

Evaluation of the Benefits of the CSR Program of PT KPI RU II Sungai Pakning for Honey Beekeepers in Tanjung Leban Village

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ABSTRACT

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This study aims to evaluate the impact of the Corporate Social Investment (CSI) program initiated by PT Kilang Pertamina Internasional (KPI) RU II Sungai Pakning on the empowerment of honey beekeepers in Tanjung Leban Village, Bengkalis Regency. The program integrates economic, social, environmental, and community welfare objectives. This research uses a qualitative evaluation based on a logic model and counterfactual approach. Twelve participants were purposively selected, including core group members, nearby beekeepers, and local leaders actively involved from 2021 to 2025. Data were collected through in-depth interviews, focus group discussions, field observations, and document reviews using semi-structured instruments. Thematic analysis was conducted within the frameworks of the logic model, logframe, and sustainable livelihood approaches. The results show improvements in income, production capacity, and social networking; environmental conservation across 67 hectares of peatland; and reduced youth migration through ecotourism. The program also demonstrated cost-efficiency, institutional strengthening, and enhanced market competitiveness through product diversification and branding. Based on these findings, the program is evaluated as successful and effective as a contextual and sustainability-oriented social investment model. The implications highlight the relevance of this approach for impactful CSR policy design, sustainable rural development strategies, and participatory community-based conservation.

INTRODUCTION

Sustainable development today demands the active involvement of all stakeholders, not only governments and communities but also the private sector. Companies operating in various regions, particularly those directly linked to natural resources and local communities, are expected to assume a strategic role in promoting inclusive economic growth. One concrete manifestation of the private sector's contribution to social development is through corporate social investment (CSI), which constitutes a key component of Corporate Social Responsibility (CSR) implementation.

Community empowerment through corporate social investment is increasingly recognized as a strategic policy for building sustainable relationships and corporate accountability toward local communities and the environment (Matoati et al., 2023). Social investment is not only regarded as a form of CSR but also as an effort to create shared value. Unlike conventional CSR approaches, which are often philanthropic and short-term in nature, corporate social investment focuses on creating shared value—whereby corporate social activities yield not only economic benefits for the company but also contribute positively to improving the well-being of local communities, while supporting the company's reputation and long-term stability (Porter & Kramer, 2011).

On the other hand, the implementation of corporate social investment strategies is also driven by regulatory frameworks, such as Law No. 40 of 2007, which mandates companies to commit to Corporate Social and Environmental Responsibility

as part of sustainable economic development and improved quality of life and environment. Furthermore, companies are obligated to implement CSR programs under Law No. 32 of 2009 on environmental protection and management. According to data from the Directorate General of Environmental Management through the PROPER Program (2024), corporate participation in community empowerment programs in 2023 reached 275 out of 3,471 companies. This indicates that an increasing number of companies are recognizing the importance of social investment and are actively competing to fulfill their social and environmental responsibilities toward surrounding communities.

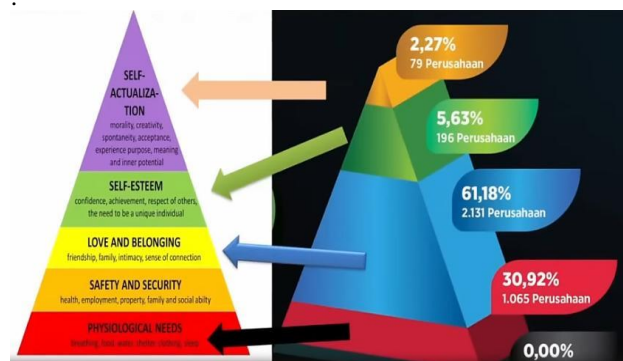


Figure.1 Diagram of Corporate Contribution in the Implementation of the PROPER Program in 2023

Source: Ditjen Lingkungan Hidup, 2024

A concrete example of the need for targeted social investment can be found in Tanjung Leban Village, Bandar Laksamana Sub-district, Bengkalis Regency, Riau Province. This village is known for its significant natural resource potential. According to the 2024 Social Mapping Research conducted by Universitas Gadjah Mada (UGM), among the total population of 2,757 people, the dominant occupations are: 35% industrial agricultural laborers, 10% civil servants, 20% fishermen, and the remaining 35% in other sectors. Despite the majority of villagers working as industrial laborers—mainly in palm oil and acacia plantations—their livelihood does not necessarily guarantee welfare. The UGM study (2024) also found that 200 households out of 787 are classified as underprivileged. This indicates that employment as an industrial agricultural laborer alone does not ensure an escape from poverty.

Although palm oil and acacia plantations dominate local livelihoods, there are other natural resources with the potential to support a more environmentally friendly and sustainable economy. One emerging sector is wild forest honey beekeeping, supported by the village's proximity to peatland and mangrove forests—natural habitats for wild bees. The tradition of harvesting forest honey has been passed down through generations and is a vital part of the community's identity and livelihood. However, the practice remains largely traditional, sporadic, and unorganized.

