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The Role of Environmental Education and the Utilization of Recycled Waste in Improving the Economic Welfare of the Community in Babakan Village, Sukabumi City

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Abstract: Waste problems are an increasingly complex environmental issue, especially in residential areas that do not have an optimal management system, such as in Babakan Village. Low public awareness in sorting and utilizing waste leads to increased environmental pollution as well as loss of economic potential from the waste produced. Therefore, this activity aims to analyze the role of environmental education and the use of recycled waste in improving the economic welfare of the community. The method used is a community empowerment approach through four stages, namely planning, socialization and education, training and practice, and monitoring and evaluation. The results of the activity show an increase in community knowledge, awareness, and skills in managing waste, especially through the application of the 3R (Reduce, Reuse, Recycle) concept. The community is starting to be able to process inorganic waste into products of economic value, such as handicrafts, and utilize organic waste into compost. In addition, there has been an increase in community participation in community-based waste management activities. However, there are still obstacles in the sustainability of the program, especially related to the consistency of participation and marketing development of recycled products. Overall, this activity shows that environmental education combined with the direct practice of using recycled waste is effective in encouraging changes in community behavior while opening up opportunities to increase income. This program has the potential to become a model of sustainable community empowerment in supporting environmental sustainability and economic welfare.

Keyword: Environmental Education, Recycling, Waste Management, Community Empowerment, Economic Welfare.

INTRODUCTION

The waste problem is a global issue that continues to increase in line with population growth, urbanization, and changes in people's consumption patterns. An increase in the volume of waste that is not balanced with good management can cause various negative impacts, such as environmental pollution, health problems, and a decline in people's quality of life. Waste that is not managed properly also has the potential to pollute the soil, water, and air, and trigger environmental disasters such as floods due to clogged waterways.

In Indonesia itself, the problem of waste is still a serious challenge, especially in residential areas that do not have an optimal waste management system. Low public awareness in sorting and managing waste from the source is one of the main factors that cause this problem to be more complex. Therefore, systematic and sustainable efforts are needed through environmental education to improve knowledge, attitudes, and behavior of the community in better waste management.

This problem is also reflected in the condition of the community in Babakan Village, where waste management is still carried out simply and is not well organized. Some people still mix organic and inorganic waste, throw garbage carelessly, and burn garbage as a practical solution. In addition, the use of waste as an economic resource has not been carried out optimally due to the limited knowledge and skills of the community. This condition shows that waste is still seen as waste that has no use value, even though if managed properly, waste can be a source of additional income. Therefore, community service activities that focus on environmental education and the use of recycled waste as a solution to these problems are needed.

Improving people's economic well-being is characterized by increasing their ability to meet their living needs through income, productivity, and independence. In waste management, welfare can be achieved by utilizing waste into products with selling value. Activities such as waste banks and recycling not only reduce environmental impacts, but also open up business opportunities, improve skills, and encourage a community-based economy. Thus, welfare is not only seen from income, but also from economic participation and sustainability (Arwin Sanjaya et al., 2023)

The role of environmental education is very important in increasing awareness and changing people's behavior towards better waste management. Environmental education not only provides knowledge about the types and impacts of waste, but also encourages people to implement appropriate management practices, such as sorting and applying the 3R (Reduce, Reuse, Recycle) concept. Through socialization, training, and mentoring activities, the community becomes more aware of the importance of protecting the environment and has skills in managing waste independently. In addition, environmental education is also able to increase the active participation of the community in community-based cleaning and waste management activities. Thus, environmental education plays a role as the first step in creating sustainable behavior change and supporting the creation of a cleaner and healthier environment (Marthen et al., 2024)

The use of recycled waste is one of the effective efforts to reduce waste while increasing the economic value of the community. Through the processing process, waste that was previously worthless can be turned into products that have a use value and selling value. This

activity not only helps maintain environmental cleanliness, but also improves skills and opens up business opportunities for the community. In addition, the use of waste encourages a change in the mindset that waste can be used as a productive resource. Thus, recycling-based waste management plays a role in supporting economic independence and community welfare (Arwin Sanjaya et al., 2023).

A number of previous studies have shown that waste management education based on the 3R (Reduce, Reuse, Recycle) concept has an important role in increasing public awareness and participation. Education carried out directly through socialization and training has been proven to be able to encourage changes in people's behavior in managing waste for the better. In addition, a participatory approach that actively involves the community in waste management activities also increases the effectiveness of the programs implemented. This shows that environmental education is an important first step in overcoming waste problems in the community. (Pariono et al., 2025).

