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From Industrial Waste to Community Empowerment: Creating Shared Value and Circular Agriculture Through the Smartani Program in Rural Indonesia

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ABSTRACT
Industrial waste management and rural food resilience are often addressed as separate development concerns. The Smartani Program initiated by PT Sido Muncul Tbk in Bergas Kidul Village, Semarang Regency, Indonesia, offers an example of how industrial resources can be connected with community agricultural needs. This study examines how the program links industrial by-products, local organic resources, and household food production through a Creating Shared Value (CSV) perspective. This research employed a qualitative case study approach. Data were collected through interviews with community members involved in the program and field observations conducted in July and August 2026. The analysis focused on the utilization of industrial by-products, local organic materials, household gardening practices, community participation, and the sustainability of agricultural activities. The findings indicate that Smartani connects the herbal medicine industry's activities with rural agriculture through the provision of liquid organic fertilizer derived from jamu waste. At the community level, cattle and goat manure, household waste, and food leftovers are also utilized or introduced as organic fertilizer and compost materials. The program has encouraged a shift from farming practices largely associated with paddy field ownership toward household gardening using limited spaces, polybags, and recycled containers. Vegetables and food crops are primarily cultivated for family consumption, helping reduce daily household food expenditure. Nevertheless, community participation remains uneven, while the continuity of cultivation is influenced by the availability of seeds, fertilizers, and ongoing assistance. The findings suggest that Smartani creates social value

through agricultural skills, local resource utilization, and household food provision. However, measurable economic benefits for the company have not yet been established. This study highlights both the potential and limitations of connecting industrial resource utilization with community empowerment to strengthen rural food resilience.
Keywords: *Creating Shared Value; Circular Agriculture, Industrial Waste Utilization, Community Empowerment, Rural Food Resilience.*

INTRODUCTION

Food security and environmental sustainability have become two issues that are increasingly difficult to separate from contemporary community life. Rising food prices, unequal access to nutritious food, and growing pressure on natural resources indicate that food-related challenges concern not only production availability but also the ability of households to obtain and meet their food needs. The State of Food Security and Nutrition in the World 2024 report recorded that approximately 2.33 billion people worldwide experienced moderate to severe food insecurity in 2023. More than 2.8 billion people were also unable to afford a healthy diet in 2022 (Food and Agriculture Organization of the United Nations [FAO] et al., 2024). These figures demonstrate that food security is a structural issue related to purchasing power, resource distribution, and communities' capacity to build more resilient food systems.

These issues are also highly relevant to Indonesia, particularly as household food needs intersect with expenditure pressures and limited economic resources. Data from the Ministry of Agriculture show that, in 2024, food expenditure among agricultural households accounted for 56.91% of total household expenditure. Among agricultural laborer households, the proportion reached 59.88% (Center for Agricultural Data and Information Systems, 2024). These proportions indicate that food remains a major component of household expenditure for families whose livelihoods depend on agriculture. This situation suggests that strengthening food security cannot rely solely on increasing large-scale agricultural production. Efforts that are closer to people's everyday lives, such as utilizing home gardens, developing household-scale farming, and optimizing local resources, are also important in strengthening families' ability to meet their food needs.

At the same time, environmental problems reveal another dimension of the sustainable development challenge: the suboptimal utilization of residual materials from consumption and production activities. Data from the National Waste Management Information System, as summarized in a Bappenas document, indicate that waste generation across 193 regencies and municipalities reached approximately 22.72 million tons in 2024. Of this amount, around 33.14% was not properly managed. Food waste constituted the largest component, accounting for approximately 40.97% of the recorded waste composition (Ministry of National Development Planning/Bappenas, 2024). Although these figures do not specifically describe herbal medicine industry waste, they illustrate the scale of Indonesia's organic material management challenge. The central issue is not merely how to reduce waste generation, but also how to transform materials previously regarded as residues into resources with social and economic utility.

The issue of organic waste utilization becomes particularly relevant when considered in relation to the characteristics of Indonesia's herbal medicine industry. Jamu is not merely a commercial product; it is also part of a herbal healing tradition that has developed and been practiced in Indonesian society for centuries. The growth of the jamu industry reflects the relationship between traditional knowledge, the use of herbal plants, and economic activity. However, the processing of herbal raw materials also generates residual materials that require appropriate management. Wafiqah et al. (2024) demonstrate that jamu waste has the potential to be used as a raw material for liquid organic fertilizer through fermentation. Nevertheless, their study also found that jamu waste used as the sole input did not meet liquid organic fertilizer quality standards, indicating the need for additional organic materials to optimize its nutrient content. This finding is important because it shows that industrial waste utilization must take technical considerations and the quality of the resulting product into account.

These issues draw attention to the relationship between companies and communities, which have often been treated as separate domains. Companies conduct production activities to create economic value, while communities face challenges related to welfare,

access to resources, and environmental sustainability in the areas where they live. Corporate Social Responsibility (CSR) has become one instrument for bridging this relationship. Porter and Kramer (2011), however, introduced the concept of Creating Shared Value (CSV) as an approach that seeks to connect corporate economic value creation with the resolution of social problems. CSV goes beyond providing aid or conducting philanthropic activities; it encourages companies to identify business opportunities that simultaneously generate benefits for society. This perspective opens up an analytical space for examining how corporate resources, knowledge, and production processes can be connected more productively with community needs.

