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Analysis of the impact of the community development program of PT Pertamina Patra Niaga integrated Terminal Pangkalbalam on local community empowerment

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ABSTRACT

This study discusses the implementation of the PELIKAS Program (Utilization of Organic Waste for Social Independence) as a form of Corporate Social Responsibility (CSR) for PT Pertamina Patra Niaga Integrated Terminal Pangkalbalam in Bukit Besar Village, Pangkalpinang City. The background of this program is the increasing volume of household organic waste, the limited capacity of the Final Disposal Site (TPA), and the high unemployment rate of the community. Through a community development approach, this program integrates organic waste management with community economic empowerment, especially farmer women groups (KWT), through the cultivation of Black Soldier Flies (BSF) or maggot larvae. The research uses a descriptive qualitative method with interview, observation, and documentation techniques. The results of the study show that the PELIKAS program has a positive impact on three main aspects: (1) the environment, by reducing the volume of organic waste and increasing soil fertility with kasgot; (2) social, through increasing community participation and solidarity, as well as the distribution of crops to vulnerable groups; and (3) the economy, by increasing the income of KWT members and developing products with selling value such as organic fertilizers and processed foods. However, challenges remain in terms of institutional and financial sustainability. The conclusion of this study confirms that PELIKAS is a CSR model based on community empowerment that is effective and can be replicated in other regions to support the achievement of Sustainable Development Goals (SDGs) related to the environment, food security, and economic equality.

Keywords: CSR, community empowerment, waste management, sustainable development.

1. INTRODUCTION

Environmental and social issues in Bukit Besar Village, Pangkalpinang City, are among the main challenges in efforts to realize sustainable development in urban areas. According to data from the Pangkalpinang City Environment Agency (DLH) (2024), waste generation in the area will increase by 2.25% per year and reach 1,508.98 tons in 2024. This indicates that the existing waste management system has not been able to effectively suppress waste growth. The increase in the amount of waste has a direct impact on the limited capacity of the Final Disposal Site (TPA), which, if not addressed immediately, can worsen the quality of the environment and health of the surrounding community.

In addition to environmental issues, social issues are important interrelated issues. Based on data from the Central Statistics Agency (BPS) of Pangkalpinang City (2024), there are 1,432 residents in Bukit Besar Village classified as unemployed. This condition has implications for increasing poverty rates, declining welfare levels, and limited community participation in developmental activities. However, the region also experiences seasonal drought for two to three months every year, which leads to limited access to clean water. The lack of availability of clean water not only impacts basic household needs, but also hinders sanitation efforts and sustainable organic waste management.

This emphasizes the need for a holistic and integrative approach that can simultaneously combine environmental, social, and economic solutions. In response to this, PT Pertamina Patra Niaga Integrated Terminal Pangkalbalam initiated the PELIKAS Program (Environmental Driver of Waste Management) through the corporate social responsibility (CSR) program and formed the Sahabat Farm group in Bukit Besar Village. This program is a form of community development-based empowerment that focuses on organic waste management using bioconversion technology through Black Soldier Fly (BSF) or maggot cultivation. The use of maggot not only reduces the volume of waste but also produces products of economic value, such as organic fertilizers, kasgot, and animal feed.

Through the implementation of the PELIKAS programme, the community is actively involved in every stage of environmental management. This initiative is expected to be able to form sustainable ecological behavior, strengthen household economic independence, and support the achievement of sustainable development goals, especially in terms of poverty alleviation, food security, and equitable environmental management.

2. METHOD

This study uses a qualitative approach with a descriptive method that aims to understand in depth the implementation of the Environmental Driver of Waste Management (PELIKAS) Program as part of the Corporate Social Responsibility (CSR) activities of PT Pertamina Patra Niaga Integrated Terminal Pangkalbalam in Bukit Besar Village, Pangkalpinang City. The main focus of this study was to analyze community empowerment through Black Soldier Fly (BSF) maggot cultivation and its impact on social, economic, and environmental aspects. The purpose of this study is to formulate strategic recommendations for strengthening sustainable community-based programs.