Other research shows that the use of household waste through training activities can improve people's skills in processing waste into products of economic value. Waste that was previously considered useless can be processed into various creative products that have selling value, such as handicrafts and other recycled products. This activity not only helps reduce the volume of waste, but also opens up new business opportunities that can increase people's income. Thus, the use of recycled waste has a strategic role in supporting the economic welfare of the community (Paroki et al., 2025).

In addition, the concept of circular economy in waste management is also a concern in various government research and policies. This approach emphasizes the reuse of waste as a resource that has use value, so that it can reduce the waste generated and increase the efficiency of resource use. The implementation of a community-based circular economy has been proven to be able to provide sustainable economic benefits and encourage the creation of a cleaner and healthier environment. Therefore, the integration between environmental education and the use of recycled waste is a relevant strategy in overcoming waste problems while improving community welfare (Kilay & Wenno, 2025).

Based on the existing problems and supported by the results of previous research, the solutions offered in this activity are through environmental education and training on the use of recycled waste to the community in BabakanS Village. Environmental education is carried out to increase public understanding of the importance of waste management, while the training is focused on developing skills in processing waste into products of economic value, such as handicrafts and compost. Through this activity, it is hoped that the community will not only understand the importance of protecting the environment, but also be able to utilize waste as an additional source of income.

Seeing these conditions, this study is relevant to know and analyze the role of environmental education and the use of recycled waste in improving the economic welfare of the community in Babakan Village. In addition, this activity also aims to increase public awareness, skills, and participation in sustainable waste management, so that it can have a positive impact both in terms of the environment and the community's economy.

METHOD

The implementation method of the Community Empowerment Program consists of three main components, namely the planning, socialization and education stages, training and practices in the use of recycled waste, monitoring and evaluation. These four components are interrelated and are the basis for ensuring that the program can run in a directional, effective

manner, and provide real benefits to the community. In this context, these components describe the stages carried out by a team or group of students starting from the planning process, the implementation of activities, to the evaluation of the results of the program that has been carried out. With this stage, each activity is expected to be able to achieve the goals that have been set. The following is a more detailed explanation of each of these components (Maulidizen et al., 2024)

Planning Stage

It begins with field observation activities to identify problems that occur in the community, especially related to inorganic waste management. At this stage, observations are made on environmental cleanliness conditions, people's habits in disposing of waste, and the potential for waste that can be reused into products of economic value (Ramadianti et al., 2025).

Furthermore, an analysis of community needs was carried out and the preparation of a program strategy that is right on target. The strategy includes educational efforts regarding the importance of protecting the environment, sorting organic and inorganic waste, and the use of recycled waste such as waste paper into creative products that have selling value. In addition, a simple financial and marketing concept is also designed so that the results of recycling can provide economic benefits for the community.

As a first step in implementation, a socialization activity was held in collaboration with the Sukabumi City Environmental Agency (DLH) represented by the Sukabumi Waste Bank. This socialization aims to provide the public with understanding about waste management based on the circular economy, procedures for saving waste, and business opportunities from recycled products.

The next stage is the preparation of a timeline of activities as a guideline for the implementation of the program, starting from socialization, training in making recycled products, marketing assistance, to evaluation of activity results. In addition, brainstorming was carried out with the community to explore creative ideas in creating recycled products that suit market needs. With careful planning, the program is expected to be able to increase environmental awareness as well as the economic welfare of the people of Babakan Village.

Socialization and Education Stage

The socialization and education stage is the first step in providing understanding to the community about the importance of good waste management and its use as an economic opportunity. This activity was carried out in collaboration with the Sukabumi City Environmental Agency (DLH) represented by the Sukabumi Waste Bank as the main resource person.

The main socialization activity is carried out through several methods so that information can be well received by the community. Interactive counseling is carried out in the form of presentations, discussions, and questions and answers between resource persons and participants so that the community can understand the material directly while conveying the problems faced in the surrounding environment. In addition, visual media in the form of posters, leaflets, and short videos are used to strengthen public understanding of the importance of waste sorting and the benefits of recycling.

Furthermore, a direct demonstration was carried out on the simple waste processing process, such as making crafts from used plastic, using used paper into creative products, and making compost from organic waste. This demonstration aims to make people not only

understand the theory, but also be able to practice independently at home and in the surrounding environment.

The education stage is also focused on providing insight into the economic value of recycled waste. The public is given basic knowledge about product packaging, simple marketing strategies, and the use of digital media to market recycled products (Imam Mawardi, Dila Istianah, 2025).

Through this socialization and education stage, it is hoped that the people of Babakan Village will have a higher awareness of the importance of protecting the environment, and will be able to use waste as an additional source of income that supports the economic welfare of the family.