Although previous studies have examined the utilization of jamu waste as a potential material for organic fertilizer (Wafiqah et al., 2024), the contribution of household gardens to food security (Abdoellah et al., 2020), and the relationship between corporate social and economic value creation through Creating Shared Value (CSV) (Menghwar & Daood, 2021), these discussions offer different analytical perspectives that are not always examined in an interconnected manner. In particular, limited attention has been given to how industrial by-products are connected with locally available organic resources and household-level agricultural practices, and how this relationship contributes to everyday food provision in rural communities. Furthermore, the application of CSV in this context requires closer examination because the presence of social benefits does not necessarily demonstrate the simultaneous creation of measurable economic value for the company. This distinction is important for avoiding the assumption that every corporate community empowerment initiative automatically represents fully established CSV.

Addressing this gap, the present study examines the Smartani Program as an empirical case of the relationship between industrial resource utilization, community-based circular agriculture, and household food resilience. Its contribution is not to propose a new CSV theory, but to develop an empirically grounded understanding of how shared value potential emerges through the interaction of three interconnected processes: the utilization of industrial jamu-processing by-products, the integration of locally available organic

resources into household agricultural practices, and the contribution of home gardening to household food provision and expenditure savings. The study also identifies the limitations of this process, particularly the absence of measurable evidence concerning direct economic benefits for the company, uneven community participation, and dependence on continued access to agricultural inputs and assistance. By examining both the enabling processes and their limitations, this study provides a contextual refinement of CSV analysis in rural settings, showing that shared value creation should be assessed not only through the availability of corporate resources and the emergence of social benefits, but also through demonstrable corporate value, community capacity, and the sustainability of the resulting practices.

Unlike studies that primarily emphasize material recovery and resource efficiency within the circular economy, this study extends the analysis to the household level by examining how the reuse of industrial and locally available organic resources is connected to food production, consumption, and expenditure reduction in rural communities.

At the local level, the relationship between environmental issues, food needs, and economic empowerment can be observed through PT Sido Muncul Tbk's Smartani Program in Bergas Kidul Village, Semarang Regency. The program is worth examining because it brings together the herbal medicine industry's activities with agricultural practices and the utilization of resources available within the community. One practice identified through interviews is the use of liquid organic fertilizer derived from processed jamu waste and supplied by the company. Community members also use livestock manure as fertilizer and receive training in producing compost from household waste. These practices demonstrate a connection between resources originating from industrial activities, local livestock potential, and community agricultural needs. Accordingly, Smartani can be understood as a space in which corporate resource-management interests intersect with community needs to develop environmentally based productive activities.

Another aspect that makes this program important to study is the shift in the community's agricultural orientation from dependence on paddy-field ownership toward the use of spaces closer to household life. According to an interview with a farmer, before

the program was implemented, home gardening was relatively uncommon among residents who did not own rice fields. Through assistance, seed and fertilizer support, and training, community members began using home gardens, polybags, and even used water gallons to grow vegetables and household food crops. The harvest is primarily used for family consumption, while some surplus produce can be sold to local vegetable vendors. The informant stated that this practice helps reduce daily household expenditure. This finding indicates that the program's economic value does not necessarily take the form of increased direct income; it may also arise through expenditure savings and the creation of small-scale household economic opportunities.

Nevertheless, empowerment practices based on local resources do not automatically produce self-reliance and sustainability. Field observations and interviews indicate that collective agricultural activities face uneven participation. Some community groups have been able to maintain and develop their gardens, while others have reduced their activities after the initial enthusiasm for the program declined. The village government also noted that garden conditions differ across neighborhood units: some gardens are well maintained and productive, while others are no longer managed consistently. In addition, livestock waste management remains constrained, particularly because liquid waste does not yet have a dedicated treatment system. These realities show that program success should not be assessed solely by the provision of assistance or the implementation of training, but also by the community's ability to sustain practices, manage resources, and develop local institutions independently.

Against this background, this study examines PT Sido Muncul Tbk's Smartani Program through the Creating Shared Value perspective, focusing on the relationship between industrial jamu waste utilization, community-based circular agriculture, and household food resilience in Bergas Kidul Village. Specifically, it explores how industrial by-products and locally available organic resources are incorporated into community agricultural practices, how these practices contribute to household food provision and agricultural capacity, and what challenges affect their continuity. By connecting industrial resource utilization with

household-level agricultural practices, this study offers an empirical contribution to understanding the contextual application of CSV in rural Indonesia. It does not assume that Smartani has fully achieved shared economic and social value. Instead, it examines both the social benefits experienced by the community and the limitations of demonstrating corporate economic benefits, community self-reliance, and long-term sustainability. In doing so, the study provides a more critical understanding of the potential and practical boundaries of shared value creation in community-based circular agriculture.