Data were collected through in-depth interviews, participatory observations, and documentation. Interviews were conducted with key informants such as the founder of Sahabat Farm, the chairperson and members of the Farmer Women Group (KWT), representatives of PT Pertamina, and the Pangkalpinang City Environment Agency. Participatory observations were used to obtain a factual picture of organic waste management activities, maggot cultivation processes, and social interactions among group members. Documentation is carried out by collecting secondary data in the form of reports, photos of activities, and relevant publications. Data analysis was carried out using the Miles and Huberman model, which includes four stages: data collection, data reduction, data presentation, and conclusion drawn. Through this stage, the researcher sought to identify patterns of findings related to program effectiveness, community participation, and sustainability impacts. The validity of the data was maintained through the source triangulation technique, which involves comparing information from various parties involved to ensure the consistency and reliability of the research results.

This qualitative approach was chosen because it provides flexibility in understanding the social context and local dynamics of the people of Bukit Besar Village. In addition, this method allows researchers to explore the meaning of community participation in CSR programs and to identify the factors that affect the success of program implementation. The results of the analysis are then used as a basis for formulating practical recommendations for institutional strengthening, community capacity development, and sustainability of circular economy-based programs. Thus, this research not only makes an academic contribution to the study of CSR and community empowerment but also offers practical guidance for companies and local governments in developing integrated waste management models oriented towards the independence and welfare of local communities.

3. RESULT AND DISCUSSION

3.1 The Impact of PT Pertamina Patra Niaga Integrated Terminal Pangkalbalam Community Development Program: Organic Waste Management by Sahabat Farm

The problem of organic waste management in urban areas is becoming an increasingly urgent issue. In Pangkalpinang City, especially in Bukit Besar Village, the volume of household waste increases with population growth and changes in consumption patterns. Most of this waste is organic and has the potential to be processed into resources of economic value.

As part of its commitment to Environmental, Social, and Governance (ESG) principles, PT Pertamina Patra Niaga Integrated Terminal Pangkalbalam launched the Utilization of Organic Waste for Social Independence (PELIKAS) Program in 2021. This program is a form of corporate social responsibility (CSR) that focuses on circular economy-based organic waste management through women's empowerment, especially members of the Women Farmers Group (KWT**)** in Bukit Besar Village.

The PELIKAS program adopts a community development approach oriented towards community independence through the cultivation of Black Soldier Fly (BSF) or maggot larvae. Through the bioconversion process, organic waste is converted into kasgot (maggot manure) and mature maggot, which has economic value as animal feed and organic fertilizer.

3.1.1 CSR Program Profile of PT Pertamina Patra Niaga *Integrated* Terminal Pangkalbalam.

The PELIKAS program was initiated by PT Pertamina Patra Niaga Integrated Terminal Pangkalbalam in collaboration with Bank Indonesia and local environmental partners in 2021. This program was conducted in Bukit Besar Village, Girimaya District, Pangkalpinang City. The main focus of the program is the management of household organic waste through maggot cultivation, the use of kasgot as fertilizer, and the development of organic-based urban agriculture. This program is also directed to strengthen women's economic independence through the Women Farmers Group (KWT). By 2025, the number of KWT members will increase from 29 to 33, indicating the growth of public participation and interest.

3.1.2 Production and Environmental Aspects

KWT Bukit Besar has utilized approximately 100 kg of kasgot per month as organic fertilizer. Kasgot has been proven to have a high nutrient content, especially protein, and is therefore very effective in improving soil structure and increasing plant fertility.

In addition, KWT has also started to use the wastewater of the maggot process (leachate) as a liquid fertilizer, which is being tested in the Girimaya area and has been applied to three households.

The resulting environmental impacts include (1) reducing the volume of household organic waste in the Bukit Besar area, (2) the use of waste into products with useful value, and (3) increasing public awareness of waste management based on the circular economy.