Beekeepers in Tanjung Leban face a range of complex challenges. These include limited technical skills in sustainable beekeeping, inadequate knowledge of honey quality management, the absence of a strong farmer organization, and restricted access to markets and capital. Consequently, the economic potential of forest honey as a leading commodity has not yet been fully realized to improve the welfare of the village community. Furthermore, reliance on traditional methods poses considerable ecological risks, such as declining bee populations and forest habitat damage due to unsustainable honey harvesting methods, including the use of fire, which can trigger forest and land fires.

In this context, the role of corporations through social investment programs becomes highly relevant and strategic—particularly in supporting community empowerment initiatives based on local potential. As public expectations grow regarding the tangible contributions of companies to sustainable development, several corporations are taking concrete steps through well-structured social initiatives. One such example is PT Kilang Pertamina Internasional (PT KPI) Refinery Unit II Production Sungai Pakning. Over the past four years, the company has actively implemented community empowerment programs in Tanjung Leban Village, recognizing its potential in the development of forest honey beekeeping.

Through its CSR program, PT Kilang Pertamina Internasional (PT KPI) Refinery Unit II Sungai Pakning has made a significant contribution to enhancing the village community's economic capacity, particularly among forest honey beekeeping groups. The interventions include providing business capital, facilitating technical training in environmentally friendly honey bee cultivation, and establishing and strengthening a farmer organization named *Kelompok Madu Bienen*, which serves as the company's partner beneficiary group. The training program covers techniques for cultivating three types of honey bees—*Apis mellifera*, *Trigona spp.*, and *Apis cerana*—tailored to the local ecosystem conditions. In addition, the company supplies production tools such as *glodok* (artificial beehives), supports the process of colony separation using locally adapted technological innovations, and encourages the diversification of honey-based products to

increase the economic value added for beekeepers. Beyond the production aspect, PT KPI RU II also supports the downstream processes by assisting farmers in packaging, quality certification, marketing, and brand identity development.

These activities are not only intended to enhance the competitiveness of local honey products in the market, but also to foster independence and professionalism among the beekeeping groups. In the long run, it is expected that these groups will be able to develop a sustainable honey enterprise ecosystem without full reliance on external support. On the other hand, the implementation of this program is also strategically relevant for the company's interests. One tangible benefit is the preservation of surrounding peatland areas near the company's operational zone from the threat of forest and land fires (*karhutla*), which have long posed a serious risk to production continuity and facility safety. By empowering local communities through environmentally friendly, conservation-based honey enterprises, the company indirectly builds an effective, community-based environmental protection system. This collaboration serves as a practical embodiment of the mutualistic symbiosis between the private sector and society—delivering not only economic returns, but also ecological and social benefits.

Through such an approach, the social investment carried out by PT KPI RU II goes beyond regulatory compliance with corporate social and environmental responsibility. It stands as a model of adaptive, contextual, and sustainability-oriented social intervention. This program is worthy of deeper study to assess its actual impact on the socio-economic transformation of local communities and to explore how corporations can play a strategic role in environmental conservation through village-based economic empowerment. Nevertheless, a fundamental question remains: to what extent does this social investment program generate tangible and sustainable benefits for the beneficiary communities? Is it merely ceremonial and short-term in nature, or does it truly foster social and economic transformation among honey farmers? Evaluating the value and impact of this program is crucial—not only to understand the social outcomes of corporate interventions but also to improve future empowerment models.

RESEARCH METHOD

This study employs a qualitative evaluative approach to assess the impact of the social investment program implemented by PT Kilang Pertamina Internasional (KPI) RU II Sungai Pakning. This approach was chosen for its capacity to capture in-depth social, economic, environmental, and well-being changes through narratives of direct beneficiaries. It is also suitable for exploring the complexities of community empowerment processes and the involvement of multiple stakeholders within a local context. The rationale for selecting this approach lies in the understanding that the social impacts of a program are not always quantifiable, but can be observed through behavioral changes, capacity strengthening, perceptions, and community dynamics. Therefore, this approach is used to trace the company's contributions to actual changes in the community through a contextual and participatory lens.

Participants in this study were active members of the *Kelompok Madu Bienen* in Tanjung Leban Village who have been involved in the empowerment program from 2021 to 2025. A total of 12 participants were selected, including six core group members, three honey farmers from surrounding villages, and three local community leaders. Participants were selected using purposive sampling based on the following criteria: (1) active involvement in honey beekeeping activities, (2) participation in company-organized training sessions, and

(3) direct experience with the implementation and benefits of the CSR program.

The study collected both primary and secondary data. Primary data were obtained through in-depth interviews and focus group discussions (FGDs), while secondary data were gathered from program documents, company internal reports, activity records, and group production data. The instruments used included semi-structured interview guides to explore participants' experiences, perceptions, and the impact of the program. An FGD guide was also developed to examine group dynamics, inter-party collaboration, and potential for further development. Field observations were used as a supporting instrument to gain direct understanding of the social and environmental context.