Theoretical Integration: Creating Shared Value, Circular Agriculture, and Rural Food Resilience

This study integrates Creating Shared Value (CSV), circular agriculture, industrial waste utilization, and rural food resilience into a coherent analytical perspective. Rather than treating these concepts as separate theoretical frameworks, the study assigns each concept a distinct analytical function. CSV serves as the overarching framework for examining the relationship between corporate economic activities and community social needs, while circular agriculture explains the resource-utilization mechanism through which industrial and locally available organic materials are connected to household agricultural practices. Rural food resilience represents the community-level outcome examined through household food production, agricultural capacity, and the utilization of home gardens.

The selection of CSV as the primary analytical framework is based on the central concern of this research: understanding how resources originating from corporate industrial activities can be connected with community needs while potentially generating economic and social value. Porter and Kramer (2011) conceptualize CSV as an approach that links corporate competitiveness with the improvement of social and economic conditions in the communities where businesses operate. In contrast to conventional CSR, which may include philanthropic assistance and social responsibility initiatives that are not necessarily integrated into core business activities, CSV emphasizes the relationship between social problem-solving and corporate value creation. This distinction makes CSV relevant for

examining the Smartani Program, particularly its utilization of jamu-processing by-products as agricultural inputs for surrounding communities.

However, CSV alone does not sufficiently explain the technical and environmental processes through which organic resources are transformed into productive agricultural inputs. For this reason, the study incorporates circular agriculture as a complementary analytical concept. Circular agriculture emphasizes the productive use and reuse of resources within agricultural systems, including the utilization of organic residues and the integration of locally available materials into agricultural production. In the Smartani context, this mechanism can be observed through the use of liquid organic fertilizer derived from jamu-processing waste, cattle and goat manure, and household organic waste processed into compost. These practices illustrate how industrial and community-based organic resources can be connected with agricultural activities, although the findings do not yet demonstrate a fully integrated circular production system.

Industrial waste utilization therefore functions as the connecting point between corporate resources and community agricultural activities. The company's industrial by-products provide an entry point for linking production-related resources with the agricultural needs of local households. At the community level, the utilization of livestock manure and household organic waste expands the resource base beyond materials supplied by the company. This distinction is important because the development of community-based circular agriculture does not depend exclusively on corporate inputs but also involves the capacity of local institutions and households to identify, manage, and reuse resources available within their immediate environment.

The social outcomes of these processes are examined through the concept of rural food resilience. In this study, rural food resilience refers to the capacity of households to maintain access to some food resources through household-level agricultural practices and the utilization of locally available resources. The concept is operationalized through qualitative indicators, including the use of home gardens for food production, the consumption of harvested vegetables by household members, reported reductions in food expenditure, and

the development of agricultural skills. These indicators allow the study to examine how circular agricultural practices contribute to household food provision. Nevertheless, the study does not claim to measure food resilience comprehensively because systematic data on dietary diversity, food availability over time, and household food security outcomes were not collected.

Other theoretical perspectives, including CSR, the circular economy, and sustainable livelihood theory, provide relevant but different analytical contributions. CSR helps explain the broader responsibility of companies toward society and the environment, but it does not necessarily require a direct connection between social benefits and corporate economic value creation. The circular economy provides an important perspective for understanding resource efficiency and waste reuse, but its primary analytical emphasis is on material flows rather than the relationship between corporate competitiveness and community welfare. Sustainable livelihood theory is relevant for examining household assets, capabilities, and livelihood strategies, particularly the capacity of communities to maintain their livelihoods under changing conditions. However, it does not directly address the strategic relationship between industrial resource utilization and corporate value creation, which is central to this study. Accordingly, these perspectives are treated as complementary rather than competing explanations, while CSV remains the primary framework for examining the company-community relationship.

The theoretical contribution of this study lies in the contextual integration of CSV and circular agriculture to understand the relationship between industrial resource utilization and rural household food resilience. The Smartani case illustrates how corporate industrial by-products can become connected with local organic resources and household agricultural practices, creating opportunities for community food production and expenditure savings. At the same time, the case reveals an important limitation in the application of CSV: the emergence of community-level social benefits does not automatically establish measurable economic value for the company. Therefore, the study does not propose a new CSV theory or claim that Smartani represents a fully realized shared value model. Instead, it offers an

empirically grounded contextual refinement by showing that the assessment of shared value in rural settings needs to consider not only the connection between corporate resources and community benefits, but also the demonstrability of corporate value, the capacity of local communities, and the continuity of resource-management practices.

RESEARCH METHODS

This study employed a qualitative approach with a descriptive-exploratory design. This approach was selected to gain an in-depth understanding of Creating Shared Value (CSV) practices through PT Sido Muncul Tbk's Smartani Program, particularly the links between industrial resource utilization, community-based agricultural practices, and community food security. The descriptive-exploratory design was used to identify the program implementation process, the experiences of beneficiary community members, and the social and economic dynamics that emerged during implementation. Through this approach, the study not only describes the activities conducted by the company but also analyzes how local resource utilization practices are implemented and understood by the community.

The study was conducted in Bergas Kidul Village, Semarang Regency, Central Java, Indonesia, one of the areas where PT Sido Muncul Tbk's Smartani Program is implemented. The location was selected purposively, taking into account the presence of community empowerment activities that integrate agriculture, livestock, and community enterprise development. This location is relevant to the research objectives because it illustrates the relationship between the company's herbal medicine industry activities and the community's utilization of local resources. The documented field data collection included observation activities in July 2026.