3.1.3 Social Aspects and Empowerment

The KWT plays an important social role in improving the welfare of the surrounding community. Cultivated vegetables, such as pakcoy, lettuce, chili, kale, and eggplant, are not only sold but also distributed to children with stunting, the elderly, and the underprivileged on a rotating basis. Since September 2025, KWT has also run a program to distribute nutritious vegetables to toddlers at Posyandu Dahlia, which is a tangible form of social contribution to public health issues.

3.1.4 Economic Aspects

From an economic perspective, the PELIKAS program increases KWT income by around Rp 780,000 per month from the sale of vegetables (around 20 kg of vegetables at a price of Rp 10,000 per ounce). KWT's flagship products are Brazilian spinach chips and pakcoy chips, which are sold for Rp 20,000 per 100 g and have obtained BPOM permits. This product is always sold and has great potential to be developed into retail and online markets.

3.1.5 Institutional Aspects

The KWT Bukit Besar shows an increase in organizational capacity, especially in production management, finance, and marketing. Support from Pertamina and Bank Indonesia strengthens technical assistance, training, and business management. However, from an institutional perspective, it is still necessary to establish a formal structure with a legal entity (a cooperative/joint venture group). The financial recording system is simple, but accountable. Strengthening marketing networks among KWTs in the Bangka Belitung area.

3.1.6 Program Novelty Analysis

The novelty of the PELIKAS programme lies in its integrated approach to environmental, social, and economic aspects**.** This innovation changed society's paradigm from "waste as a burden" to "waste as a source of added value."

Some aspects of novelty include (1) Appropriate Technological Innovation: The use of black soldier fly *(BSF) larvae* to process organic waste into maggot and kasgot (organic fertilizer); (2) Community-Based Circular Economy: Household waste is used as a raw material for production with high selling value, creating a sustainable production cycle; (3) Empowerment of Vulnerable Groups: Involving housewives and youth as the main actors, so that it has a direct impact on increasing the social and economic capacity of the community; and (4) Collaborative Approach: Combining corporate support (Pertamina) with the active participation of the community and local government.

3.1.7 Core Elements *of Corporate* Competency

As an energy SOE, Pertamina has core competencies in resource management, technology, and sustainable logistics. This competency is applied in the PELIKAS program through: (1) efficient operational management: a systematic approach to planning, monitoring, and evaluating program impact; (2) utilization of green technology: the use of maggot bioconversion as a science-based solution for waste treatment; (3) networking and collaboration capacity: the ability to collaborate with local governments and research institutions to increase community capacity; and (4) replication of the sustainability model: Pertamina has the capacity to expand the PELIKAS model to other operational areas.

3.1.8 Social Impact Analysis

Socially, the PELIKAS program has a positive impact on increasing community participation and improving the social status of fostered groups. The social impact can be observed in several indicators in Table 1.

Table 1. Social Impact Analysis

Social Aspects	Pre-Program Conditions	Conditions After the Program	Absolute Impact
Community participation	Low, there are no waste processing activities	Formed an active waste management group (KSM Pelikas)	+1 active group (10–20 members)
Gender engagement	Passive women in environmental activities	Housewives become waste management and trainers	+70% of active members are female
HR Capacity	Not yet skilled in maggot and fertilizer processing	Mastering BSF techniques, fertilizer manufacturing and eco enzymes	+3 Technical and Entrepreneurship Training
Social status of the community	Aid recipients only	Become a CSR partner and waste management pilot	Improvement of local social status

The program succeeded in increasing *the social capital* of the community through collaboration, collective learning, and a sense of belonging. In terms of empowerment, the community is not only a beneficiary, but also a new economic actor in the environmental sector.

3.1.9 Economic Impact Analysis

The economic impact is measured through increased group income and the creation of new business opportunities. Based on field data: (1) sales turnover of derivative products: ± IDR 64,800,000 per year; (2) number of active members: estimated four people; (3) average member income (estimated): if four members are active: ± IDR 16,200,000 per year (IDR 1,350,000/month).

