

Ecological and Economic Impacts of CSR-Based Waste Processing: A Case Study of PT Pertamina Patra Niaga AFT BIL

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Abstract: This study examines the ecological and economic impacts of the Corporate Social Responsibility (CSR) program implemented by PT Pertamina Patra Niaga Aviation Fuel Terminal BIL through the Al-Haqiqi Waste Bank and the Mina Tenun Plastic Weaving Group in West Nusa Tenggara, Indonesia, while integrating insights from the Social Forestry initiative for the Bina Lestari farmer community. Using a qualitative descriptive approach, combining primary data from interviews and observations with secondary data from relevant documents, the research assesses the effectiveness of these programs in waste management, environmental rehabilitation, income generation, and asset-based community empowerment, particularly among women and youth.

Findings reveal that the Al-Haqiqi Waste Bank converts organic waste into compost and animal feed, while the Mina Tenun Plastic Weaving Group upcycles plastic waste into marketable handicrafts reducing environmental pollution and creating alternative income sources. The Bina Lestari Social Forestry program has rehabilitated 69 hectares of degraded land, planted over 30,000 multipurpose trees, applied circular economy practices, and developed community-based ecotourism that increases household income and strengthens conservation awareness. Collectively, these initiatives demonstrate that integrating environmental conservation, circular economy principles, and community empowerment can generate multidimensional benefits restoring ecosystems, enhancing climate resilience, diversifying livelihoods, and fostering inclusive social development. The study concludes that such models hold strong potential for replication in other regions as sustainable development strategies grounded in local assets.

Keywords: CSR, ecological impact, economic impact, waste management, social forestry

1. Introduction

Environmental issues have increasingly become a major global concern over the past few decades. Rapid urbanization, rapid population growth, and unsustainable consumption patterns have exacerbated the waste management crisis, particularly in developing countries (Shamaee et al., 2024). Indonesia, with its large population and significant economic growth, faces significant challenges in waste management (Addahlawi et al., 2020). Waste remains a complex environmental issue in various regions across Indonesia. Data from the Ministry of Environment and Forestry (KLHK) in 2024 showed that 318 regencies/cities in Indonesia produced more than 34 million tons of waste annually. Of this amount, only 59.69% was successfully managed, while the remaining 40.31% remained unaddressed. This mismanaged waste has the potential to cause various negative impacts, both socially and ecologically, such as soil, water, and air pollution, as well as threats to public health and environmental sustainability (De Jaeger et al., 2011). Therefore, addressing this issue requires synergy from various parties. One important actor that can contribute is the private sector.

In this regard, the private sector has a strategic responsibility through the implementation of Corporate Social Responsibility (CSR) programs. (Nurhayati, 2021). In Indonesia, the obligation to implement CSR is regulated through Law Number 40 of 2007 concerning Limited Liability Companies, specifically Article 74, which requires companies operating in sectors related to natural resources to carry out social and environmental responsibilities. Furthermore, Government Regulation Number 22 of 2021 concerning the Implementation of Environmental Protection and Management serves as the primary legal basis for regulating environmental risk analysis, waste management (both hazardous and non-hazardous), and the imposition of administrative sanctions on companies that fail to fulfill environmental protection obligations. Based on these regulations, it is clear that companies are required to play an active role in maintaining environmental sustainability, especially in the areas surrounding their operations, through various CSR initiatives.

Corporate Social Responsibility not only reflects a company's social concern for the community, but also illustrates how the business world can become an agent of change in strengthening environmental resilience and improving the socio-economic conditions of the community (Andrés et al., 2019). Several studies have shown that CSR programs that are developed in a participatory, contextual, and sustainable manner can have a dual impact, namely improving environmental quality (Tsamara et al., 2019) and strengthening community economic

empowerment (Škare & Golja, 2014).

CSR has evolved from a purely philanthropic approach to a corporate strategy to an empowerment approach that supports the achievement of the Sustainable Development Goals (SDGs) (Shaw, 2007), including in responsible waste management. Companies, especially those engaged in the natural resource exploitation sector, are not only required to ensure that their operational activities do not pollute the environment, but are also required to actively participate in addressing social problems, environmental pollution issues, and maintaining ecosystem sustainability.

