

Empowerment Practices of Independent Palm Sugar Farmers Through the CSR Program of PLN Nusantara Power UP Paiton

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Abstract. This research focuses on the implementation of the Independent Aren Farmer Program in Kalianan Village. This research aims to explain the CSR implementation of PT PLN Nusantara Power Unit Pembangkitan Paiton, especially in community empowerment activities. The background issues addressed by the program in Kalianan Village include the safety of palm sugar farmers during the tapping process, the underutilization of cattle waste, and limited market access for processed palm sugar products. On the other hand, the village's main potential includes the presence of 137 palm sugar farmers capable of independent production, product diversification, and employing data collection techniques such as observation, interviews, and documentation. The research was compiled using descriptive qualitative methods and used data collection techniques through observation, interviews, and documentation. Data analysis was conducted based on the Triple Bottom Line concept. The impact of the PAMAN program includes social, economic and environmental aspects. The Garuda Sakti group as the beneficiary of the program, is expected to be able to implement the program independently and for a long time. This is a measure of the company's success in implementing community empowerment activities in Kalianan Village.

Keywords: Corporate Social Responsibility, Community Empowerment, Aren.

A. INTRODUCTION

Various terms are used to explain the concept of Corporate Social Responsibility (CSR) in Indonesia. As a vital component of corporate operations, CSR contributes to the sustainability of social, economic, and environmental conditions surrounding the company. Elkington, as cited in Marnelly (2012), defines CSR based on three primary goals: economic growth, environmental protection, and social equity. These three components, commonly known as the *Triple Bottom Line*, are expressed as profit, planet, and people. In this context, a responsible company not only prioritizes financial profit but also creates added value for the surrounding community and environment (Ardani & Mahyuni, 2020).

In other literature, Cahya (2014) defines CSR as the company's role in balancing stakeholder interests, encouraging community participation, and enhancing the organization's standing. CSR is not intended as a mere philanthropic activity. Rather, it is a structured strategic plan aimed at strengthening corporate credibility within society. In Indonesia, CSR is legally regulated under Law No. 40 of 2007, which mandates that all business sectors operating in areas related to natural resources must implement environmental and social responsibility. Consequently, CSR is carried out by all companies, including PT PLN Nusantara Power UP Paiton.

PT PLN Nusantara Power is a subholding company of PT PLN (Persero), established in 1995, and is one of Indonesia's State-Owned Enterprises (SOEs). Initially known as PT PJB (Pembangkit Jawa Bali), its operational scope was limited to Java and Bali. However, with the expansion of its business performance and operations, PT PLN Nusantara Power extended its

coverage to include the entire Indonesian archipelago. As a key electricity provider in Indonesia, PT PLN Nusantara Power operates numerous generation units across various regions, one of which is Unit Pembangkitan Paiton.

PT PLN Nusantara Power UP Paiton is located in Binor Village, Paiton Subdistrict, Probolinggo Regency, East Java. As one of the largest electricity providers in Indonesia, the company has implemented a CSR program. Generally, the CSR programs of PT PLN Nusantara Power UP Paiton are classified into four categories: charity, infrastructure, capacity building, and empowerment. Among these, empowerment activities are considered the most impactful, as they stimulate communities to develop their local potential. Deswimar (2014) states that empowerment is a process aimed at enhancing the strength and capacity of communities to achieve self-reliance. Therefore, empowerment opens up economic opportunities that can improve the quality of life and enable communities to compete in a broader context.



Figure 1. CSR Program Stages

Source: Company Data Processing Results, 2024

The implementation of the CSR program by PT PLN Nusantara Power UP Paiton begins with a social mapping stage to identify existing problems and potentials in each village, serving as the foundation for program planning. The planning stage is a crucial step for a company prior to the implementation of any CSR initiative. Roza (2014) describes planning as the initial activity in determining the various end goals to be achieved by a company, encompassing strategies, policies, programs, and budgets necessary for goal attainment. In addition to social mapping, the company prepares two key documents: the Work Plan (Rencana Kerja or Renja) and the Strategic Plan (Rencana Strategis or Renstra). These documents serve as fundamental references for implementing CSR programs, outlining essential elements such as budget allocation, types of activities, target beneficiaries, locations, and program implementation schedules.

During the program implementation stage, in addition to executing CSR activities ranging from charity to empowerment, the company also conducts regular monitoring and evaluation to assess the alignment between program planning and implementation. Prayogo (2011) identifies three key aspects essential for effective CSR program evaluation: first, business performance; second, social legitimacy; and third, legal compliance. These three elements are critical to the success of any corporation. Moreover, monitoring and evaluation function as tools to ensure that program targets are achieved. Any obstacles or challenges encountered in the field can thus be addressed and resolved appropriately.