To ensure data validity and reliability, the study employed triangulation techniques, which included: source triangulation (comparing information from core group members, partner farmers, and community leaders), method triangulation (combining interviews, FGDs, and observations), and secondary data triangulation (cross-checking interview findings with program documents and group production records over the program period).

Data analysis was conducted using thematic analysis, whereby collected data were coded and categorized into key themes aligned with the logic model structure: inputs, activities, outputs, outcomes, and impacts. Additionally, a narrative counterfactual approach was used to depict a "without-program" scenario, aiming to identify the net impact of the intervention.

The qualitative approach is particularly relevant for evaluating the impact of social innovation programs, especially when the evaluation focuses on behavioral changes, capacity strengthening, and beneficiary perceptions. Within this approach, the logic model serves as the main analytical framework, operationalized through logical framework analysis (logframe). The logframe systematically maps the relationships between inputs (resources used), outputs (direct results of activities), outcomes (medium-term changes), and impacts (long-term desired changes).

To enrich the analysis, this study also integrates the Sustainable Livelihoods Approach (SLA), which assesses program impact based on five types of capital: human, social, financial, natural, and physical. The application of SLA in this context includes four main aspects: economic impact on Kelompok Madu Bienen, social impact on the group, contributions to environmental conservation, and impact on overall well-being. Through this integrated framework, the evaluation not only measures the success of activity implementation but also traces the extent to which these activities contribute to achieving the program's ultimate goals.

By using a logic-based evaluation approach supported by qualitative methods, this study provides a comprehensive picture of the impact of the social innovation program. The evaluation not only identifies the changes that occurred, but also explains how specific contributions from the intervention enhanced the sustainability, self-reliance, and capacity of the beneficiary communities.

RESULT AND DISCUSSION

The impact evaluation of the CSR Honey Beekeeping Program (*Budidaya Madu Bienen*) implemented by PT Kilang Pertamina Internasional (KPI) Refinery Unit II in Tanjung Leban Village was conducted using a qualitative evaluative research method based on the program logic model and logical framework analysis. This approach enables a systematic tracing of the relationship between program inputs, activities, outputs, outcomes, and impacts. To obtain a more objective measure of impact, a counterfactual approach was also

employed by comparing the actual post-program conditions with a hypothetical scenario in which the program had not been implemented. The evaluation does not merely assess the accomplishment of activities, but also examines how the intervention contributed to medium- and long-term changes experienced by the community.

The findings of this study reinforce the shared value-based social investment approach proposed by Porter and Kramer (2011), which argues that CSR strategies designed to create mutual benefit for both companies and communities can generate sustainable transformation. In the Indonesian context, the study by Matoati et al. (2023) confirmed that CSR programs emphasizing local potential, community training, and empowerment can significantly improve economic efficiency and deliver measurable social impact. Therefore, the discussion in this section not only presents field findings, but also situates them within relevant theoretical and empirical frameworks to strengthen the scholarly contribution of the evaluation results.

The following section presents the evaluation results of the Peat Forest Honey Beekeeping Program carried out by the Kelompok Madu Bienen, highlighting the changes that occurred across several dimensions—including increased income, enhanced social cooperation, contributions to environmental conservation, and improvements in the well-being of group members. These results indicate that programs that effectively leverage local potential can produce tangible and sustainable benefits for rural communities.

Tabel 1. logical framework analysis (logframe) Honey Cultivation 2021-2025

Aspect	Component	Description
Input	• Cultivation & marketing training • Bee boxes (<i>Glodok</i>) + production/packaging tools • Workshop & production house • Gazebo and education garden	The program provides knowledge, facilities, and infrastructure so that farmers can shift from wild harvesting to standardized cultivation. Bee boxes increase colonies; workshops & production houses ensure hygiene; gazebos/gardens serve as learning centers and tourism education sites.
		Measurable immediate results:
Output	• Bee colonies & packaged honey products • Production facilities functioning • 12 assisted farmer groups established	increased honey production, more professional packaging, fully operational facilities, and new farmer networks established, indicating replication of the model in surrounding villages.
Outcome	• Farmers' income increased significantly • Honey turnover stabilized above pre-program levels • Digital capacity and branding improved	Medium-term changes: farming households earn higher and more stable incomes; digital and branding skills enhance competitiveness; the groups are now able to sell independently without middlemen.
Impact	• Family welfare improved (income, access to education) • 67 hectares of peatland forest protected & natural opportunities increased • New jobs in education, tourism created, youth migration reduced	Long-term changes: a resilient local economy, preserved ecology due to fire-free cultivation, and the emergence of non-migrant employment opportunities. These impacts combine economic, social, and environmental benefits—aligned with the SDGs targets and the company's CSR objectives.

3.1. Economic Impact on the Biene Honey Group

The honey beekeeping program implemented in Tanjung Leban Village has brought significant changes to the economic conditions of members of the Kelompok Madu Biene. Prior to the program, the group largely relied on traditional wild honey harvesting practices, which were unsustainable, high-risk, and yielded low economic value. Since receiving training in beekeeping, the community has begun adopting more productive and organized honey farming systems.