In addition to direct income, this activity also produces a multiplier effect because: (1) reducing the cost of transporting waste to landfills; (2) providing organic fertilizers for local agricultural activities is used by KWT; and (3) increasing the selling value of agricultural products that use kasgot.

Each member receives an additional income of approximately IDR 1,350,000/month, which is quite significant for local community groups (e.g., housewives, farmers, or MSME actors). This income directly contributes to improvements in household welfare. If the entire turnover of Rp 64.8 million/year is sourced from the sale of local products (for example, processed waste, agriculture, or environmentally friendly products); then, the money revolves at the community level. With a *multiplier effect* of 1.5–2, the real economic value in society reaches 64.800.000 X 1.5 = 97.200.000 s. d. 129.600.000. This means that PELIKAS activities can drive the local economy to almost Rp 100-130 million per year. With four members generating a turnover of IDR 64.8 million, productivity per person is IDR 16.2 million per year. When compared to the regional UMR (for example, IDR 3 million/month = IDR 36 million/year), PERIKAS's contribution is still approximately 45% of the formal income standard, but it is still of high value for the community empowerment sector. The PELIKAS program shows: (1) Reduced economic dependence on external aid, as members have a sustainable source of income; (2) Capacity building of local entrepreneurship, with production, marketing, and financial management practices; (3) Triggering the growth of the microeconomic ecosystem — members can be role models for the surrounding community to develop similar businesses (see Table 2)

Table 2. Aspect, Value, and Interpretation

Aspects	Value	Interpretation
Revenue per member	IDR 16,2 million/year	Micro-scale, but productive
Revenue per month	IDR 1,35 million	Significant addition to the household economy
Economic multiplier effect	IDR 97–130 million	Indirect impact on society
Productivity per workforce	45% UMR	Growth potential if expanded to more members

3.1.10 Environmental Impact Analysis (Absolute)

Environmental impact is calculated based on the amount of organic waste that is successfully diverted from landfills and the potential greenhouse gas (GHG) emissions that are avoided.

- Processed organic waste: 9,000 Kg/month = 108 Tons/year

According to IPCC (Intergovernmental Panel on Climate Change) data,

- 1 ton of organic waste decomposing in landfills generates ± 0.25 tons of CH_4/ton of waste**.**
- With GWP (Global Warming Potential) methane = 28 × CO_2**,** then $0{,}25$ ton $CH_4 \times 28 = 7$ ton CO_2e per ton sampah.

However, because not all landfill conditions produce perfect methane, a conservative range of 2–4 tons of CO_2e/ton**.** With absolute calculation, 108 tons of organic waste X 2-4 tons CO_{2e}/ton = 216-432 ton CO_{2e}/year. Absolute impact: The PELIKAS program prevents emissions of 216–432 tons of CO_2e per year, equivalent to emissions from 95 to 190 motor vehicles per year, or carbon sequestration by 3,500–7,000 trees. Then, see Table 3 below

Table 3. Environmental Impact Analysis

Aspects	Absolute Value	Impact Indicators
Processed waste	108 tons/year	Reducing the volume of waste in landfills
GHG emissions avoided	216–432 tons CO_2e/year	Suppressing methane emissions
Compost is produced	±59 tons/year	Improves soil fertility
Substitute chemical fertilizers	9–12 tons/year	Reduces synthetic chemical inputs
Landfill management efficiency	±9 tons/month less	Extending the life of the landfill
Ecosystem impact	Increased soil microbial biodiversity	Supporting the ecological cycle

Although the scale of emission reduction is not large in absolute terms, this program has a high demonstrative value. Using an educational and sustainability approach, PELIKAS demonstrates a community-based carbon reduction model that can be replicated in other regions. Table 4 presents an absolute table of community empowerment programs by PT Pertamina Patra Niaga Integrated Terminal Pangkal Balam.