Kalianan Village, located in Krucil Subdistrict, Probolinggo Regency, is one of the CSR-assisted villages supported by PT PLN Nusantara Power UP Paiton. Situated at the foot of Mount Argopuro at an elevation of approximately 900 meters above sea level, the village's highland geography supports the healthy growth of various plant species, one of the most prominent being the sugar palm (*Arenga pinnata*). On average, a single sugar palm tree can produce between 15 to 20 liters of sap per day. Each palm sap tapper in Kalianan Village typically owns around 20 trees. In addition to sap, the sugar palm also yields *kolang kaling* (palm fruit), which can be processed into various food products. Therefore, the sugar palm is a vital economic asset for the livelihoods of the local community.

Despite its significant potential, the palm sugar industry in Kalianan Village faces several persistent challenges. Most sap tappers still employ traditional methods of sap extraction, which involve climbing sugar palm trees that can reach heights of 25 to 30 meters. This practice poses serious occupational safety risks. During the rainy season, many sap tappers slip and fall, resulting in 14 reported cases of falls from trees, three of which were fatal. As the primary breadwinners of their families, these sap tappers are responsible for meeting basic household needs such as food, electricity, and children's education. Workplace accidents among sap tappers often lead to economic instability, forcing affected families into debt to cover living expenses.

Traditional practices also extend to the palm sugar production process, particularly in the cooking of sap, which is still done using firewood. This method not only poses environmental concerns but also adds to the financial burden of sap tappers due to high operational costs. A single bundle of firewood, priced at IDR 15,000, suffices for only one cooking session (either morning or evening). Therefore, a sap tapper requires two bundles per day, amounting to IDR 30,000 daily. When accumulated over a month, this leads to an expenditure of approximately IDR 900,000 solely for firewood.

Moreover, due to limited knowledge and skills in marketing management, the sale of palm sugar in Kalianan Village remains largely dominated by middlemen. These middlemen typically purchase palm sugar from sap tappers at low prices and resell it at higher prices in other regions such as Krucil Subdistrict, Kraksaan Subdistrict, and Probolinggo City. This dominance by middlemen has resulted in highly volatile and non-standardized pricing for palm sugar. The sap tappers are "compelled" to sell their products to these intermediaries because they face difficulties in accessing modern markets, which require specific product certifications. Most of their products do not yet comply with basic Micro, Small, and Medium Enterprises (MSME) certification standards, such as NIB, PIRT, and Halal certification.

In addition to working as palm sugar tappers, some residents also engage in dairy cattle farming. According to the Pemerintah Desa Kalianan (2024), there are 663 dairy farmers in the village, each owning an average of two to four cows. Despite its potential, cattle farming presents environmental challenges, particularly the unmanaged and scattered cow manure. Most residents raise their livestock near their homes, and in many cases, cattle sheds are directly adjacent to residential areas. A common routine among sap tappers who also keep cattle involves collecting green fodder after harvesting palm sap in the morning. The unmanaged disposal of cow manure poses negative impacts on the local community. Margana & Priyati (2017) explain that biogas, typically composed of 55–80% methane (CH₄), is produced from animal waste. Besides emitting an unpleasant odor, cow manure also carries health risks due to potential exposure to methane gas.

Despite these challenges, several promising potentials support the development of the palm sugar industry in Kalianan Village. Currently, 137 sap tappers are actively engaged in continuous palm sugar production. All of them are members of the Garuda Sakti Group, which is organized with coordinators in each hamlet. This integrated business model has centralized the production and marketing processes, helping to reduce the exploitative role of middlemen. Furthermore, the growing market demand for low-glycemic sweeteners further drives the potential expansion of the palm sugar industry, enabling the group to market their products at local, national, and even international levels.

In response to the above-mentioned challenges and potentials, PT PLN Nusantara Power UP Paiton, through its Corporate Social Responsibility (CSR) program, initiated the Petani Aren Mandiri (PAMAN) Program. This program represents the company's commitment to optimizing social, economic, and environmental capital within the community. To support the development of the palm sugar industry in Kalianan Village, PT PLN Nusantara Power UP

Paiton has facilitated the Garuda Sakti Group through a series of activities aimed at capacity building and fostering group self-reliance. The interventions span the entire value chain from upstream to downstream through the provision of infrastructure, production equipment, training and capacity building, business governance mentoring, and the strengthening of market access. As a result, the group is now capable of supplying its products to international markets.