The research data consisted of primary and secondary data. Primary data were obtained through interviews with individuals involved in or knowledgeable about the implementation of the Smartani Program, including farmers, livestock breeders, business operators, and beneficiary community members. In-depth interviews were conducted using semi-structured guides to explore participants' experiences, perceptions, and changes in

community practices after joining the program. Secondary data were obtained from program documents, activity documentation, field notes, and scholarly literature relevant to CSV, the circular economy, community-based agriculture, and food security.

Data were collected through in-depth interviews, field observations, and documentation. Interviews were used to obtain information about program implementation, the use of organic fertilizer derived from jamu-processing waste, the use of livestock manure as fertilizer, home-gardening practices, and the benefits and constraints experienced by community members. Direct observations were conducted of household agricultural activities, livestock management, and the utilization of organic resources. One documented observation took place on 20 July 2026 in residents' home gardens and another on 23 July 2026 at a communal livestock facility. Documentation in the form of field notes and photographs was used to complement and compare information obtained through interviews.

The analysis of the Smartani Program was guided by the Creating Shared Value (CSV) perspective, with particular attention to the relationship between corporate resource utilization and community-level benefits. To avoid equating the provision of corporate assistance with the realization of shared value, the analysis distinguished between four dimensions: (1) corporate resource utilization, particularly the use of jamu-processing by-products as agricultural inputs; (2) community economic and social benefits, including household food expenditure savings, agricultural skills, and opportunities to utilize surplus harvests; (3) household food resilience, reflected in the use of home gardens for food production and household consumption; and (4) program sustainability and community independence, assessed through community participation, continuity of cultivation, local resource management, and dependence on external agricultural inputs.

The utilization of livestock manure and household organic waste demonstrates that the circular agricultural practices identified in Bergas Kidul extend beyond the use of industrial by-products supplied through the Smartani Program. From a circular agriculture perspective, these practices illustrate how locally available organic materials can be

redirected into productive agricultural inputs, thereby connecting livestock activities, household waste management, and food production. This finding also indicates that the continuity of community agricultural activities depends not only on corporate assistance but also on the capacity of local groups and households to mobilize resources available within their environment.

Within the integrated analytical framework of this study, circular agriculture functions as the mechanism connecting resource utilization with household agricultural production, while CSV provides the broader perspective for examining the relationship between corporate resources and community benefits. The use of jamu-processing waste represents the connection with industrial resources, whereas livestock manure and household compost illustrate the contribution of local resource management. These different resource sources support household gardening and community food-production activities. However, the observed practices should not be interpreted as evidence of a fully established circular system because the utilization of organic materials remains uneven and some waste streams, particularly liquid livestock waste, have not yet been systematically managed.

The implications for rural food resilience can be identified through the use of limited household spaces for cultivating vegetables and other food crops. Such practices provide households with opportunities to produce food for their own consumption and may reduce their dependence on purchased vegetables. Nevertheless, the presence of productive gardens does not by itself demonstrate long-term food resilience. The continuity of cultivation, the availability of agricultural inputs, and the ability of households to maintain production independently remain important considerations. Thus, the Smartani case illustrates the potential contribution of circular agriculture to household food provision while also revealing the institutional and resource-related conditions that influence its sustainability.

The assessment was based on qualitative evidence obtained from interviews, field observations, and program-related documentation. The analysis compared reported community experiences with observed agricultural practices to identify both the benefits

and limitations of program implementation. Particular attention was given to distinguishing reported benefits from outcomes that could be independently measured. For example, household expenditure savings were treated as reported economic benefits because the study did not collect systematic household expenditure records. Similarly, the utilization of industrial by-products was examined as an established resource-sharing practice, rather than direct evidence of reduced corporate waste-management costs or increased business profitability.

An important limitation concerns access to corporate-level information. The researchers did not obtain permission to access PT Sido Muncul's internal operational and financial data or to interview company representatives directly. Consequently, this study cannot establish the company's measurable economic returns from the Smartani Program. The analysis of shared value is therefore primarily based on the community perspective and the observable connection between industrial by-products and local agricultural needs. This limitation is explicitly considered when interpreting the findings, so that the program's potential for CSV is distinguished from the demonstrated realization of economic and social value for both parties.

Data analysis followed the interactive model developed by Miles and Huberman, which comprises data reduction, data display, and conclusion drawing and verification. During data reduction, interview and observation data were selected and grouped according to the research focus: jamu waste utilization as an agricultural resource, community-based agricultural practices, household economic benefits, and community participation. The data were then presented narratively to identify patterns in the relationship between corporate support, local resource utilization, and the benefits experienced by the community. The final stage involved drawing and verifying conclusions by comparing interview findings, observations, and documentation.

Data trustworthiness was maintained through source triangulation and method triangulation. Source triangulation was conducted by comparing information from various parties involved in the program, while method triangulation involved comparing interviews,

observations, and documentation. This process was intended to strengthen the credibility of the findings and ensure that the analysis reflected field conditions.