Table 4. of Absolute Results of the Community Empowerment Program of PT Pertamina Patra Niaga *Integrated Terminal* Pangkal Balam

Program	Indicators	Indicator Description	Unit	Absolute Results				
				2021	2022	2023	2024	2025
	Problem Milieu:	Volume of garbage						
	Environment: Management and	Organic Processed into	Kg	100	200	600	1500	**3000**
	Utilization	Maggot/Fertilizer						
PELIKAS (Environmental Driver Waste Management)	Garbage							
	Social Issues: Availability of Clean Water	Number of households benefiting from water Clean	CD	5	10	14	25	**50**

Eolivestock Program Bukit Besar Village, Girimaya District, Pangkalpinang City, Bangka Belitung Province Rp350,800,695, -	Number of Beneficiaries	The number of people involved in Sahabat Farm & KWT Kemuning	CD	7	10	13	20	**40**
	Total Revenue Increase	Increased per person's income every month	Rupiah per person per month	300.000	500.000	670.000	1.500.000	**2.969.167**
	Sum	Number of groups						
	New Institutions	New Builds That Join the	Group	1	1	1	2	**2**
	Formed	**Program**						

Based on the Absolute Table 4 of the Community Empowerment Program of PT Pertamina Patra Niaga Integrated Terminal Pangkal Balam, the programs that have been carried out are able to improve indicators such as environmental and social problems, increase the number of beneficiaries, increase income, and form new institutions due to the program. A summary of the success of the indicators is as follows.

3.2 PELIKAS Program (Environmental Driver of Waste Management)

First, the environmental problems that have been solved are Waste Management and Utilization, with the amount of decomposed waste reaching 3000 kg/day by 2025. Second, the social problem that was solved was the number of households that received clean water sources with a total of 50 households by 2025. Third, the number of beneficiaries of the PELIKAS program will be 40 families by 2025. Fourth, the increase in income due to the program is IDR 2,969,167/month in 2025. Fifth, there will be three new institutions formed is 3 in 2025.

3.2.1 Social Status Analysis and Program Sustainability

The social status of the group has increased, along with public trust and support from various parties. The PELIKAS group is often used as a research location by educational institutions and other communities. This shows an increase in social recognition and public trust in Pertamina's CSR programme. The sustainability factor of the program is supported by: (1) group economic independence (having regular income from maggot/fertilizer products); (2) technical skills of members in waste treatment and business management; and (3) Pertamina's institutional support as a long-term coaching partner.

From the results of the economic, social, and environmental analyses, it can be concluded that PELIKAS's CSR program has an absolute and significant impact on community empowerment and environmental emission reduction**,** although the operational scale is still limited.

First**,** the program created a turnover of IDR 64,800.00 million/year and opened up new business opportunities. Second, socially, the program succeeded in forming an independent, productive community group and an example for other communities. Third, PELIKAS has succeeded in preventing emissions of ~216-342 tons of CO_2e per year and in reducing waste piles by 9 tons per year.

With Pertamina's support, this program has great potential to be replicated as a community-based circular economy model that contributes to the Sustainable Development Goals (SDGs) targets, especially

SDG 8 (Decent Work and Economic Growth), SDG 12 (Sustainable Consumption and Production), and SDG 13 (Climate Change Management).

3.2.2 Program Impact Analysis

The program impact analysis results are presented in Table 5.

Table 5. Program Impact Analysis

Aspects	Positive Impact	Critical Notes
Economics	Increase in income for KWT members; The emergence of superior products with high selling value.	The scale of the effort is still limited; profit distribution is not evenly distributed.
Social	Strengthening social solidarity and concern for stunting and the elderly.	Dependence on CSR support is still high.
Milieu	Organic waste is reduced, the soil is more fertile, the microbial ecosystem is improved.	Further research is needed on the long-term quality of the kit.
Institutional	KWT is more solid and participatory; improved managerial skills.	There is no official legal entity yet; is not yet financially independent.