Using a program logic-based evaluative approach, the study found that the increase in bee colony numbers, harvesting efficiency, and product diversification training have opened opportunities for more stable and sustainable additional income for group members. Beyond the production of raw honey, the community has begun to develop a range of value-added products such as honey soap, honey syrup, honey cookies, and other herbal-based goods, which have wider and more diverse market potential. These innovations are supported by access to online markets and strategic collaboration with the village-owned enterprise (BUMDes) for local product promotion and distribution. The combination of production skills, innovation, and market networking has strengthened the group's position within the village economic value chain.

This transformation demonstrates that a targeted and sustainable approach to local economic empowerment can drive economic self-reliance and consistently increase household incomes. These findings are consistent with the Ministry of Villages, Development of Disadvantaged Regions, and Transmigration (2020), which emphasized that the utilization of local resources through village-based economic development programs has proven effective in reducing economic disparities, creating jobs, and strengthening rural household economic structures.

The *Madu Biene* Beekeeping Program showed significant economic impacts over the period 2021–2025. In 2021, revenue from product diversification reached IDR 147,336,000. After adjusting for attribution (12.5%) due to collaboration with BUMDes, the net benefit was IDR 128,919,000. Market expansion also provided direct benefits to 76 individuals, valued at IDR 3,610,000. In 2022, member income increased by 39%, resulting in economic value of IDR 110,880,000. Diversification of packaged products also improved profit margins by IDR 45,000,000. In 2023, cost-efficiency was achieved through the saving of 17 units of *glodok* (bee boxes) worth IDR 17,000,000, and net group income after accounting for a 5% deadweight amounted to IDR 105,802,488.

In 2024, increased production capacity generated income of IDR 99,540,000, with cost savings from the procurement of 30 additional *glodok* units valued at IDR 45,000,000. For 2025, projections estimate production turnover to reach IDR 252,000,000, with group members earning IDR 122,400,000, and cost-efficiency from equipment procurement reaching IDR 65,000,000. Overall, this program has successfully improved income levels, cost-efficiency, and business stability for group members, while strengthening the local economy in a sustainable manner.



Figure.2 Average Income of Biene Honey Group Member per Year 2021-2025

The evaluation results indicate that the total economic benefit received by members of the Kelompok Madu Biene over the 2021–2025 period reached IDR 995,151,488. This achievement is reflected in the upward trend of members' income year by year. The average monthly income per member increased from IDR 2,116,666 in 2021 to IDR 3,500,000 in 2025, consistently exceeding the Bengkalis Regency Minimum Wage (UMK). Although annual turnover showed fluctuations, product diversification strategies and improvements in packaging quality led to higher profit margins.

The economic impact on the group demonstrates increased resilience and business professionalism, despite a nominal decline in income from IDR 152,400,000 in 2021 to IDR 99,540,000 in 2024. This decline does not indicate a loss but is rather a result of adaptive strategies emphasizing operational efficiency and resource optimization. Initial investments in production equipment, training, and strengthening distribution networks continue to yield sustainable benefits and have not depreciated significantly in value.

Through strategic approaches such as product diversification, packaging quality enhancement, branding development, and broader market penetration, the group successfully increased profit margins despite reduced turnover. These strategies added value to each marketed product unit and enhanced competitiveness in both local and regional markets.

Overall, the enterprise remains sustainable, with net income consistently above the minimum wage standard and making tangible contributions to improving members' welfare. This approach reflects a shift from a volume-based business model to a value-based one, which is more resilient to market fluctuations and geared toward long-term growth.

Field observations revealed that five out of six core members have made beekeeping their primary occupation. This shift has also strengthened the local economic chain, with product distribution and partnerships expanding to 12 partner groups across the Bandar Laksamana sub-district. One member stated, "We used to sell honey in 1-liter bottles with small profits. Since we learned to use small packaging, the profit per kilogram increased, and customers trust the quality more."

Based on interviews, observations, and program document reviews, it can be concluded that the honey beekeeping program has successfully transformed the community's income structure from an unproductive forest-based economy to a more stable and sustainable value-added enterprise. This aligns with the findings of Alkire et al. (2017), who emphasize the importance of a multidimensional approach to poverty alleviation through sustainable income generation and improved quality of life. Moreover, Matoati et al. (2023), in their study on SROI in CSR programs, also found that local potential-based interventions such as MSME development can improve productivity, value-added, and efficiency. In comparison, this study strengthens their conclusions by demonstrating economic impacts not only in terms of income growth, but also in cost efficiency and market expansion. These findings are also supported by literature stating that strengthening local production capacity and integrating products into market systems enhances community economic resilience (Purnamawati et al., 2021).

3.2 Social Impact on the Biene Honey Group

The social impact of the Peatland Honey Farming Program on the Biene Honey Group is evident not only in the increased

production capacity, but also in the transformation of the group's social structure, inter-community relations, and their role as a learning hub and driver of conservation-based village development.