DISCUSSION

1. From Herbal Medicine Industry Waste to Agricultural Resources

The findings indicate that one form of support provided by PT Sido Muncul Tbk through the Smartani Program in Bergas Kidul Village is the provision of liquid organic fertilizer derived from processed jamu waste. Based on an interview with Mr. Ganjar, the fertilizer is part of the agricultural assistance provided to community members participating in the program. This support connects the company's industrial activities with the agricultural needs of the surrounding community. Materials that emerge as by-products of jamu processing are thus given another potential use as agricultural inputs. This practice illustrates how industrial residual materials can acquire utility when connected to the productive needs of a community.

The use of this liquid organic fertilizer does not stand alone; rather, it forms part of agricultural practices that also rely on local resources. Interviews indicate that community members use livestock manure as fertilizer and receive training in making compost from household waste and food scraps. Meanwhile, observations conducted on 20 July and 6 August 2026 showed the use of home gardens and food-security gardens to grow various crops, including mustard greens, chilies, spinach, eggplants, tomatoes, long beans, broccoli, turmeric, and ginger. These findings indicate a combination of company-provided agricultural inputs and organic resources available within the village environment. However, the observations did not measure the volume or frequency of liquid fertilizer use derived from jamu waste; therefore, its effectiveness in improving crop productivity cannot yet be determined.

The use of jamu waste as a fertilizer ingredient is related to the study by Wafiqah et al. (2024), which examined the potential of jamu waste as a raw material for liquid organic fertilizer through fermentation. Their study found that the fermentation process

produced nutrient content, with the highest nitrogen concentration reaching 0.163% and the highest potassium concentration reaching 0.0169% under particular treatment conditions. However, the test results also showed that the fertilizer produced did not meet the applicable quality standards. The study recommended adding other organic materials to improve fertilizer quality. These findings support the potential of jamu waste as an agricultural input while also emphasizing the need for appropriate processing and quality testing before the fertilizer is used widely. Thus, the practice identified in Bergas Kidul is relevant to the development of industrial waste utilization, although the quality of the fertilizer distributed by the company cannot be assessed using the data available in this study.

From a Creating Shared Value (CSV) perspective, this practice demonstrates an opportunity to create shared value through the relationship between corporate activities and community needs. Porter and Kramer (2011) explain that CSV is an approach that integrates corporate economic value creation with the resolution of social problems. In the Smartani Program, this relationship is reflected in the use of a by-product of the jamu industry as an agricultural input, while community members receive production support, training, and assistance. This is consistent with Menghwar and Daood's (2021) review, which explains that CSV connects social issues with corporate business activities. However, the economic benefits for the company cannot be directly identified from the data in this study. Therefore, the findings provide stronger evidence of social value creation for the community and the potential relationship with the company's value chain than of measurable business gains.

Nevertheless, this practice cannot yet be described as a fully integrated circular economy system. Crane et al. (2014) caution that the CSV concept needs to be examined critically, particularly in relation to the relationship between business interests, social responsibility, and the distribution of benefits. This observation is relevant to the finding that organic resource utilization in Bergas Kidul remains constrained. Interviews indicate that solid livestock manure has been used as fertilizer, whereas liquid livestock

waste does not yet have a dedicated treatment system and plans to develop biogas have not been realized. In addition, this study does not have measurement data on the quality of liquid fertilizer derived from jamu waste, production cost savings, or the economic benefits received by the company. Accordingly, the Smartani Program can be understood as an early-stage practice of shared value creation through the utilization of industrial and local resources, with potential for further development but requiring stronger technical aspects, impact measurement, and sustainable management.

2. Integrating Local Organic Resources into Community-Based Circular Agriculture

The implementation of the Smartani Program in Bergas Kidul Village shows that community agricultural development does not depend solely on the company's provision of production inputs; it also draws on the potential of organic resources available within the village. One such resource is cattle and goat manure, which is used as organic fertilizer to support home-gardening activities. According to an interview with Mr. Ganjar, community members use the presence of cattle and goat farms near their homes as a source of fertilizer for cultivated plants. This practice provides an alternative source of fertilizer from the immediate environment while connecting livestock activities with household agricultural needs. The finding indicates that local resources previously associated with the livestock sector can benefit agriculture through the reuse of organic waste.

The relationship between livestock and agricultural activities is also evident in the collective management of animal manure. According to an interview with an informant from the livestock group, solid animal waste is processed into manure fertilizer and distributed to farmer groups. This management process involves group members who do not directly raise livestock but are responsible for handling and further processing the manure. The fertilizer is then used by nearby farmers, including to support food-security gardens in neighborhood units. The informant explained that some manure is also obtained through buying and selling, while the proceeds are used for group development, barn maintenance, and operational needs. This finding

illustrates a productive relationship between livestock groups and agricultural groups. Animal manure is not treated merely as a by-product of livestock raising but as a resource with practical and economic value for the group.

