Rahayu Village have succeeded in achieving the goals that have been formulated. By constructing ecobrick-based Ecoliteration Parks, the community gained a new understanding of the importance of protecting the environment. It began to show behavioral changes in sorting and processing household plastic waste. The culture of environmental literacy is strengthened through open spaces combined with educational boards, murals of love for the environment, and enjoyable socialization activities for children and adolescents. The participation of residents involving various groups, ranging from housewives, youth, village governments, to TPS3R managers, shows active involvement and a sense of shared ownership in every stage of the activity. Thus, the park not only becomes a physical means for recreation, but also develops as a center for sustainable community learning, strengthening ecological awareness, and fostering socio-ecological resilience at the community level.

For further development, this activity model can be replicated in other villages with adjustments to the potential in each village. The sustainability of the program needs to be strengthened through community institutional assistance so that park managers can design creative activities independently. In addition, subsequent research or service can explore the long-term impact of ecoliteration parks on changes in waste management behavior at the household and village levels.

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REFERENCES

Aprilia, Siti Septia. (2024). Pengelolaan Limbah Sampah Plastik dengan Menggunakan Metode Ecobrick di Desa Cikakak. *Jurnal Pengabdian Kepada Masyarakat Abdi Putra* , 4(2), 175-179. https://doi.org/10.52005/abdiputra.v4i2.241

Arijeniwa, V. F., Akinsemolu, A. A., Chukwugozie, D. C., Onawo, U. G., Ochulor, C. E., Nwauzoma, U. M., Kawino, D. A., & Onyeaka, H. (2024). Closing the loop: A framework for tackling single-use plastic waste in the food and beverage industry through circular economy- a review. *Journal of Environmental Management*, *359*, 120816. https://doi.org/10.1016/j.jenvman.2024.120816

Arusliadi, A. (2022). Implementasi gerakan literasi sekolah melalui taman baca di SMA Negeri 7 Banjarmasin. *Jurnal Pendidikan dan Kebudayaan (JURDIKBUD),* 2(2), 148-154. https://doi.org/10.55606/jurdikbud.v2i2.228

Armiani, S., Fajri, S. R., Masiah, M., Harisanti, B. M., & Pidiawati, B. Y. (2021). Pemberdayaan Keterampilan Masyarakat Melalui Pengolahan Sampah Plastik di Desa Anyar Kecamatan Bayan. *Lumbung Inovasi: Jurnal Pengabdian Kepada Masyarakat*, *6*(1), 31–37. https://doi.org/10.36312/linov.v6i1.471

Baechler, B. R., De Frond, H., Dropkin, L., Leonard, G. H., Proano, L., & Mallos, N. J. (2024). Public Awareness and Perceptions of Ocean Plastic Pollution and Support for Solutions in the United States. *Frontiers in Marine Science*, 10. https://doi.org/10.3389/fmars.2023.1323477

Bowers, C. A. (2017). *Educating for Ecological Intelligence: Practices and Challenges*. Routledge.

Brata, D. G. R. P., Sirtufillaeli, S., Hidayanti, D. P., Datulmizan, A. A., Alfarizi, M. S., Zahrani, H., Zubair, M. (2024). Efforts to Increase Community Awareness and Creativity through the Manufacture of Compost and Ecobrick Products in Bilebante Village. *Jurnal Wicara Desa,* 2(6), 575–583. https://doi.org/10.29303/wicara.v2i6.5620

Budiarti, I. N., Sabbina, F. A., Hairyanti, R., Widodo, S., & Hidayat, S. (2024). Optimalisasi Pemanfaatan Limbah Organik dan Anorganik untuk Mewujudkan Go Green Concept di Desa Bumi Rahayu. *Desikasi*, *4*(2), 39–45. https://doi.org/10.46368/dpkm.v4i2.2141

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Chevalier, J. M., Buckles, D. J. (2019). *Participatory Action Research Theory and Methods for Engaged Inquiry*. Taylor & Francis.

Christopher, E., & Carina, N. (2022). Perancangan Ruang Edu-Rekreasi Sampah Plastik Sebagai Usaha Menghidupkan Kawasan Pesisir Muara Angke. *Jurnal Sains, Teknologi, Urban, Perancangan, Arsitektur (STUPA)*, 4(2), 1779-1786. https://doi.org/10.24912/stupa.v4i2.22294

Cinderby, S., Haq, S., & Turcu, C. (2021). Place-based approaches to build community resilience. *Sustainability*, *13*(3), 1124. https://doi.org/10.3390/su13031124

De Oliveira, B. O. S., & De Medeiros, G. A. (2020). Municipal Solid Waste Management in the Amazon: Environmental, Social, and Economic Problems, Gaps, and Challenges. *Environmental Impact*. 245(12), 9–20. https://doi.org/10.2495/EID200021