One concrete manifestation of this concern is the initiative to establish waste banks and weaving groups as part of the CSR program. Waste banks and weaving groups are community-based innovations that combine the principles of a circular economy and community empowerment. This initiative provides opportunities for residents to view waste as a resource with economic value, not just waste. Through a scheme to exchange waste for economic value, training in recycling processing, and the creation of value-added products, waste banks have the potential to become a tool for ecological and social transformation with broad impacts. In the realm of CSR, the waste and weaving group model is not only an environmental conservation activity, but also to create measurable and sustainable social impact.

One example of the implementation of the waste bank and weaving group program as part of CSR is carried out by PT Pertamina Patra Niaga Aviation Fuel Terminal BIL. Lombok Island, as an international tourist destination, faces ecological pressure due to the increasing volume of waste generated by community activities and the tourism industry. According to the Head of the Environment and Forestry Service (DLHK) of West Nusa Tenggara (NTB) Province, by 2024 this region will produce around 2,700 tons of waste per day. However, only half of this total can be managed effectively, while the rest remains unaddressed. Local governments have made various efforts through policies and collaboration with various parties. However, formal waste management capacity is still limited, making community involvement and private sector support crucial.

In response to this condition, PT Pertamina Patra Niaga Aviation Fuel Terminal BIL, through its CSR program, initiated the establishment of a waste bank and weaving group. This program not only focuses on waste collection and sorting activities, but also encourages the use of organic waste for compost and maggot cultivation (BSF larvae), as well as the use of inorganic waste to create creative products such as recycled woven fabrics. This approach demonstrates that PT Pertamina Patra Niaga Aviation Fuel Terminal BIL's CSR not only targets environmental conservation aspects but also creates new economic opportunities for the community, especially for women, youth, and local MSMEs.

In practice, the waste bank and weaving group programs integrate environmental and economic aspects, as well as the active involvement of the local community. The waste bank program implemented as part of the CSR program of PT Pertamina Patra Niaga Aviation Fuel Terminal BIL is not only a technical solution to the waste problem, but also a social development tool based on local potential and assets (asset-based development). Although many waste bank programs have been implemented in various regions, academic studies that systematically evaluate the ecological and economic impacts of private sector CSR programs are still limited. Most of the literature focuses more on the technical aspects of waste management, community behavior, or microeconomic impacts, without integrating ecological and economic aspects within a comprehensive evaluative framework.

Based on this, this paper seeks to examine in depth the implementation process of the waste bank and weaving group initiative by the CSR program of PT Pertamina Patra Niaga Aviation Fuel Terminal BIL, while also evaluating its impact comprehensively. This research is expected to provide a meaningful scientific contribution to the fields of CSR, environmental management, and sustainable development. By using the waste bank program of the CSR program of PT Pertamina Patra Niaga Aviation Fuel Terminal BIL in Lombok as a case study, this research aims to explore the extent to which the state-owned company's CSR initiative can create a sustainable impact on the community and the surrounding environment.

Furthermore, this study aims to highlight the paradigm shift in CSR implementation, from its original charitable nature to an innovative instrument in building a circular economy and strengthening community resilience to environmental crises. Within the framework of sustainable development, strengthening the role of communities in waste management through CSR interventions demonstrates that partnerships between communities and the private sector can generate relevant and effective solutions. Furthermore, this study positions the waste bank approach as a local asset-based social development strategy, positioning communities not merely as recipients of aid, but as key actors in the process of transforming their own environment and economy.

Based on the above description, this study aims to analyze the ecological and economic impacts of the waste bank and weaving group CSR initiatives of PT Pertamina Patra Niaga Aviation Fuel Terminal BIL. This study is not only relevant to the local context in Indonesia but can also serve as a global reference for companies and local governments in developing community- and environment-based CSR models. Amid the climate crisis

and global economic challenges, local initiatives such as waste banks demonstrate that significant change can start from the community with the support of the private sector and inclusive public policies. This study uses a descriptive qualitative method, with primary data obtained through interviews and observations, and secondary data collected from various relevant documents. The results of this research are expected to make a significant contribution to the development of scientific knowledge related to CSR, environmental management, and sustainable development strategies. Substantively, this research also aims to emphasize that the waste bank approach can be an effective community empowerment strategy, where communities are no longer merely program objects but rather the primary subjects of sustainable social and ecological transformation.