Training and Practice Stages of Recycling Waste Utilization

The training and practice stage of using recycled waste was carried out as a continuation of socialization and education activities, with the aim of improving the community's skills in processing waste into useful products and having economic value to support the welfare of the people of Babakan Village. This activity is focused on providing direct experience so that the community is able to practice the recycling process independently and productively.

The training began with an introduction to the tools and materials needed in waste processing, such as waste paper, plastic bottles, cardboard, sachet packaging, and other inorganic materials that are still suitable for reuse. Furthermore, participants were given an explanation of the basic techniques for sorting, cleaning, and processing waste so that it can be used as raw materials for products with selling value (Imam Mawardi, Dila Istianah, 2025).

At the practice stage, the community is invited to make various creative and economical products, such as bags from used plastic packaging, tissue holders from cardboard, decorative flowers from plastic bottles, baskets from used paper, and various other handicrafts that have marketing opportunities. In addition, the practice of making compost from organic waste that can be used by themselves or sold to people who need plant fertilizer is carried out.

During the activity, participants were accompanied directly by the implementation team so that each stage could be well understood. Participants were also given the opportunity to discuss, ask questions, and develop recycling-based business ideas that are in accordance with the needs and potential of the local environment.

Through this training and practice stage, it is hoped that the people of Babakan Village will be able to turn waste into products of economic value, open up home business opportunities, increase family income, and improve the economic welfare of the community in a sustainable manner.

Monitoring and Evaluation Stage

The monitoring and evaluation stage is an important part of ensuring that the entire series of environmental education activities and the use of recycled waste can run in accordance with the goals that have been set, namely to increase awareness, skills, and economic welfare of the community in Babakan Village.

Monitoring is carried out periodically during the program through direct observation of the level of community participation in each activity, ranging from socialization, training, to the practice of processing waste into recycled products. In addition, monitoring is also focused on changes in community behavior in managing waste, such as waste sorting habits, reusing waste, and involvement in community-based waste management activities such as waste banks.

Meanwhile, the evaluation is carried out at the end of the activity to determine the success rate of the program that has been implemented. This evaluation includes several aspects, including increasing public knowledge about waste management, the ability to process waste into products with useful and economic value, opportunities to increase income, and the level of community participation in the sustainability of the program. The evaluation process is carried out through observation, interviews, and documentation of the results of the activities that have been carried out.

Monitoring and evaluation have an important role in assessing the effectiveness of a program as well as measuring its impact on social and economic changes in society. Evaluation focuses not only on the implementation of the program, but also on the extent to which the program is able to provide real benefits, such as behavior change and improvement of community welfare

The results of monitoring and evaluation are then used as consideration in making improvements and developing programs so that they can run more optimally and sustainably. Thus, the programs implemented do not only stop at the training stage, but are able to have a long-term impact on the community, both in terms of the environment and the economy.

RESULTS AND DISCUSSION

The implementation of community service activities related to environmental education and the use of recycled waste in Babakan Village is carried out through four main stages, namely planning, socialization and education, training and practice, and monitoring and evaluation. Each stage makes a significant contribution to increasing awareness, skills, and economic potential of the community in waste management.

Planning Stage

The planning stage began with field observation activities to identify the initial condition of the community in managing waste in Babakan Village. This activity aims to find out the problems that occur in the environment, people's habits in disposing of waste, and the potential for waste that can be reused into products of economic value.

Based on the results of the initial identification, it is known that waste management in the community is still not optimal. Some people still mix waste and have not used household waste as a resource that has useful value. In addition, low public awareness is also one of the main factors that affect independent waste management.

The results of the observation also show that inorganic waste such as plastic, paper, and household packaging has a fairly dominant amount and has the potential to be recycled into creative products. This condition shows that waste is not only an environmental problem, but can also be used as an economic opportunity if managed properly.

Program planning in this activity is focused on environmental education and training on the use of community-based recycled waste. This is in line with research that states that increasing community awareness and participation is an important factor in the success of community-based waste management SDGs (Budiman et al., 2021)



Figure 1. Program Planning

Socialization and Education Stage

The socialization and education stage is a follow-up step after the planning process which aims to increase public understanding and awareness of the importance of waste management. This activity is carried out through counseling, interactive discussions, and the delivery of materials related to the impact of waste on the environment and its potential use as a resource of economic value.

In this activity, the community was given an understanding of the 3R concept (reduce, reuse, recycle), as well as the importance of waste sorting from the source. In addition, information was also conveyed about opportunities to use recycled waste as a product that has a selling value, so that it can provide economic benefits for the community.