In addition to using animal manure, the Smartani Program encourages community members to process household waste and food scraps into compost. According to an interview with Mr. Ganjar, one of the training topics provided to community members is how to produce compost independently using waste and food scraps. This training forms part of an effort to develop community skills so that residents do not depend entirely on fertilizer sourced from outside their immediate environment. This practice is relevant to the findings of Fitria et al. (2024) in Kampung Satwa, Yogyakarta, which showed that assistance in processing household organic waste into Takakura compost and animal manure into fertilizer can produce useful products for the community. Their product testing found that Takakura compost was of better quality than the commercial compost used for comparison, while the manure fertilizer produced by residents was of comparable quality to commercial products. These findings support the importance of training and assistance in transforming organic waste into productive resources (Fitria et al., 2024).

Field observations conducted on 20 July 2026 in residents' home gardens in Bergas Kidul showed that community members had used limited spaces to grow various plants for household needs. The observations also recorded the use of animal manure as fertilizer, although some gardens were in a post-harvest condition and had not yet been replanted. On 23 July 2026, an observation at the communal cattle barn in Sruwen Hamlet showed livestock-raising activities carried out by group members. These field findings reinforce the view that livestock and agricultural activities take place in close geographical proximity and have the potential to support one another through the utilization of organic materials. However, these practices have not yet formed a fully integrated waste management system. The informant explained that solid waste had been utilized as fertilizer, whereas liquid waste did not yet have a dedicated treatment

system. Plans for biogas development that had previously been discussed had also not been realized at the time of the interview.

The findings from Bergas Kidul are consistent with the study by Sholichin et al. (2023) in Kali Gede Hamlet, Ngancar Village, which showed that cattle and goat manure can be processed into compost through community training and practical activities. That study indicated that livestock waste utilization can help farmers reduce fertilizer purchasing costs while adding value to resources available in the village. Similar findings were reported by Fitria et al. (2024), who emphasized the importance of involving farmer groups and women farmer groups in managing organic waste and animal manure. Both studies support the finding that organic material processing requires technical knowledge, assistance, and cooperation among groups. Nevertheless, the level of processing differs. The study in Kali Gede specifically conducted training and practical compost-making activities using EM4, whereas the available Smartani data mainly indicate the use of animal manure as fertilizer and compost training based on household waste. Therefore, the two cases should not be regarded as having exactly the same processing procedures (Sholichin et al., 2023; Fitria et al., 2024).

Analytically, these practices indicate the development of a community-based circular agriculture pattern through relationships among livestock breeders, farmer groups, and households. Animal manure is used as fertilizer, household waste and food scraps are introduced as compost materials, and the resulting products support home-gardening activities. This pattern shows that agricultural sustainability is determined not only by the availability of corporate assistance but also by the community's ability to manage local resources and build relationships among groups. Nevertheless, the practices remain constrained, particularly in the management of liquid livestock waste and the absence of data on compost volumes, fertilizer production quantities, and their effects on crop productivity. Thus, the Smartani Program demonstrates the potential to develop circular agriculture through local organic resource utilization, but stronger

group capacity, comprehensive waste processing, and continuous assistance are still needed for its ecological and economic benefits to develop further.

3. Home Gardens and Changes in Household Food Provision Practices in the Village

One change observed through PT Sido Muncul Tbk's Smartani Program in Bergas Kidul Village is the expansion of opportunities for community members to engage in agricultural activities, including those who do not own rice fields. According to an interview with Mr. Ganjar, before the program began, farming was more commonly practiced by residents who owned rice fields, while those without agricultural land tended not to cultivate crops. Following the provision of assistance and encouragement to use non-paddy land, community members began developing agricultural activities around their homes. The informant stated that almost all residents now have the opportunity to grow plants, even if they can only use limited yard space. This change indicates that household farming has become an alternative productive activity that does not depend entirely on rice-field ownership. Having operated since 2024, the program has therefore broadened community access to household-scale food cultivation.

Limited land does not necessarily prevent community members from growing crops. Interviews indicate that residents use small yards, polybags, and used water gallons as planting media. One informant explained that these simple containers enable residents to continue cultivating plants even without large rice fields. Interviews with another farmer also revealed the use of home gardens to grow vegetables commonly consumed by families, such as mustard greens, water spinach, chilies, eggplants, and spinach. The informant also used cocopeat waste from a nearby melon greenhouse, mixing it with soil and fertilizer to make the growing medium looser. These practices demonstrate the community's ability to adapt available spaces and materials to support household-scale agriculture. Home gardening does not require extensive land, but it does require cultivation techniques suited to the environmental conditions of each household.

Field observations showed that residents' yards were indeed used to cultivate food crops and vegetables. Observation notes from 20 July 2026 recorded the use of home gardens for fruit plants and vegetables, although some plants were in a post-harvest condition and had not yet been replanted. This finding indicates that home-gardening activities do not necessarily remain productive continuously. Interviews with farmers also revealed a pause in planting because residents were waiting for fertilizer to become available before resuming cultivation. This condition is important because the existence of a productive home garden depends not only on community willingness but also on the continuity of input availability and plant maintenance. Thus, home-gardening practices in Bergas Kidul demonstrate both the potential for utilizing household space and the challenge of maintaining continuous production.