2. Discussion

2.1 Establishment of Waste Banks and Weaving Groups as a Response to Environmental Problems

The waste problem in Indonesia is a very complex and challenging environmental issue, including in the West Nusa Tenggara (NTB) region. According to data from the NTB Provincial Environment and Forestry Service (DLHK) in 2024, this region produces approximately 2,700 tons of waste per day, but only about half of that amount is managed effectively. This imbalance between waste production and management is the background to the establishment of the Corporate Social Responsibility (CSR) program by PT Pertamina Patra Niaga DPPU Lombok International Airport (BIL), specifically through the Waste Bank initiative and women's weaving groups.

This CSR program, launched in 2021, is the result of a collaboration between Pertamina and a women's group, specifically housewives, in Reak 1 Hamlet, Tanak Awu Village. The program focuses on community-based waste management through the establishment of the Al-Haqiqi Waste Bank. This group is directly assisted by PT Pertamina DPPU BIL, and the program is known as the Al-Haqiqi Waste Bank Green Village.

The selection of Dusun Reak 1 as the program location was based on the company's social mapping results, and this area is also within the operational ring I of DPPU BIL. This CSR program is now in its second year, with a focus on mentoring Black Soldier Fly (BSF) maggot cultivation, land management, and utilization of agricultural products from waste bank groups. This effort integrates environmental empowerment and community-based economic strengthening.

From the outset, the Green Village program has provided capital support for the physical construction of waste banks, including land leases, the construction of segregated waste collection facilities, and the provision of land for processing organic waste into fertilizer. In addition, the company has procured supporting equipment such as shredders, weighing scales, tarpaulins, buckets, chairs, and concrete pipes. Providing these facilities is a crucial foundation for establishing a structured and sustainable waste management system.

Active community participation, particularly among women, is a key aspect of this program. Group members are not only beneficiaries but also key drivers of development. They help determine needs and the direction of activities that are appropriate to local conditions. Separated trash bins have been installed at several locations in Reak 1 Hamlet, facilitating the separation of organic and inorganic waste. Every three to five days, members deliver their sorted household waste to the processing facility.

The Al-Haqiqi Waste Bank also adopts a "waste savings" system, where each member can deposit their waste and gain economic value. The collected waste, primarily organic, is processed into solid and liquid fertilizer, which is then sold to the public or used by the group for agricultural activities. This system not only encourages recycling but also creates an alternative source of income.

Overall, this program supports two main aspects: improving environmental quality and enhancing the economic well-being of the community. With a participatory and community-based approach, Pertamina's CSR has successfully driven a more comprehensive social transformation, not just limited to waste management.

The Green Village program, located in Reak 1 Hamlet, targets 25 women as direct beneficiaries. In the long term, the program also has an indirect impact on approximately 124 families in the area. The long-term goal of this waste management program is to create a clean and healthy environment and foster a community that is highly aware of the importance of independent waste management.

This program also aligns with the local government's strategy to improve waste management performance, as outlined in the NTB Zero Waste policy. Central Lombok Regency, as the second-largest contributor to waste in NTB, has demonstrated its commitment to finding solutions, particularly as waste volume continues to increase, with the highest spike recorded in 2018. Unfortunately, this increase has not been fully offset by an adequate waste management system. Over the past three years, waste management has remained below 40%.

In addition to focusing on organic waste management, PT Pertamina Patra Niaga DPPU BIL also addresses the issue of inorganic waste particularly plastic through innovative, gender- and culture-based approaches. One such innovation is the formation of a plastic weaving group in Sukarara Village, Jonggat

District, Central Lombok. This village is known as a center for traditional Lombok weaving artisans and is a leading tourist destination in West Nusa Tenggara (NTB). However, like many other regions, Sukarara also faces serious problems related to plastic waste.

The habit of indiscriminately disposing of plastic waste, including in rivers or burning it, causes various forms of pollution. Therefore, a technical guidance program was launched to process plastic waste into valuable products through weaving. This initiative supports the circular economy concept being promoted by the government and addresses the local need for community-based waste management.