In 2021, the Biene Honey Group began to take on a strategic role as an advisor and facilitator for environmentally friendly peat honey farming and harvesting practices for 12 other groups across Bandar Laksamana District, involving a total of 90 members. This role not only increased social trust toward the group but also created stronger inter-village community networks. One tangible outcome of this collaboration was the establishment of a cooperation agreement (PKS) between the Biene Honey Group and BUMDes Mekar Jaya for honey product sales. This demonstrates the group's emergence as a socially recognized actor in cross-institutional village economic governance.

By 2022, the group had transformed into the central hub for cultivated honey sales in the district. In addition to selling their own products, Biene began marketing honey harvested by other non-core members, still under the "Biene" brand name, which symbolizes quality and environmentally friendly standards. This elevated the group's role as a social and economic aggregator in the local commodity-based microenterprise ecosystem, reflecting a collective trust from surrounding communities in the group's integrity and management.

In 2023, the program evolved into the development of a honey farming educational tourism (edutourism) center. This site has been used for field learning and not only improves environmental literacy but also strengthens social cohesion within the group through community-led activities, such as building shelters, organizing the site, and conducting guided educational tours. These activities fostered internal solidarity as members actively participated in the shared development of a destination, not just as honey producers, but also as facilitators of environmental education.

In 2024, the edutourism function expanded and was more widely utilized by the surrounding community, not limited to formal education programs. The group provided peatland conservation training through beekeeping practices to local communities, including youth and farmer groups. This role demonstrates that the Biene Honey Group has moved beyond an economic function, evolving into a community-based social development actor with an inclusive ecological conservation focus.

Using a logic model-based evaluative approach, all stages of this social impact can be traced back to a logical chain from initial program inputs (training, tools, mentoring), honey farming activities and social engagement, to outputs such as products and networks, and eventually to outcomes such as strengthened social and institutional capacity. From a logical framework perspective, social impact indicators are visible in strengthened inter-village relationships, involvement in environmental education, and the emergence of the group as a node for local economic distribution.

From a counterfactual perspective, without this program, the likelihood of the Biene Honey Group occupying a strategic social position at the district level would have been minimal. The group would likely have remained closed, with limited production scale, no inter-village networks, no public trust, and no meaningful contribution to participatory peatland conservation. Thus, the program's intervention not only strengthened the group's social structure but successfully transformed its role from a beneficiary into a center of

knowledge, production, and cross-sector collaboration in environmentally-based development.

Between 2021 and 2025, the Biene Honey Farming Program generated significant social impacts on both the core group and surrounding communities. These impacts are reflected in the increased economic capacity of members, community empowerment through knowledge transfer, operational efficiency, and expanded access to public facilities. The largest social benefit came from increased income for the six core group members, totaling IDR 144,770,955 after adjusting for a 5% deadweight factor. Additionally, surrounding communities benefited from training and mentoring provided to 20 individuals and 12 other groups, with an estimated value of IDR 79,200,000. Operational cost efficiency from using the internal workshop contributed IDR 9,540,000. In terms of market network strengthening, the group facilitated sales of products from 90 external members, generating a profit margin of IDR 9,504,000 after adjusting for a 12% attribution factor. Ongoing education activities also increased environmental awareness among 91 individuals, with a benefit value of IDR 10,920,000. Finally, improvements to public facilities used by 97 individuals contributed to visitor comfort and safety, with an estimated benefit of IDR 69,840,000.

In total, conservation activities through beekeeping generated combined social and environmental benefits valued at IDR 323,774,955 over the course of the program. These results indicate a strong contribution to both social resilience and environmental stewardship. The findings align with the theory of social innovation as described by Strasser, de Kraker, & Kemp (2022), which emphasizes that cross-actor collaboration within communities is essential for building transformative capacity. Similar outcomes were found in the CSR study of Bank Indonesia by Ilianti et al. (2024), which showed that programs delegating greater control to communities were more successful in fostering trust and social cohesion. This study presents a concrete application of these theories, highlighting the strategic role of Kelompok Madu Biene in distribution, mentoring, and education.

3.3 Environmental Impact on the Biene Honey Group

The qualitative evaluation of the Biene Honey Beekeeping Program demonstrates that its environmental impact—rooted in conservation-based honeybee cultivation—is both tangible and sustainable. These findings were obtained through triangulation of interview data, field observations, and document reviews, and were analyzed using a logic model and logical framework analysis. This comprehensive approach illustrates the relationship between program inputs, activities, outputs, outcomes, and long-term impacts.

In 2021, environmental contributions began to emerge through the role of *Apis mellifera* bees cultivated by the Biene Honey Group, which accelerated natural pollination processes in surrounding acacia plantations. Although this was not initially designed as a conservation activity, its ecological effects were significant—supporting plant regeneration, enriching local biodiversity, and sustaining the life cycle of fragile peatland vegetation. Pollination by bees is widely recognized as a key ecological process, particularly within monoculture landscapes such as industrial timber forests (Yuliasari, 2020).