The most tangible benefits experienced by community members relate to family food consumption and reduced daily shopping expenditure. Mr. Ganjar explained that home-garden produce is initially intended for household needs, allowing families to harvest vegetables at home without always having to buy them at the market. He stated that the economic benefit includes reducing at least one component of daily expenditure while providing access to organically cultivated vegetables. Other interviews indicate that when production exceeds household consumption needs, some of the harvest can be sold to neighbors or supplied on consignment to vegetable vendors. The informant mentioned that two vegetable vendors were willing to purchase residents' produce. Although no monetary calculation of savings or additional income is available, these findings indicate two forms of economic benefit: savings through household consumption and the opportunity to earn income from surplus harvests.

These findings are consistent with Ashari et al. (2012), who explain that home-garden utilization has the potential to meet family food needs, reduce food expenditure, and increase household income. Hanifah et al. (2014), in their study of the Sustainable Food House Area program in East Java and South Sumatra, also found that home gardens contributed approximately 2.5–8.8% of household food expenditure, particularly

through savings on vegetable purchases. Meanwhile, Abdoellah et al. (2020) offer a more critical observation: excessive commercialization of home gardens may undermine their original function as a source of household food when crops are increasingly directed toward market demand. This comparison is relevant to Bergas Kidul because interviews indicate that the primary purpose of cultivation remains household consumption, while sales take place when there is surplus produce. Therefore, the use of home gardens in the Smartani Program remains primarily oriented toward household food provision, with market sales serving as a secondary activity when harvests exceed family needs.

4. Community Participation and the Sustainability Challenges of Circular Agriculture Practices

The implementation of the Smartani Program in Bergas Kidul Village shows that community involvement is organized through agricultural activities at the neighborhood-unit (RT) level and through community groups. According to an interview with Mr. Ganjar, program activities are directed toward all RTs by involving groups such as women's groups (dasawisma), farmer groups, and other community structures. This approach is intended to ensure that agricultural activities are not concentrated in only one location but can be developed across different parts of the village. The involvement of existing community groups also provides a social foundation for program implementation because activities can be coordinated through established local structures.

Training and assistance are important components because some community members previously had no background in farming. The informant explained that residents received training on plant characteristics, compost production, organic fertilizer use, soil care, and pest control using organic materials. Assistance was also provided continuously according to community needs and the problems encountered, including pest attacks. According to Mr. Ganjar, these activities improved residents' knowledge because they began to understand how to care for plants, prepare materials for pest control, and maintain loose soil conditions. Thus, empowerment did not stop at the distribution of agricultural assistance but also included knowledge transfer and the development of practical skills. This is

consistent with Alif et al.'s (2026) study of 165 women farmers in South Kalimantan, which showed that empowerment competencies, access to agricultural information, institutional support, and participatory communication play a role in managing productive home gardens.

Although the activities were designed to reach all RTs, community participation was not entirely even. Mr. Ganjar explained that, during the initial stage, the entire community was involved through groups, but not all residents were able to participate actively. This statement reveals a distinction between the administrative reach of a program and actual community involvement in its implementation. An observation conducted on 6 August 2026 at the food-security garden in RT 01/RW 01, Krajan Hamlet, identified the use of communal land to grow various food crops and plants that support community needs. However, findings from this single location cannot be used to conclude that all RTs have the same level of activity and success. Uneven participation has also been reported in research on urban agriculture in Indonesia, which noted that a group with approximately 30 registered members may have only 5–7 people actively involved in day-to-day activities. This comparison indicates that group membership numbers do not necessarily reflect actual participation intensity (Cultivating the Margins, 2026).

These differences in participation encouraged a change in the program's approach, from collectively managed gardens toward independent cultivation in each household's yard. Based on an interview with Mr. Ganjar, the group activities in the initial stage mainly served as a shared learning space where community members could understand the basics of cultivation. After gaining experience, residents were encouraged to grow plants independently at home. The informant stated that this approach was expected to expand agricultural practices without requiring continuous dependence on group activities. This change can be understood as a transition from collective learning toward strengthening individual and household capacity. Nadhiroh et al.'s (2021) study of the Home Gardening Zone in Mojokrapak Village, Jombang Regency, supports the importance of this approach. Based on 10 in-depth interviews and one focus group discussion, the study found that seed

assistance and mentoring motivated community participation, while gardening activities also strengthened social cohesion and household food access.

However, the transition toward independent cultivation has not entirely eliminated the community's dependence on external support. An interview with a farmer indicated that planting activities had temporarily stopped after harvest because residents were waiting for fertilizer to become available before planting again. The informant stated that, at the time of the interview, one sack of fertilizer was available to be mixed with soil and cocopeat waste to improve the growing medium. Observations on 20 July 2026 also found that some residents' yards were in a post-harvest condition and had not yet been replanted, while plant seedlings were obtained by purchasing them. This condition indicates that the sustainability of activities depends not only on community knowledge and willingness but also on the availability of fertilizer, seeds, and assistance. A similar finding was reported by Nadhiroh et al. (2021), whose study found that some participants in the home-gardening program in Jombang considered motivational support and fertilizer availability necessary for the continuation of activities. Therefore, the challenge for Smartani is not merely to increase the number of participating residents, but also to maintain consistent participation and strengthen the community's ability to sustain agricultural activities after the assistance phase.