In collaboration with the "Mina Tenun " Women's Weaving Group, training was conducted to process household plastic waste much of which originates from Pertamina's operational areas into raw materials for weaving. This project represents an unprecedented innovation in NTB and aims to integrate environmental, cultural, and economic aspects. In addition to opening new economic opportunities, this activity also strengthens local cultural identity while addressing increasingly complex environmental issues.

As a tourist destination, Sukarara Village is required to not only offer visual appeal but also create a clean and healthy environment. In today's competitive modern era, weavers are no longer limited to relying on traditional skills but are also required to innovate. With this plastic weaving program, women in Sukarara Village now have access to new skills that will improve their income and the quality of their surrounding environment.

The empowerment program for women weavers in Sukarara Village is designed to support economic independence and community-based environmental management. The primary objective is to strengthen the capacity of weaving groups to produce competitive plastic waste-based craft products. Although the materials used are waste, the resulting products are expected to maintain aesthetic value and quality that can compete with other craft products. Furthermore, the program aims to increase the income of village women through productive economic activities that can be carried out from home, utilizing raw materials abundantly available in their environment.

This program also encourages the development of activities tailored to the needs and potential of the group, particularly in improving the quality of plastic weaving products to achieve local characteristics, such as the distinctive Sukarara motifs. In other words, this program is not only oriented towards economic aspects, but also targets social and ecological dimensions. One important aspect of this training is its contribution to reducing plastic waste, starting at its source, namely households. This effort also supports the creation of a circular mindset in waste management, where waste is viewed as a productive resource.

The benefits of this program are quite extensive. First, it provides life skills development to community groups, particularly in producing crafts from plastic waste featuring local motifs. Second, it contributes to environmental improvement by raising awareness about the importance of sorting and saving plastic waste for use as raw materials. Third, it motivates other community members to participate in waste management, starting at home, fostering a more systematic waste sorting culture.

Furthermore, this program also has the potential to foster independent, community-based business groups that can operate sustainably. With the development of groups like Mina Tenun, communities not only benefit directly economically but also participate in efforts to achieve local government targets, particularly in supporting the success of the "NTB Zero Waste " program. Thus, this program integrates aspects of women's empowerment, local cultural preservation, plastic waste reduction, and the achievement of sustainable development goals within a single, mutually reinforcing framework.

The target of the women's weaving group empowerment program in Sukarara Village is the Mina Tenun Group, which consists of 10 housewives located in Ketangga Hamlet, Sukarara Village, Central Lombok, which is the direct target and the indirect beneficiary target is the Ketangga Hamlet community.

Overall, both programs Al-Haqiqi Waste Bank and Mina Tenun represent CSR interventions that address not only the technical aspects of waste management but also empower women as agents of social change. These initiatives reflect the synergy between companies, communities, and local government policies in realizing community-based sustainable development.

2.2 Ecological and Economic Impacts of Waste Management in the "Mina Tenun" Women's Weaving Group

The "Mina Tenun" Women's Weaving Group empowerment program in Sukarara Village has brought significant changes in plastic waste management and community economic empowerment. Before this program, household waste, especially plastic, tended to be disposed of in landfills or even incinerated, ultimately causing environmental pollution. However, with the plastic recycling program, previously worthless plastic waste is now collected and distributed to the weaving group to be processed into high-value products.

This program has an economic impact felt by various parties, including companies, community managers, and suppliers of supporting raw materials. One form of intervention is carried out through a "product

sharing " mechanism, namely the transfer of plastic waste and production support equipment to the Mina Tenun Group as part of an empowerment effort. The initial step in this process is the transfer of competency to the community, so they have the skills to process plastic waste into economically valuable woven crafts. This knowledge is then applied in everyday life, enabling the community to create independent jobs.

From January to June 2023, the community generated Rp 22,875,000 in economic benefits from the sale of plastic woven products. Furthermore, the economic benefit for suppliers of supporting materials for the production process was recorded at Rp 1,026,000. From a social perspective, this program has increased the knowledge, skills, and experience of group members. These improvements include the ability to sort organic waste for weaving, an understanding of waste management, increased weaving capacity, business experience in product marketing, and the preservation of local culture.