The successful implementation of the Petani Aren Mandiri Program in Kalianan Village represents a commendable and effective example of CSR in practice, making it a valuable subject of academic inquiry, particularly in terms of the forms of intervention provided by the company to foster group member independence. Considering the existing potentials and challenges faced by palm sugar tappers in Kalianan Village, as well as the support provided by PLN Nusantara Power UP Paiton, this study is guided by the following research question: How is the community empowerment program of Petani Aren Mandiri implemented in Kalianan Village by PLN Nusantara Power UP Paiton through its CSR activities?

B. METHOD

This study adopted a descriptive qualitative method to explore the implementation of the community empowerment program conducted by PLN Nusantara Power UP Paiton through its CSR initiatives. The use of descriptive qualitative methodology aims to systematically, specifically, and thoroughly describe the company's CSR practices as implemented through the PAMAN program (Suryabrata, 2003, as cited in Sumanti, 2020). The research was conducted in Kalianan Village, Krucil Subdistrict, Probolinggo Regency. This location was selected because it is one of the company's CSR-assisted villages, characterized by various challenges and potential that can be further developed.

The informants in this study were selected using *purposive sampling*, as specific criteria were applied to ensure the objectivity of the data collected. Informants included members of the Garuda Sakti Group, women's groups, village authorities, and other program beneficiaries. Data were collected using three techniques: observation, interviews, and documentation. Observation was carried out through direct engagement with the research site, focusing on the CSR program implementation in Kalianan Village. Interviews were conducted in person with the program's beneficiaries, while documentation involved the collection of relevant data and information regarding CSR program activities.

Data analysis was conducted in three stages: data reduction, data display, and conclusion drawing. Data reduction was performed by selecting only relevant information, such as data related to empowerment and CSR. Data display involved the use of tables and charts to facilitate a clearer presentation of findings. Finally, conclusion drawing was done by analyzing and interpreting the data, resulting in the extraction of meaningful insights.

C. RESULTS AND DISCUSSION

The implementation of corporate CSR programs through community empowerment initiatives represents a practical application of the *Triple Bottom Line* concept (Ariastini & Semara, 2019). This framework emphasizes that, beyond the pursuit of profit, companies must also take an active role in environmental preservation (planet) and contribute to the well-being of society (people) (Elkington, 1994, as cited in Felisia & Limijaya, 2014). Elkington explains that the Triple Bottom Line consists of three components: profit, people, and planet. While profit remains a primary goal in business operations, companies are also expected to create added value for surrounding communities and to engage in sustainable environmental practices (Michael, Raharjo & Resnawaty, 2019). The Triple Bottom Line serves as a critical lens for corporate accountability, as it encourages companies to consider not only economic outcomes but also the social and environmental impacts of their operations (Alhaddi, 2015).

From the economic dimension, companies must focus on profitability to ensure business sustainability. From the social perspective, they are expected to commit to initiatives that benefit local communities. From the environmental standpoint, corporate activities should generate positive ecological impacts (Aulia & Kertawijaya, 2013). In line with this framework, PLN Nusantara Power UP Paiton conducts its CSR programs guided by the Triple Bottom Line (Profit, People, Planet). Furthermore, the company's CSR practices align with its mission to enhance corporate reputation by improving environmental, social, and economic performance through more accountable and high-quality CSR initiatives (Afriadi & Kamayanti, 2016).

One of the flagship CSR programs of PLN Nusantara Power UP Paiton is the PAMAN Program (Petani Aren Mandiri). The program was initiated in response to several critical issues: the occupational safety risks faced by palm sugar farmers, the environmentally unfriendly production practices, the lack of awareness regarding sugar palm conservation, and the underutilization of livestock waste. Alongside these challenges, Kalianan Village presents several opportunities that support the growth of the program, such as product diversification and the existence of palm sugar farmers who are capable of independent production. These challenges and potentials were identified through the company's planning documents, including the *Work Plan (Renja)* and *Strategic Plan (Renstra)*, which serve as essential references for CSR implementation.

During the implementation phase, the company intervened across the palm sugar value chain. In the upstream phase, PLN Nusantara Power UP Paiton focused on infrastructure development for palm sugar processing, enhanced worker safety through the provision of safety equipment, facilitated the regeneration of damaged sugar palm trees by establishing a seedling center, and managed livestock waste by converting it into biogas. In the processing phase, the company supported product diversification through group training, product licensing assistance, and the substitution of firewood with biogas as a more sustainable energy source for sap cooking. In the downstream phase, interventions included strengthening digital marketing capacities and expanding market networks for palm sugar products.