3.2.3 SWOT Analysis of PELIKAS Program

The program impact analysis can be seen in Table 6

Table 6. SWOT Analysis

Aspects	Description
Strengths	- Full support from PT Pertamina and Bank Indonesia. - Quality organic agricultural products with market value. - Active participation of KWT members (33 people). - Programs have a direct impact on social issues (stunting and poverty).
Weaknesses	- The scale of production is still small (100 kg of kasgot/month). - Financial management is not well documented. - Marketing is still local and not yet digital-based.
Opportunities	- The increasing trend of demand for organic products and biofertilizers. - Local government support for integrated waste management. - Potential for the development of derivative products (liquid fertilizers, dried maggots, packaged vegetable chips).
Threats	- Dependence on CSR assistance. - Fluctuations in the price of agricultural products. - Risk of decreased participation when external support is reduced.

Strength–Opportunity (SO) Strategy: Develop market networks and organic product branding with the support of Pertamina and BI. WO (Weakness–Opportunity) Strategy: Conducted business management and digital marketing training to expand sales. ST (Strength–Threat) Strategy: Strengthening the institutional capacity to continue operating independently despite reduced CSR support. Weakness–Threat (WT) Strategy: Diversify products such that the group's economic resilience increases against market fluctuations.

3.2.4 Critical Analysis: The Relationship of Program Outcomes to Theory

First, CSR as Shared Value. Based on Porter and Kramer's (2011) theory of Creating Shared Value (CSV), CSR not only aims to help society but also creates shared value between companies and communities. The PELIKAS program reflects CSV because it reduces the environmental burden (waste management = social efficiency), improves Pertamina's reputation as an ESG-oriented company, and provides direct economic benefits to KWT.

Second, empowerment and Social Transformation. According to Zimmerman's empowerment theory, three layers of empowerment occur in KELIKAS: Psychological empowerment: KWT members become more confident and innovative in managing maggots and businesses. Organizational empowerment: KWT can manage production, distribution, and marketing independently, even at a small

scale. Community empowerment: Social impact extends to the surrounding community through posyandu activities and the distribution of healthy vegetables.

The third is a bottom-up Development Paradigm. PELIKAS has successfully practiced a participatory development model (Chambers, 1997) in which society is not an object, but a subject of development. This shows an authentic community-based CSR approach, and not just a corporate image project.

3.2.5 Critical Analysis and Sustainability Issues

The PELIKAS program has proven to be functionally successful, but is not yet fully structurally sustainable. The real impact can be seen in increasing environmental awareness, member income, and social contributions to health issues. However, the sustainability of the program still depends on the role of facilitators (Pertamina and BI). Theoretically, the main challenge of CSR is to maintain sustainability after the company's support ends. Based on the Sustainable CSR Model (Visser, 2010), program sustainability must have four dimensions: responsibility, resilience, relationship, and results.

In the context of PELIKAS: (1) Responsibility has been fulfilled (environmentally friendly and socially impactful programs); (2) Resilience: still weak (KWT is not yet economically independent); (3) Relationship: strong (collaboration with BI and Posyandu); (4) Results: significant but not systematically measured.

3.2.6 Program Strengthening Recommendations

First, Institutional Strengthening: (1) encourage the establishment of the Bukit Besar KWT Cooperative so that legality and access to financing are stronger, and (2) create a simple digital-based financial administration and production recording system.

Second, Product and Market Diversification: (1) develop derivative products such as kasgot liquid fertilizer, dried maggot, and organic soap; and (2) utilize e-commerce and social media to expand the market for KWT's processed products.

Third, Technical Capacity Building: (1) continuing training in sustainable maggot farming (hygiene, gut quality, temperature, and humidity control); (2) hold training of trainers to produce independent local facilitators (ToT).

Fourth, Program Integration with Local Governments: (1) Synergize PELIKAS with the Climate Village (ProKlim) program and the Pangkalpinang City Waste Bank; (2) direct the program to become a model of replication in other villages.

Fifth, Continuous Monitoring & Evaluation (M&E): (1) Create measurable indicators: the volume of waste treated, economic value of the product, number of social beneficiaries, and level of member participation; (2) Annual evaluation with Pertamina's CSR team and the Regional Government.