In addition to providing direct benefits to group members, this program also impacts the general public. Now, residents of Sukarara Village are increasingly aware of sorting waste and maintaining environmental cleanliness. This program is also implemented in an inclusive manner, prioritizing the principle of gender equality, which is highly relevant in the context of equitable and sustainable human development. In this regard, the empowerment program for the Sukarara Women's Weaving Group can be seen as a reconstructive step in building a gender-equal and just empowerment approach.

From an environmental perspective, this program successfully reduced the generation of non-hazardous plastic waste by 0.041 tons from January to June 2023, which is equivalent to saving transportation costs of Rp 738,000. The calculation of waste generation comes from the accumulation of monthly plastic waste, namely 0.008 tons (January), 0.006 tons (February to April), 0.007 tons (May), and 0.008 tons (June). The absolute intensity of this waste reduction reached 0.0041 Kg/Kl against an activity volume of 9,826,481 Kl.

In detail, the program's economic impact is evident from product sales data. In the first six months of 2023, the group successfully sold 66 wallets at Rp 100,000 per unit (totaling Rp 6,600,000), 56 tablecloths at Rp 125,000 (totaling Rp 7,000,000), and 53 pillowcases at Rp 175,000 (totaling Rp 9,275,000). The total community profit from these sales was Rp 22,875,000. In addition to providing a sustainable source of income, this program also contributes to reducing the potential for environmental pollution in Sukarara Village.

Thus, the recycled plastic weaving program in Sukarara Village not only creates significant economic and social impacts but also significantly contributes to more sustainable environmental management efforts. The integration of cultural preservation, women's empowerment, and waste management makes this program a model for community-based development interventions worthy of replication in other areas.

2.3 Ecological and Economic Impacts of Al-Haqiqi Waste Bank

The problem of household organic waste has been a serious challenge for the community in Reak 1 Hamlet, Tanak Awu Village, Pujut District, Central Lombok Regency. Most of the waste is disposed of at the final disposal site (TPA), which requires significant transportation costs. However, not everyone can afford or is willing to pay these costs, so some choose to burn their waste or dispose of it in drains. These practices not only exacerbate environmental pollution but also contribute to unpleasant odors, fly breeding, and the risk of various diseases.

Recognizing the urgency of this issue, the Al-Haqiqi Waste Bank emerged as a community-based innovation to sustainably manage household organic waste. Waste previously considered worthless is now processed into various products with economic and ecological benefits. One approach used in this program is to utilize organic waste as feed for maggots, or black soldier fly larvae (BSF). This process not only helps decompose waste naturally but also produces maggots that can be used as animal feed and raw material for agricultural fertilizer.

The fertilizer produced from maggot waste is known as kasgot (maggot compost). Kasgot is a high-quality organic fertilizer containing essential nutrients such as nitrogen (N), phosphorus (P), potassium (K), magnesium (Mg), and calcium (Ca). Kasgot contains 3.36% N, higher than goat manure, which only contains around 1.73%. This advantage allows kasgot to significantly increase soil fertility and accelerate plant growth. This fertilizer is not only used by waste bank members but is also sold to the wider community, thereby generating additional income.

From an economic perspective, the Al-Haqiqi Waste Bank program has made a significant contribution. In one month, this waste bank is able to produce around 542 kilograms of wet maggots, which are sold for Rp 7,000 per kilogram, generating revenue of around Rp 3,800,000. In addition, they also produce 458 grams of baby maggots which are sold for Rp 6,000 per gram, adding Rp2,750,000 in revenue. Another derivative product is kasgot fertilizer, which is produced and sold in 50 packages each month for Rp10,000 per package, generating Rp500,000. The results of fertilizer application on agricultural land are also able to generate income of Rp 2,350,000, while the cultivation of red ginger plants produces 50 packages of herbal drinks per month, each sold for Rp 25,000, for a total income of Rp 1,200,000. Furthermore, the maggot-based livestock farming

also generates an income of around Rp 2,000,000. Overall, the average monthly income from this program reaches Rp 12,600,000, a significant additional source of income for the group members.