Based on the Triple Bottom Line perspective, profit plays a key role in the CSR program PAMAN. Profit is directly linked to increased economic outcomes for group members, including reduced expenditures and higher revenues from palm sugar sales (Rahmatika, Winarno & Ihsaniyati, 2020). Corporate interventions have had a tangible impact on the profitability of the Garuda Sakti Group, the program's direct beneficiaries. For instance, the provision of safety equipment helps prevent injuries and reduce medical expenses associated with workplace accidents, such as falls during sap tapping, a common issue among sap tappers. In addition, the training in product diversification enabled the group to expand its product offerings from a single type (traditional molded palm sugar or gula tepak) to three variants: gula tepak, liquid palm sugar, and palm sugar crystals (gula semut), thereby increasing the product's market value. Furthermore, the conversion of livestock waste into biogas for cooking sap represents a significant cost-saving measure. Previously, the group relied on firewood, typically requiring two bundles per cooking session for IDR 30,000. Not only was this method expensive, but it was also environmentally unsustainable. The adoption of biogas has transformed unmanaged livestock waste into a sustainable fuel source, simultaneously reducing production costs and promoting environmental sustainability through the elimination of firewood use.

From the people dimension, the Petani Aren Mandiri (PAMAN) program has significantly increased the number of beneficiaries from initially 30 palm sugar tappers to 137 across the entire Kalianan Village. This increase is not incidental. It reflects the strong motivation among sap tappers to obtain safety equipment and participate in a more profitable

palm sugar production and sales system. Previously, sales through middlemen often resulted in suppressed prices that disadvantaged the sap tapper. In response, the company intervened by constructing a production center where palm sugar could be sold at stable, fair prices. The initial issue of price instability in the palm sugar market has thus been effectively resolved through the establishment of this facility.

In addition to the Garuda Sakti Group, the Kalianan Village Government has also benefited from the PAMAN program. The company provided 70,000 paving blocks made from Fly Ash Bottom Ash (FABA) to improve the village’s transportation infrastructure. These paving blocks were installed by the villagers through a communal cooperation effort along village roads, so that the community is also involved in the village development process through the CSR program (Juniari & Mahyuni, 2020). Improved road infrastructure has enhanced logistical access for local micro, small, and medium enterprises (MSMEs), including those involved in palm sugar marketing beyond the village.

The PAMAN program has also catalyzed the formation of a new group of direct beneficiaries, a women’s group responsible for palm sugar product packaging. The establishment of this group demonstrates the program’s capacity to empower women and promote gender equality. Whereas the palm sugar production system previously offered limited roles for women and lacked equitable participation, the program now enables women to actively contribute to the packaging of *gula tepak* using natural materials such as palm leaves and bamboo. They are also involved in packaging *gula semut* (palm sugar crystals) and liquid palm sugar at the production center.

From the planet’s perspective, the Petani Aren Mandiri (PAMAN) program has had a positive environmental impact. The company’s intervention included the establishment of a sugar palm seedling center capable of accommodating 5,000 seedlings. Before constructing the greenhouse, the company provided seedling training to sap tappers to equip them with the skills needed for independent propagation and cultivation. Following the greenhouse’s construction, the company organized the planting of 1,000 sugar palm seedlings in Kalianan Village, an activity attended by both company management and residents. This tree-planting initiative marks an important step in the conservation of sugar palms, which had previously been subjected to illegal logging for commercial sale. Community awareness of the sugar palm’s long-term value has since grown. Villagers now realize that rather than cutting down and selling a tree for IDR 500,000, they can gain greater economic benefits by processing its sap into palm sugar, which can be sold at a higher cumulative value. Additionally, the tree’s fruit (*kolang-kaling*) can be processed into food products for sale. Beyond efforts to restore the declining sugar palm population, the tree planting initiative also addresses the issue of landslides, which frequently occur in Kalianan during the rainy season. Moreover, sugar palms contribute to carbon sequestration (Duryat et al, 2021). As of 2024, Kalianan Village is home to 1,158 sugar palm trees, with an estimated total carbon absorption capacity of 213.86 tons of CO₂ equivalent (CO₂eq) (Tim Metta, 2024).