Falcón, Adrienne . Stoecker, R. (2022). *Handbook on Participatory Action Research and Community Development*. Edward Elgar Publishing

Fauzi, M., Sumiarsih, E., Adriman, A., Rusliadi, R., & Hasibuan, I.F. (2020). Pemberdayaan masyarakat melalui pelatihan pembuatan ecobrick sebagai upaya mengurangi sampah plastik di Kecamatan Bunga Raya. *Riau Journal of Empowerment.* 3(2), 87-96. https://doi.org/10.31258/raje.3.2.87-96

Herlina, E., Fathurrahman, M., Heliawati, L., Mulyati, A. H., Fatimah, S., & Kabir, A. J. (2024). Pemberdayaan Masyarakat Non-Produktif Melalui Keterampilan Pembuatan Ecobrick. *Jurnal Pemberdayaan Masyarakat,* 3(1), 01-11. https://doi.org/10.46843/jmp.v3i1.293

Imelda, D. Q., Budiarti, I. N., Soimah, N., & Lail, J. (2025). Peningkatan Inovasi Daur Ulang Sampah Plastik Berbasis Eco-Paving Sebagai Upaya Mewujudkan Ekonomi Hijau Di Desa Gunung Sari. *International Journal of Public Devotion*, 8(1), 9–17. https://dx.doi.org/10.26737/ijpd.v8i1.6204

Inguane, R., & Galvin, M. (2020). Participatory action research for development and resilience: A case from Southern Africa. *Action Research*, 18(1), 44–65. https://doi.org/https://doi.org/10.1177/1476750318789330

Julia, Mahadewi K. (2024). Implementasi Pengaturan Pengurangan Sampah Plastik Di Kota Denpasar Melalui Hukum Sebagai Sarana Pengubah Masyarakat. *Jurnal Rechtens*, 13(2), 245–260. https://doi.org/10.56013/rechtens.v13i2.3352

Kemmis, S., McTaggart, R., & Nixon, R. (2014). *The Action Research Planner: Doing Critical Participatory Action Research*. Springer.

Kurniasari, R. (2019). Peningkatan Ecoliteracy Siswa melalui Kegiatan 3R (Reduce, euse, Recycle) dalam Pembelajaran IPS. *Jurnal Tunas Bangsa*, 6(1), 129–138. https://ejournal.bbg.ac.id/tunasbangsa/article/view/952

Larkin, S., Bomar, M., & Houser, J. (2019). Building social resilience through community engagement. *Journal of Community Practice*, 27(3–4), 302–318.

https://doi.org/https://doi.org/10.1080/10705422.2019.1660601

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

Maulana, M. A., Kanzunnudin, M., & Masfuah, S. (2021). Analisis Ekoliterasi Siswa pada Sekolah Adiwiyata di Sekolah Dasar. *Jurnal Basicedu*, 5(4), 2601–2610. https://doi.org/10.31004/basicedu.v5i4.1263

McBride, B. B., Brewer, C. A., Berkowitz, A. R., & Borrie, W. T. (2020). Environmental Literacy, Ecological Literacy, and Sustainability Education. *Environmental Education Research,* 26(4), 512–528. https://doi.org/https://doi.org/10.1080/13504622.2019.1675591

Moeini, B., Ayubi, E., Barati, M., Bashirian, S., Tapak, L., Ezzati-Rastgar, K., & Hashemian, M. (2023). Effect of Household Interventions on Promoting Waste Segregation Behavior at Source: A Systematic Review. *Sustainability,* 15(24), 16546. https://doi.org/10.3390/su152416546

Nahar, Lizoon, Tayem, Nada. (2024). *Cases on Collaborative Experiential Ecological Literacy for Education*. IGI Global

Ningrum, R.T., Marheni, E., Alauddin, N.H., & Kusumandani, R.B. (2023). Pembuatan Ecobrick sebagai Barang Tepat Guna dan Upaya Mengurangi Sampah Plastik. *Jurnal Bina Desa*. 4(3), 387-393. https://doi.org/10.15294/jbd.v4i3.39775

Nofiati, S. (2023). Penanaman Eco Literasi melalui Environment Pioneer Club (EPIC) di SMPIT LHI. *Jurnal Riset Daerah*, 23(2), 1412–8519. https://ojs.bantulkab.go.id/index.php/jrd/article/view/103

Oktapyanto, R. R. (2017). *Ecoliteracy: Literasi Dasaryang Terlupakan*. Lontar Digital Asia.