The success of this program is also inseparable from the implementation of the Eco Circle for Women's Empowerment approach, a model for empowering women in community-based waste management. This program targets housewives and youth as agents of change, building social solidarity and creating a space for cross-actor collaboration. Active participation from various parties, from village governments, Posyandu cadres, to youth organizations, shows that this waste bank has become a new social node that revives the spirit of mutual cooperation and community participation. For example, the collaboration between the Al-Haqiqi Waste Bank and Posyandu Mantung enables a waste barter system for supplementary food for toddlers (PMT), which not only improves nutrition but also raises public awareness of environmental cleanliness.

In addition to providing solutions to environmental and economic problems, this program also plays a role in reducing local unemployment. Many housewives and young people who previously had no income now have productive activities that not only bring in income but also give them a sense of pride and contribute to their communities. Waste management, once considered a burden, is now a valuable resource.

From an asset-based development perspective, the Al-Haqiqi Waste Bank program also demonstrates how various forms of social, human, physical, financial, and natural capital can be optimized. The human capital involved in the program, namely the group members, is the primary driver, transmitting the spirit of change to the surrounding environment. Physical capital in the form of organic waste, previously considered a threat, is transformed into a productive asset. Social capital is also evident in the high level of community participation and ownership of the program. In fact, financial capital from PT Pertamina Patra Niaga AFT BIL's support has enabled the program to survive and thrive, opening up opportunities for microfinance and strengthening new business units.

From a sustainability perspective, the Al-Haqiqi Waste Bank program doesn't rely solely on one commodity or sector, but rather creates a business ecosystem interconnected by agriculture, livestock, and waste processing. Each element in this cycle provides added value that reinforces the others. For example, maggot cultivation supports livestock farming, and livestock produce provides organic waste that can be reused. Similarly, organic fertilizer from maggots supports agriculture, and agricultural products are used as raw materials for herbal drinks.

With an integrative and participatory approach, the Al-Haqiqi Waste Bank demonstrates that waste management is not only a technical and environmental issue, but also encompasses social and economic dimensions. This program is clear evidence that community-based interventions, particularly those involving women and youth, can create sustainable change. Going forward, this model can be replicated in other regions with a contextual approach tailored to local characteristics.

2.4 Integration of Social Forestry and Environmental Empowerment for Bina Lestari Farmer Community

The Social Forestry program implemented for the Bina Lestari farmer community demonstrates a strategic integration of environmental conservation, circular economy principles, and community-based economic empowerment. This initiative focuses on reforestation and sustainable forest management as an entry point for strengthening community welfare while maintaining ecological integrity.

From an environmental perspective, the program has successfully rehabilitated 69 hectares of degraded land through systematic tree planting, agro forestry, and vegetation enrichment. More than 30,000 seedlings of multipurpose tree species such as mahogany, banyan, tamarind, sengon, and fruit trees have been planted, contributing to an estimated annual carbon sequestration of 45.0 tons CO₂e.

Economically, the program applies a circular economy approach, ensuring that natural resources and by-products are fully utilized within a closed-loop system. Agricultural and forestry residues are processed into organic compost, herbal-based products, and non-timber forest products (NTFPs). This activity has generated an average yearly income of Rp 60,000,000 for households. Sales of Virgin Coconut Oil products contribute approximately Rp 4,500,000 per month, while the production of snacks, briquettes, and processed forest products contributes around Rp 3,500,000 per month. These diversified revenue streams have reduced household dependency on seasonal farming by up to 40%, increasing economic resilience.

The socio-economic impact has been further amplified through the development of community-based ecotourism. The reforested landscape now attracts an average of 800 visitors per year, generating Rp 15,000,000 in tourism-related income from guided forest walks, homestay and culinary services. Visitor satisfaction surveys indicate a 92% positive rating, with many highlighting the combined experience of environmental education and local cultural immersion. This diversification not only boosts income but also enhances the community's capacity to promote forest conservation through experiential tourism.

By integrating reforestation, circular economy practices, and ecotourism within the Social Forestry

framework, the Bina Lestari delivers measurable multi-dimensional benefits. Ecologically, it restores ecosystems and strengthens climate resilience. Economically, it ensures sustainable livelihoods and reduces market vulnerability. Socially, it builds capacity, fosters stewardship, and positions the community as a model for sustainable rural tourism. As such, the Bina Lestari Social Forestry initiative represents a replicable best practice for aligning environmental restoration with inclusive economic growth and nature-based tourism development.