3.2.7 Strategic Recommendations (based on CSR theory and practice)

Organizational empowerment can encourage the legalization of KWT into an environmental women's cooperative to access microfinance and expand business networks. For integration with shared-value CSR, Pertamina can make organic vegetables and vegetables part of the internal CSR supply chain (for example, for office catering or Pertamina's green activities). For the Capacity Building and Sustainability Plan, Conduct train-the-trainer-based advanced training to produce independent local cadres and Implement a Monitoring & Evaluation system based on CSR (economic, social, and ecological) indicators. For the digitalization of marketing and brands, use social media and marketplaces to market superior products such as Brazilian spinach chips and pakcoy under the brand "KWT GreenFarm Bukit Besar."

The PELIKAS CSR program by PT Pertamina Patra Niaga Integrated Terminal Pangkalbalam in Bukit Besar Village has shown significant success in the management of organic waste productively and environmentally friendly, empowering women through productive economic activities, contributing to

public health, and stunting alleviation. However, institutional strengthening, economic diversification, and sustainable monitoring systems are required to ensure long-term sustainability. With this strategic step, PELIKAS can become a leading national CSR model for community-based waste management and women's empowerment.

Pertamina's PELIKAS CSR program in Bukit Besar Village succeeded in demonstrating the real implementation of CSR theory and community empowerment. In terms of CSR theory (Carroll, 1991; Elkington, 1997; Porter & Kramer, 2011), this program meets the dimensions of people, planet, and profit, as well as realizes shared value (CSV) between the company and society. In terms of empowerment theory (Zimmerman, 1995), this program succeeded in building women's confidence, organizational capacity, and social solidarity at the community level. However, long-term sustainability still needs to be strengthened through formal institutions, product innovation, and impact-measurement systems. In Indonesia, PELIKAS has the potential to become a superior CSR model based on women's empowerment and organic waste management.

4. CONCLUSION

The PELIKAS program in Bukit Besar Village is a tangible form of community empowerment success in managing organic waste in an integrated manner through Black Soldier Fly (BSF) maggot cultivation. This program is not only a solution to environmental problems but also provides intertwined social, economic, and ecological impacts. From an environmental perspective, PELIKAS is effective in reducing household waste generation, increasing soil fertility through the use of kasgets, and supporting sustainable agriculture based on organic fertilizers. From a social perspective, the active involvement of the community, youth groups, and the Women Farmers' Group (KWT) reflects increasing awareness, participation, and social solidarity in waste management and crop utilization. From an economic perspective, this program has succeeded in increasing household income through the sale of vegetables and processed agricultural products, thereby strengthening community independence. Pertamina's Corporate Social Responsibility (CSR) support also plays an important role in the success of the program through funding, technical assistance, and human resource capacity building. This collaboration allows for the development of derivative product innovations, such as organic fertilizers, ecoenzymes, and nutritious processed foods. In addition, the distribution of crops to vulnerable groups, such as stunted toddlers, the elderly, and underprivileged families, shows the program's contribution to improving nutrition and community welfare. Thus, the PELIKAS Program can be used as a national best practice in community-based waste management and women's empowerment while supporting the achievement of the Sustainable Development Goals (SDGs), especially in terms of food security, poverty alleviation, and sustainable environmental management.

Ethical Approval

This study does not require ethical approval.

Informed Consent Statement

This study did not require informed consent.

Authors' Contributions

TR led the research design, theoretical framework, and manuscript preparation. RAN coordinated field data collection, conducted interviews, and managed program documentation. AKM contributed to data analysis, interpretation, and the development of the discussion section. DS provided insights on CSR implementation, assisted in the validation of findings, and contributed to manuscript revision.

Disclosure Statement

The authors have not disclosed any conflicts of interest.

Data Availability Statement
Interview, observation, and documentation data obtained from the field shall be made available to any interested party upon request to the author, with due regard for the privacy of informants.

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