Panieri, Giuliana. Poto, Margherita Paola. Murray, Emily Margaret. (2024). *Emotional and Ecological Literacy for a More Sustainable Society.* Springer Nature

Prasetio, H. E., Dhurofallathoif, M., Nujum, T., Jelita, S. I. P., Rofi'ah, M., & Nisa', R. (2023). Pendampingan Pengolahan Kotoran Sapi Menjadi Pupuk Organik. *Mafaza : Jurnal Pengabdian Masyarakat,* 3(1), 75–88. https://doi.org/10.32665/mafaza.v3i1.1713

Putriani, R. B., Hasani, Q., & Reza, M. (2024). Pengolahan Sampah Anorganik Menjadi Ecobricks Sebagai Upaya Pengurangan Sampah Plastik. *Taawun*, *4*(01), 102–109. https://doi.org/10.37850/taawun.v4i01.608

Rifky, S., Putra, J. M., Ahmad, A. T., Widayanthi, D. G. C., Abdullah, G., Sunardi, S., & Syathroh, I. L. (2024). *Pendidikan yang Menginspirasi: Mengasah Potensi Individu.* Yayasan Literasi Sains Indonesia

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Sakdapolrak, P., Sterly, H., Borderon, M., Bunchuay-Peth, S., Naruchaikusol, S., Ober, K., ... & Rockenbauch, T. (2024). Translocal Social Resilience Dimensions of Migration as Adaptation to Environmental Change. *Proceedings of the National Academy of Sciences,* 121(3), https://doi.org/10.1073/pnas.2206185120

Saputra, Aditya. Hidayat, Muhammad Zacky. & Pratama, Diva Kartika Putri. (2024). Kolaborasi Inovatif Ekososlab untuk Mewujudkan Keberlanjutan Sosial dan Ekologis. *Wisesa: Jurnal Pengabdian Masyarakat,* 3(2), 6–9. https://doi.org/10.21776/ub.wisesa.2024.03.2.2

Sunandar, A. P., Farhana, F. Z., & Chahyani, R. Q. C. (2020). ECOBRICK Sebagai Pemanfaatan Sampah Plastik di Laboratorium Biologi dan Foodcourt Universtias Negeri Yogyakarta. J*urnal Pengabdian Masyarakat MIPA dan Pendidikan MIPA,* 4(1), 24-32. https://doi.org/10.21831/jpmmp.v4i1.34071

Setyaningrum, T. W. (2020). Praktik Pembelajaran Ekoliterasi Berorientasi Pendidikan untuk Pembangunan Berkelanjutan di Sekolah Dasar Negeri Kota Surabaya Bagian Barat. *JPGSD*, *8*(2). 375 -384. https://ejournal.unesa.ac.id/index.php/jurnal-penelitian-pgsd/article/view/34363

Setyorini, D., Syafaatullah, A. Q., Sukardin, M. S., Sulfiana, E., Assagaf, I. P. A., & Prasetiyo, A. B. (2023). Sosialisasi Pengolahan Limbah Sekam Padi Menjadi Bahan Bakar Alternatif pada IKM Penggilingan Padi. *Taawun*, *3*(02), 202–208. https://doi.org/10.37850/taawun.v3i02.505

Silberman, M. (2020). *Active training: A handbook of techniques, designs, case examples, and tips (4th ed.)*. Wiley.

Trushna, T., Krishnan, K., Soni, R., Singh, S., Kalyanasundaram, M., Sidney Annerstedt, K., Pathak, A., Purohit, M., Stålsby Lundbog, C., Sabde, Y., Atkins, S., Sahoo, K. C., Rousta, K., & Diwan, V. (2024). Interventions to promote household waste segregation: A systematic review. *Heliyon*, *10*(2), e24332. https://doi.org/10.1016/j.heliyon.2024.e24332

Uyun, A. S., Rifa'i, A. B., & Marfuah, L. L. A. (2023). Peningkatan Kualitas Sumber Daya Manusia Melalui Taman Baca Masyarakat. *Tamkin: Jurnal Pengembangan Masyarakat Islam*, 7 (2), 151–172. https://doi.org/10.15575/tamkin.v7i2.24487

Wahyuningsih, S., Wafa, L. A., Zaskia, M., & Rahayuning, Z. (2024). Pengelolaan limbah plastik menjadi ecobrick sebagai upaya kolaborasi mahasiswa KKN UIN Walisongo dengan SDN 2 Rowosari dalam membangun taman ecobrick. *Pandawa : Pusat Publikasi Hasil Pengabdian Masyarakat,* 2(4), 60-67. https://doi.org/10.61132/pandawa.v2i4.1251

Yasin, A., & Pratiwi, D. I. (2024). Pemberdayaan masyarakat dalam pengelolaan sampah berkelanjutan: Studi kasus di Kampung Salo Kendari. *Journal of Community Service*. 6(1), 1-8. https://doi.org/10.56670/jcs.v6i1.186

Zhang, X. (2023). A systematic literature review on individuals' waste separation behavior. *Resources, Environment and Sustainability*, *14*, 100137. https://doi.org/10.1016/j.resenv.2023.100137

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