In 2022, the program expanded to include socio-ecological functions, with Biene Group members becoming actively involved in monitoring and safeguarding 67 hectares of peat forest in Bandar Laksamana Subdistrict—an area prone to wildfires during the dry season. The group functioned as a

community-based monitoring system, which indirectly reduced fire risk. Community involvement in environmental protection has proven to be both effective and efficient, relying on spatial proximity, local knowledge, and a sense of ownership over natural resources (Ramadhan et al., 2022; Sari & Yustina, 2021).

By 2023, involvement extended beyond the core group members, as surrounding residents began adopting honeybee farming practices, thereby expanding the network of collective monitoring and strengthening conservation literacy. This demonstrated that local economic development through beekeeping is systematically connected to social and ecological resilience. According to Maulana and Rachmat (2023), community participation in environmentally based economic activities enhances conservation effectiveness by providing direct, tangible incentives to local people.

In 2024, Biene Honey Group consistently maintained its role as peatland stewards through continued beekeeping activities. Beekeeping served as both an economic engine and an ecological protection mechanism, shielding the 67-hectare forest from fire risks. With frequent visits, location monitoring, and routine member activities around the peatland area, the site remained informally but intensively monitored. These actions fall under the *conservation-by-use* category, where sustainable use and conservation occur simultaneously (Arifin & Nurhasanah, 2022).

Overall, the evaluation confirms that honeybee cultivation provides not only economic but also strong and measurable environmental benefits. Through community-based conservation and sustainable land use, the program has successfully maintained ecological stability in the peat forest for four consecutive years. A counterfactual analysis suggests that, without this program and the group's consistent presence, the likelihood of fires and land degradation would have been significantly higher. Unutilized peatlands are more vulnerable to illegal burning or unauthorized clearing, as highlighted in forestry policy studies emphasizing the importance of community-based land use to reduce fire risk (Wahyuni & Permadi, 2021).

The implementation of conservation was made possible by the active role of group members in ecosystem preservation through direct, impactful actions. Six members contributed to natural pollination of acacia plants by *Apis mellifera*, directly reducing the cost of bee feed—estimated at IDR 10,800,000 per year (6 members × IDR 150,000 × 12 months). Additionally, the creation of the *Taman Bunga Santos* flower garden, serving as both a bee feed source and educational tourism site, provided an equivalent ecological benefit of IDR 10,800,000 per year.

The group also played an active role in monitoring and protecting the 67-hectare peatland area in Bandar Laksamana, helping reduce forest fire risks and air pollution. This aligns with Maulana & Rachmat (2023), who found that conservation initiatives with economic incentives foster effective ecological monitoring systems. The environmental economic benefit from this activity is valued at IDR 67,000,000, after adjusting for a 7% contribution from surrounding community efforts (67 hectares × IDR 1,000,000 – 7%). Furthermore, reorganization of the cultivation area and the addition of flower plants led to bee feed cost efficiencies of IDR 10,260,000 per year, after a 5% deadweight adjustment (6 members × IDR 150,000 × 12 months – 5%).

In total, the social investment value generated from environmental impacts during the 2021–2025 period amounted to IDR 94,170,000. This value represents the economic savings from avoided ecological damage, forest fire losses,

and related social costs. It reflects the program's significant contribution to strengthening social-ecological systems in peatland communities and demonstrates how environment-based social investments can create shared value that balances both economic and conservation objectives.

These findings reinforce the conclusions of Pérez-Cirera et al. (2017), who emphasized that integrating environmental conservation with local economic empowerment is the most effective approach in vulnerable communities. Similarly, the study by Suarta et al. (2022), which analyzed Pertamina's CSR program for sea turtle conservation on Serangan Island, revealed that community involvement in conservation through educational approaches can produce significant ecological impacts. This aligns with the practices of the Biene Honey Group, which not only safeguards peatland areas but also builds environmental awareness through ecotourism and training programs.

In line with the Indonesian Minister of Environment and Forestry Regulation No. P.84/MENLHK/SETJEN/KUM.1/10/2016 on Conservation Partnerships, these activities can be classified as community-based conservation initiatives that support the dual functions of conservation areas and the social livelihood of forest-adjacent communities. Thus, the program serves as a model of integration between conservation and sustainable livelihoods.

3.4 Welfare Impact on the Biene Honey Group

The program's innovation through the development of honey-based ecotourism has become a unique attraction for both local communities and visitors. Facilities such as the Education Hut (*Saung Edukasi*) and Bee Garden (*Taman Lebah*) were established as public interaction spaces, offering learning opportunities about bees, the environment, and honey production processes. These activities also serve as promotional platforms for honey products and conservation education for visitors.

The increasing number of visitors to the ecotourism site has generated additional economic benefits, not only for the group but also for local entrepreneurs such as food vendors, artisans, and providers of local transportation services. A study by Kurniawan and Yustriawan (2023) on the “Tamu Sarah” program highlighted that honey-based social investment holds strategic value in supporting community welfare through ESG-integrated approaches. This initiative has expanded rural employment opportunities and diversified sources of income.