The results of the activity show that the community is beginning to understand the importance of good waste management and is beginning to realize that waste is not only an environmental problem, but can also be used as a business opportunity. The delivery method that is carried out in an interactive manner also encourages active community participation in activities, so that the educational process becomes more effective and easy to understand.

This socialization and education activity is in line with research that states that environmental education has an important role in increasing awareness and changing community behavior in community-based waste management (Rahmawati & Baskara, 2022).



Figure 2. Program Socialization

Training and Practice Stages of Recycling Waste Utilization

The training and practice stage is a core part of community service activities that aim to improve community skills in processing waste into products with useful and economic value. This activity is carried out through direct demonstrations and joint practices, so that the community not only understands the theory, but is also able to apply it independently.

At this stage, the community was given training on inorganic waste sorting techniques, the process of processing used materials, and the manufacture of various creative products such as bags made of used plastic, baskets made of paper, and other household decorations. In addition, participants were also introduced to the basic concept of product packaging and simple marketing potential so that recycled products have selling value.

The results of the activity showed that the community was able to follow the training process well and began to understand basic techniques in recycling waste processing. In addition, participants also began to show creativity in developing a variety of products according to the needs and potential of the surrounding environment.

This training and practice activity is in line with research that states that waste utilization training can improve community skills and open up recycling-based business opportunities that have the potential to increase income (Kurniasari et al., 2024).



Figure 3. Waste Processing Process

Monitoring and Evaluation Stage

The monitoring and evaluation stage is carried out to determine the success rate of the program and the impact it has on the community after the activity is carried out. Monitoring is carried out through direct observation of community involvement in waste management activities, as well as changes in behavior in sorting and utilizing waste in the daily environment.

The monitoring results show that the community is starting to show an increase in participation in waste management activities, both in the process of sorting and the use of waste into more valuable products. In addition, public awareness of the importance of maintaining environmental cleanliness has also begun to increase compared to before the program was implemented.

Evaluation of activities was carried out to assess the effectiveness of the program based on several indicators, such as the level of community participation, increased knowledge, and skills in waste management. The evaluation also showed that the program carried out was able

to have a positive impact, not only on the environmental aspect, but also on the social and economic aspects of the community.

However, there are still several obstacles, such as uneven community participation and limitations in the development of activities in a sustainable manner. Therefore, further efforts are needed in the form of mentoring and strengthening programs so that the results that have been achieved can continue to develop.

This is in line with research that states that the evaluation of community empowerment programs through waste management is important to determine the success rate of the program and increase community participation in maintaining the sustainability of activities (De Boni et al., 2022).



Figure 4. Waste Processing Results

CONCLUSION

Based on the results of the implementation of community service activities in Babakan Village, it can be concluded that the environmental education program combined with the use of recycled waste is able to have a positive influence on increasing knowledge, skills, and community involvement in waste management. The series of activities consisting of planning, socialization and education, training and practice, to monitoring and evaluation shows that there are gradual changes in community behavior towards better waste management.

In the initial stage, observation activities succeeded in identifying the main problems faced by the community, namely low awareness in managing waste and the lack of optimal use of waste as an economically valuable resource. Furthermore, socialization and education activities play a role in building public understanding of the importance of waste management based on the 3R concept and opening insights into economic opportunities from recycling activities. The training and practice stage has a real impact in improving the community's ability to process waste into creative products that have selling value. Meanwhile, the results of monitoring and evaluation show an increase in participation and changes in people's habits in managing waste, although it is not completely evenly distributed.

In terms of discussion, the results of this activity indicate that an educational approach accompanied by direct practice is more effective in encouraging behavior change than the theoretical delivery of material alone. The active participation of the community in each stage of the activity is also an important factor that supports the success of the program, because it is able to foster a sense of responsibility and concern for the environment. In addition, the activity of utilizing recycled waste not only contributes to reducing the volume of waste, but also has the potential to increase community income through the products produced.

However, the sustainability of the program still faces several obstacles, especially related to the consistency of the community in implementing new habits and limitations in the development and marketing of recycled products. Therefore, follow-up is needed in the form

of continuous mentoring, institutional strengthening, and the use of digital technology as a means of marketing so that the program can develop optimally.

Overall, this activity shows that the combination of environmental education and the use of recycled waste is an effective approach in overcoming environmental problems while improving community welfare. With sustainable support, this program has the potential to be developed into a model of community empowerment oriented towards environmental and economic sustainability.