3. Conclusion

The Corporate Social Responsibility (CSR) initiatives implemented by PT Pertamina Patra Niaga Aviation Fuel Terminal BIL comprising Al-Haqiqi Waste Bank, Mina Tenun Plastic Weaving Group, and Bina Lestari Social Forestry program provide compelling evidence that well-designed, community-based interventions can deliver measurable and multidimensional benefits. The waste bank effectively mitigates organic waste through its conversion into compost and animal feed, while the weaving group transforms plastic waste into high-value artisanal products, thereby reducing environmental pollution and generating additional income. In parallel, the Bina Lestari Social Forestry initiative rehabilitates degraded forest ecosystems, enhances carbon sequestration, institutionalizes circular economy practices, and develops community-based ecotourism that simultaneously bolsters livelihoods and fosters environmental stewardship.

From an environmental standpoint, these three models have successfully reduced pollution levels, restored degraded land, and strengthened ecosystem resilience. Economically, they have created sustainable income streams, diversified rural livelihoods, and mitigated exposure to market volatility. Socially, they have enhanced local capacities, reinforced community solidarity, and positioned women and youth as central actors in the development process.

The strategic integration of environmental restoration, economic diversification, and gender-inclusive empowerment positions these initiatives as exemplary, scalable models for sustainable development. Their demonstrated success underscores the transformative potential of cross-sectoral collaboration between the private sector, local communities, and government in delivering context-specific, sustainable, and inclusive solutions. As such, these initiatives not only advance progress toward the United Nations Sustainable Development Goals (SDGs) but also contribute to long-term ecological resilience and the sustained socio-economic well-being of rural communities.

References

- [1]. Addahlawi, H. A., Mustaghfiroh, U., Ni'mah, L. K., Sundusiyah, A., & Hidayatullah, A. F. (2020). Implementasi Prinsip Good Environmental Governance Dalam Pengelolaan Sampah Di Indonesia. *Jurnal Green Growth Dan Manajemen Lingkungan*, 8(2), 106–118. <https://doi.org/10.21009/jgg.082.04>
- [2]. Andrés, M., Agudelo, L., Jóhannsdóttir, L., & Davídsdóttir, B. (2019). *A literature review of the history and evolution of corporate social responsibility*. 1–23.
- [3]. De Jaeger, S., Eyckmans, J., Rogge, N., & Van Puyenbroeck, T. (2011). Wasteful waste-reducing policies? The impact of waste reduction policy instruments on collection and processing costs of municipal solid waste. *Waste Management*, 31(7), 1429–1440. <https://doi.org/10.1016/j.wasman.2011.02.021>
- [4]. Nurhayati, B. (2021). Dinamika Program Pengembangan Masyarakat di Area perusahaan (Studi Kasus Kelompok Batik di Kecamatan Kerek Tuban). *Komunitas: Jurnal Pengembangan Masyarakat Islam*, 12(2), 132–143.
- [5]. Shamaee, S. H., Yousefi, H., & Zahedi, R. (2024). Assessing urban development indicators for environmental sustainability. *Discover Sustainability*, 5(1). <https://doi.org/10.1007/s43621-024-00563-1>
- [6]. Shaw, H. J. (2007). The Role of CSR in Re-empowering Local Communities. *Social Responsibility Journal*, 3(2).
- [7]. Škare, M., & Golja, T. (2014). The impact of government CSR supporting policies on economic growth. *Journal of Policy Modeling*, 36(3), 562–577. <https://doi.org/10.1016/j.jpolmod.2014.01.008>
- [8]. Tsamara, Y. N., Raharjo, S. T., & Resnawaty, R. (2019). Strategi Tanggung Jawab Sosial Perusahaan (Csr) Pt Pertamina Melalui Program Kemitraan Dan Bina Lingkungan Dalam Pertamina Sehati. *Share : Social Work Journal*, 8(2), 219. <https://doi.org/10.24198/share.v8i2.20083>