According to Herlina and Astuti (2024), locally integrated ecotourism has proven effective in increasing village income, strengthening local identity, and providing meaningful educational experiences for tourists. Moreover, ecotourism offers a learning platform for the younger generation to understand the importance of conservation and nature-based entrepreneurship.

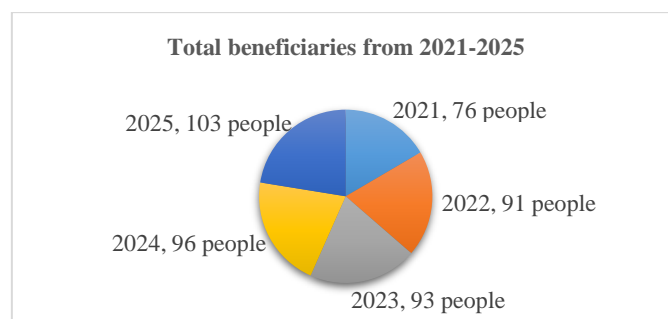


Figure.3 Total beneficiaries of the Biene Honey beekeeping

The Biene Honey Cultivation Program, implemented as part of the corporate social responsibility (CSR) initiative of PT KPI RU II Sungai Pakning since 2021, has shown significant progress in improving community welfare. Quantitatively, the number of beneficiaries increased gradually from 76 people in 2021 to 91 in 2022, 93 in 2023, 96 in 2024, and reached 103 in 2025. This increase not only demonstrates the expansion of the program's scale but also reflects a wider outreach of welfare impacts, both for direct beneficiaries and surrounding communities.

From a qualitative evaluative perspective based on the logic model framework (W.K. Kellogg Foundation, 2004), the program's outcomes can be traced through logical connections between inputs (training, beekeeping equipment, mentoring), activities (beekeeping, honey production, product development), outputs (volume of honey, number of products, member engagement), and long-term impacts (increased household income, local enterprise capacity, and environmental sustainability). The program has enhanced community economic resilience, particularly for vulnerable groups previously dependent on informal or seasonal work. Furthermore, some beneficiaries have independently developed bee-based businesses, including propolis and beeswax production, as well as initiating local ecotourism education.

The program's impact also extended beyond the core group, generating a multiplier effect for the broader community. Non-group members benefited through involvement in activities such as providing bee forage land, packaging, local distribution, and participating in training and promotional events. These interactions strengthened social networks and cultivated a more inclusive social entrepreneurship ecosystem. Previous studies have shown that economic empowerment interventions, such as in the beekeeping sector, can significantly improve collective welfare (Zolnowski et al., 2020).

To understand the program's strategic value, a counterfactual approach is essential: what would the community's condition be without this program? Based on field analysis and beneficiary narratives, prior to the program, most residents lived in subsistence conditions with few sustainable income alternatives. Some individuals were categorized as under-employed, reliant on conventional agriculture prone to climate and market fluctuations. Without the program, the area would likely have faced economic stagnation, increased urban migration, and low community productivity.

This situation aligns with the findings of Valentinov et al. (2019), which suggest that the absence of empowerment interventions in vulnerable communities tends to exacerbate economic and social vulnerabilities. In addition, Alkire et al. (2015) emphasized that programs integrating multidimensional approaches to poverty reduction are more likely to achieve sustainable welfare transformation.

From a policy perspective, the Biene Honey Cultivation Program also contributes to achieving several Sustainable Development Goals (SDGs), particularly Goal 1 (No Poverty), Goal 8 (Decent Work and Economic Growth), and Goal 15 (Life on Land). This program exemplifies a best-practice model of CSR implementation that is not merely philanthropic but transformative—producing structural changes in local production, distribution, and consumption patterns (Luo & Bhattacharya, 2006). This aligns with green economy and regenerative economy approaches that emphasize the balance between economic growth and environmental sustainability (Gibson, 2020).

Between 2021 and 2025, the program contributed to local economic growth by generating an additional income of IDR 45,600,000 per year for 20 beneficiaries, adjusted for a 5% deadweight factor. This reflects improved community welfare through the creation of sustainable economic opportunities.

Thus, the qualitative evaluation of the Biene Honey Cultivation Program indicates that the initiative not only provides direct economic benefits to its members but also facilitates broader social transformation. By strengthening local capacity and enhancing the economic competitiveness of the community, the program has made a tangible contribution to inclusive and sustainable development in its intervention area.

The study by Wang & Bian (2022) asserts that CSR integrated with environmental and social sustainability has a stronger impact on CSR program effectiveness. This research aligns with those findings by demonstrating that training, conservation, and local collaboration serve as core adaptive strategies for program success. Moreover, Yasir et al. (2023) found that effective CSR communication, particularly in disaster and environmental contexts such as forest fires, can foster collective community awareness—mirroring the growing social role of the Biene Honey Group in peatland protection and wildfire risk mitigation.