Table 1. Sugar Palm Cultivation and Nursery Data

Year	Activity	Plant Type	Quantity	Planting Location
Before the Establishment of the Greenhouse				
2022	Nursery	Sugar palm	1000	-
2022	Planting	Sugar palm	500	Kalimanguk Hamlet
2023	Nursery	Sugar palm	1200	-
2023	Planting	Sugar palm	500	Kalianan Hamlet
2024 (until April)	Nursery	Sugar palm	600	-
2024 (until April)	Planting	Sugar palm	200	Mandati Hamlet

After the Establishment of the Greenhouse				
2024 (Mei-September)	Nursery	Sugar palm	2000	-
2024 (Mei-September)	Planting	Sugar palm	200	Plaosan Village
2024 (Mei-September)	Nursery	Sugar palm	200	Watupanjang Village
2024 (Oktober)	Planting	Sugar palm	1000	Kalianan Village

Source: Company Data Analysis, 2024

In addition to sugar palm conservation, this program also aims to reduce livestock waste, which has long gone underutilized. Residents of Kalianan generally raise cattle, and the resulting manure is often left to accumulate near the barns, sometimes being washed into drainage channels and polluting nearby rivers (Social Investment Indonesia, 2023). In response, the company has sought to convert this waste into renewable energy by utilizing it as a fuel source for palm sugar production through biogas technology. To this end, the company has provided two biogas units, each with a capacity of 20 dm³. The biogas installation has proven effective in converting previously unmanaged and environmentally harmful livestock waste into a renewable energy source for palm sap processing (Sunaryo, 2013). Moreover, the traditional method of using firewood for cooking palm sap, which is considered environmentally unfriendly, has now been replaced by biogas. Biogas offers a more sustainable alternative that leverages livestock waste (Haris & Purnomo, 2016). The by-product of biogas production, known as bioslurry, also serves as an organic fertilizer for sugar palm seedlings in the greenhouse. In addition to being eco-friendly, the use of bioslurry reduces the cost of purchasing chemical fertilizers.

Table 2. Corporate Interventions in the PAMAN Program

Profit	People	Planet
<ul style="list-style-type: none"> • Provision of safety equipment for <i>sap tapper</i> • Product diversification • Product licensing • Capacity building in digital marketing • Expansion of marketing networks • Development of an integrated palm sugar business model 	<ul style="list-style-type: none"> • Expansion of program beneficiaries • Establishment of new groups (women's packaging group) - Construction of palm sugar production facility (<i>rumah produksi</i>) 	<ul style="list-style-type: none"> • Regeneration of damaged sugar palm tree • Substitution of firewood with biogas • Utilization of livestock manure waste • Use of bioslurry as organic fertilizer for sugar palms

Source: Processed Company Data, 2024

The table above presents a list of activities conducted under the PAMAN program in Kalianan Village, structured around the Triple Bottom Line framework, which is divided into three pillars: *profit*, *people*, and *planet*. The empowerment initiatives implemented through the PAMAN program have addressed economic, social, and environmental dimensions. The Garuda Sakti Group, as the primary beneficiary, has experienced positive outcomes from this program. In addition, the women's packaging group has also benefited through increased income resulting from more stable palm sugar prices and product diversification. Moreover, cost-saving measures, such as the use of biogas, have reduced operational expenses for the group. Beyond the direct beneficiaries, the impact of the company's CSR program has also extended to the Kalianan Village Government and the broader community. This is evidenced by the provision of paving blocks made from Fly Ash Bottom Ash (FABA) as part of the

village's road infrastructure improvement initiative, from which the entire community has benefited.

D. CONCLUSION

Based on the implementation of the Petani Aren Mandiri (PAMAN) program in Kalianan Village, the CSR program of PLN Nusantara Power UP Paiton encompasses various components, including charity, infrastructure development, capacity building, and, most importantly, community empowerment. The execution of the PAMAN program through empowerment activities has fostered integration and collaboration among the program's beneficiaries. These efforts are reflected in the cooperation between the Garuda Sakti Group, the women's packaging group, and the Kalianan Village Government in addressing local challenges and optimizing potential sustainably.

Within the PAMAN program, the three core elements of the Triple Bottom Line, *profit, people, and planet*, are clearly fulfilled: from the profit (economic) perspective, several activities have contributed to increased income and cost reduction for the group. These include the implementation of an integrated business model that eliminates reliance on middlemen, the expansion of marketing networks for palm sugar, the diversification of products into *gula tepak*, liquid palm sugar, and palm sugar crystals (*gula semut*), which enhances market value, and the attainment of product certifications. From the people's social dimension, various activities have strengthened community engagement and empowerment. These include increasing the number of beneficiaries, particularly sap tappers (palm sugar tappers), from 30 to 137 individuals, the formation of new groups such as the women's packaging team, and the construction of the palm sugar production center. From the planet (environmental) aspect, the program has contributed to sustainability through the utilization of livestock waste, the establishment of sugar palm nurseries, the substitution of firewood with biogas for sap processing, and the use of bioslurry as organic fertilizer. Based on the implementation outcomes, the company has demonstrated success in applying a community empowerment program in Kalianan Village through targeted interventions, effectively aligned with the Triple Bottom Line framework.

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