REFERENSI

Arwin Sanjaya, Saputra, D., Nazar, N., Ananta, R., Arisma, A., Fadillah, N., Nurjannah, N., Mustafa, K., Rahayu, E., & Jemminastiar, R. (2023). Pemanfaatan Bank Sampah dalam Meningkatkan Kesejahterahan Masyarakat Desa Kersik. International Journal of Community Service Learning, 7(1), 1–10. https://doi.org/10.23887/ijcsl.v7i1.56668

Budiman, Q., Mouton, S., Veenhoff, L., & Boersma, A. (2021). PENDIDIKAN PENGELOLAAN SAMPAH BAGI MASYARAKAT: STRATEGI DAN DAMPAKNYA. Jurnal Inovasi Penelitian, 1(0.1101/2021.02.25.432866), 1–15.

De Boni, A., Melucci, F. M., Acciani, C., & Roma, R. (2022). Community composting: A multidisciplinary evaluation of an inclusive, participative, and eco-friendly approach to biowaste management. Cleaner Environmental Systems, 6(August), 100092. https://doi.org/10.1016/j.cesys.2022.100092

Imam Mawardi, Dila Istianah, A. K. (2025). Sebagai Produk Daur Ulang Ramah Lingkungan. 02.

Kilay, T. N., & Wenno, Y. H. (2025). Upaya menumbuhkan kesadaran pengelolaan sampah untuk mencapai ekonomi sirkular melalui daur ulang sampah anorganik. Jurnal Pembelajaran Pemberdayaan Masyarakat (JP2M), 6(4), 1185–1197. https://doi.org/10.33474/jp2m.v6i4.24146

Kurniasari, P., Mardikaningsih, A., & Arifki, G. (2024). Pelatihan Pengelolaan Sampah Anorganik Menjadi Kreasi Daur Ulang Yang Menarik. Jurnal Pengabdian Sosial, 1(10), 1515–1523. https://doi.org/10.59837/q8wp4f36

Marthen, M., Kaigere, D., Karim, A., Selatan, J., & Masyarakat, P. K. (2024). Lingkungan Di Ardipura Iv Jayapura Selatan. 5(2), 4063–4071.

Maulidizen, A., Chakim, A., Ganea, A., Anggraini, D., Mugiyono, Fauzi, M. H., Limber, U., & Yustriana. (2024). Pemanfaatan Daur Ulang Kertas Bekas Pada PT. Transportasi Jakarta Menjadi Nilai Tambah Bagi Kesejahteraan Masyarakat Binaan Bank Sampah Kumala Utilization of Used Paper Recycling at PT. Jakarta Transportation is an Added Value for the Welfare of the Commu. Jurnal Pengabdian Dan Kemitraan Masyarakat(ALKHIDMAH), Vol.2, No.(1), 152–165.

Pariono, A., Katili, A. Y., & Arsana, I. K. S. (2025). Pemberdayaan Masyarakat Melalui Edukasi Pengelolaan Sampah Berbasis 3R (Reduce, Reuse, Recycle) Dalam Upaya Mewujudkan Lingkungan Bersih dan Sehat di Desa Sidomukti, Kecamatan Mootilango, Kabupaten Gorontalo. Jurnal Pengabdian Masyarakat, 1(3), 100–119. https://doi.org/10.69623/j-abmas.v1i3.181

Paroki, L., Maria, S., Rosa, M., Dewi, K., Dwiyani, T., Akuntansi, D., Vokasi, F., Pignatelli, U., Jl, T., Raya, D., & Parish, M. T. (2025). Edukasi Pengelolaan dan Pemanfaatan Limbah Rumah Tangga untuk Peningkatan Ekonomi Masyarakat di Education on Household Waste Management and Utilization to Improve the Community Economy in the St . 7(3), 553–564.

Rahmawati, F., & Baskara, F. (2022). Sosialisasi Peningkatan Upaya Pengelolaan Sampah Di Desa Watualang Melalui Penerapan Sistem 3R. Medani : Jurnal Pengabdian Masyarakat, 1(3), 135–141. https://doi.org/10.59086/jpm.v1i3.192

Ramadianti, A. A., Hidayat, W., Putri, N., Safitri, L., Ramadhan, N., Hariaty, E., Malinda, L., Ramadhani, M., Harahap, S. A., Lubis, R. H. H., & Herdyana, T. (2025). Sosialisasi Pemanfaatan Sampah Menjadi Produk Daur Ulang Untuk Meningkatkan Kesadaran Lingkungan Pada Masyarakat. Jurnal Pengabdian Masyarakat, 4(1), 194–200. https://doi.org/10.70340/japamas.v4i1.225