To illustrate the program's annual progress, the following chart presents the value of social investment benefits achieved each year from 2021 to 2025. This graph provides a visual overview of the program's impact trajectory resulting from its annual interventions.

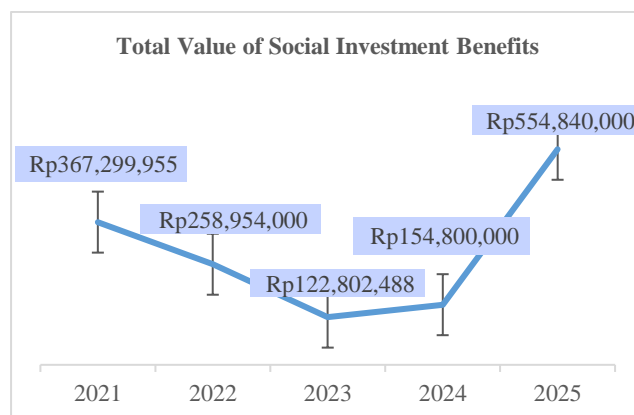


Figure.4 Total Value of Social Investment Benefits of the Biene Honey Cultivation Program 2021-2025

Although there were nominal fluctuations in the social return generated by the Peatland Honey Cultivation Program by the Biene Honey Group from 2021 to 2025—amounting to IDR 367,299,955 in 2021, IDR 258,954,000 in 2022, IDR 122,802,488 in 2023, IDR 154,800,000 in 2024, and reaching a projected IDR 554,840,000 in 2025—this annual variation should not be interpreted as a decline in the program's effectiveness. When examined proportionally against the investment allocated each year, the achieved impact consistently exceeds the input value, indicating that the program has remained effective in generating positive economic, social, environmental, and welfare outcomes for the Biene Honey Group and its surrounding communities.

The lower social value in the earlier years reflects the program's strategic focus on foundational capacity-building, including technical training, institutional formation, provision of beekeeping tools, and development of supporting infrastructure. These initial stages were designed as a long-term investment that enabled the significant spike in value observed in 2025, driven by the establishment of a production house, expansion of beekeeping capacity, increased bee colonies, product diversification, and integration with ecotourism and digital marketing initiatives. This comprehensive development strategy significantly broadened the scope of benefits and strengthened the group's competitiveness.

The counterfactual evaluation approach further emphasizes the importance of this social intervention. In the absence of the program, local honey farmers would have remained dependent on inefficient, unsustainable, and environmentally risky traditional methods. Without access to training and technology, their production, distribution, and marketing capacities would remain limited, restricting income growth and hindering the formation of collective institutions that are critical for supporting a sustainable local economy.

Moreover, without this initiative, there would be no established mechanism for community-based environmental protection. The collective honey cultivation area currently contributes to the conservation of over 60 hectares of peatland forest, functioning as an integrated conservation and livelihood zone. The program has successfully encouraged community members to become active stewards of the environment—transitioning from passive beneficiaries to strategic agents of ecosystem preservation.

Considering the program's implementation by PT KPI RU II Sungai Pakning in Tanjung Leban Village from 2021–2025, it is evident that the intervention has generated significant and sustainable community impacts. Overall, the logic model and counterfactual evaluation confirm that the program has created shared value between the company and the local community. Notably, in a village where agricultural labor dominates and typically stagnates in terms of income and sustainability, the program has opened alternative economic pathways that are more profitable, locally grounded, and environmentally sound.

The findings from this evaluation contribute meaningfully to the advancement of public policy and social program evaluation discourse, especially in the context of community-based corporate social investment (CSR). They enrich the academic conversation on sustainable development integration in regional planning and demonstrate how participatory and ecology-based CSR policies can enhance the socio-ecological resilience of communities. Furthermore, this model can serve as a reference for future studies in sustainable development, local institutional strengthening, and evidence-based policymaking in coastal and ecological buffer zones. As such, the program represents a contextual, participatory, and sustainability-oriented model of effective social investment.

CONCLUSION

This study aims to assess the extent to which the social investment program implemented by PT KPI RU II Sungai Pakning has generated tangible and sustainable value for honey farming communities in Tanjung Leban Village. The evaluation results indicate that the program has significantly contributed to transformative changes across social, economic, environmental, and institutional dimensions.

The findings underscore that a local potential-based empowerment approach—when designed through a logic model framework and supported by active community participation—can serve as a strategic instrument to reduce socio-economic vulnerability and enhance community resilience. This program addresses not only economic needs but also strengthens institutional capacity and fosters inclusive ecological awareness.

Despite offering a comprehensive understanding of the program's impact, this study is limited by the geographic scope of observation and the scale of actor involvement. Future research may focus on measuring the long-term, inter-generational impacts and conducting comparative analyses with other intervention areas.

The program demonstrates that community-based social investment, when strategically planned and adaptively implemented, can create shared value between corporations and local communities. This approach is worthy of replication in other regions, with context-sensitive adaptations and stronger multi-stakeholder collaboration, as a viable pathway toward sustainable village-level development.

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