5. Shared Value Creation through Industry–Community Relations: Implications for Village Food Security

PT Sido Muncul Tbk's Smartani Program in Bergas Kidul Village demonstrates a relationship between the company's industrial activities and community agricultural needs through the utilization of organic resources and the provision of production inputs. According to an interview with Mr. Ganjar, the program, which he has been involved in since 2024, provides fertilizer, seeds, agricultural pesticides, training, and assistance to communities in each RT. One form of connection with the company's industrial activities is the provision of liquid organic fertilizer derived from processed jamu waste. This support is combined with local community resources, such as cattle and goat manure used as fertilizer

and household waste processed into compost. This relationship indicates that corporate resources can be utilized to address agricultural needs, while community members gain access to inputs and knowledge that support productive activities. This practice is consistent with Porter and Kramer's (2011) idea that Creating Shared Value (CSV) connects corporate economic value creation with the resolution of social problems through relevant business activities.

The program's benefits for the community are not limited to material assistance but also include improved capacity to manage agricultural activities independently. Interviews indicate that training covers compost production from household waste and food scraps, the use of organic fertilizer, and the development of agriculture on previously underutilized land. Residents who do not own rice fields have begun to find alternatives for cultivation by using home gardens, polybags, and used water gallons. An observation conducted on 6 August 2026 at the food-security garden in RT 01/RW 01, Krajan Hamlet, identified at least 19 types of plants, ranging from vegetables such as mustard greens, chilies, spinach, eggplants, tomatoes, and broccoli to food and herbal crops such as cassava, corn, turmeric, ginger, and kencur. This diversity indicates that home gardening is not directed toward a single commodity but also supports household food needs. This finding is consistent with Suryawan's (2014) study in Bali, which involved more than 800 families in optimizing home gardens. The study reported food expenditure savings of approximately IDR 5,000–20,000 per family per day. This figure represents findings from Bali, not a measurement of savings among households in Bergas Kidul, but it provides a comparison of the economic potential of home gardening.

From the perspective of household economics, the clearest benefit identified in Bergas Kidul is the reduction of daily shopping expenditure through the consumption of home-grown produce. Mr. Ganjar explained that home-garden produce can at least reduce one component of household expenditure while providing access to organically cultivated vegetables. This benefit is important because not all residents own rice fields, whereas home gardens are available even if their size is limited. Agricultural activities therefore do not have

to generate cash income to provide economic benefits; meeting part of a family's food needs can also reduce household expenditure. This finding is consistent with Ashari et al. (2012), who explain that optimizing home gardens can support food security and household economies. However, the savings experienced by residents of Bergas Kidul have not been calculated in monetary terms and therefore cannot be directly compared with savings figures from other studies. The available evidence more accurately indicates an economic benefit in the form of reduced food expenditure rather than a measured increase in household income.

The relationship between PT Sido Muncul Tbk's industrial activities and community agricultural needs provides an important basis for examining the Smartani Program through the Creating Shared Value (CSV) perspective. However, the presence of corporate assistance and community benefits alone is insufficient to establish that a program represents fully realized CSV. Porter and Kramer (2011) emphasize that CSV involves connecting social problem-solving with the creation of economic value for the company. This distinguishes CSV from philanthropic activities or conventional CSR initiatives in which social benefits may be generated without a direct and demonstrable relationship to corporate economic value creation.

In the Smartani Program, the connection between industrial activities and community needs is reflected in the utilization of liquid organic fertilizer derived from jamu-processing waste. This practice provides agricultural inputs for community members while creating an alternative use for residual materials generated through industrial processing. At the community level, the findings indicate several forms of value creation. First, household gardening enables residents to produce vegetables and food crops for family consumption, thereby reducing the need to purchase certain food items. Second, surplus harvests can be sold to local vegetable vendors, creating opportunities for additional household income. Third, training in compost production, organic fertilizer utilization, and plant maintenance contributes to the development of practical agricultural skills. These findings suggest that

the program generates social and household-level economic benefits beyond the distribution of agricultural inputs.

Nevertheless, the available evidence does not establish whether these community benefits are accompanied by measurable economic returns for the company. The researchers did not obtain access to the company's internal operational or financial data, including information on the volume of industrial waste utilized, waste-management costs before and after the program, fertilizer production costs, or possible operational efficiencies. Consequently, it is not possible to determine whether the utilization of jamu-processing waste has reduced corporate expenditure, improved production efficiency, or generated other measurable business benefits. The absence of such evidence does not necessarily mean that corporate benefits do not exist; rather, these benefits remain unverified within the scope of this research.

This distinction is important when differentiating Smartani from conventional CSR or philanthropic assistance. The program demonstrates a connection between a resource originating from the company's industrial activities and the agricultural needs of surrounding communities. However, the extent to which this connection has become part of the company's economic value-creation strategy cannot be established using community-level data alone. Therefore, Smartani is more accurately interpreted as an early-stage initiative that integrates industrial resource utilization with community empowerment and demonstrates the potential for CSV, rather than as a fully verified model of shared economic and social value creation.

From the perspective of community food resilience, the most visible contribution of Smartani is the expansion of household capacity to produce some of its own food. Residents who previously had limited access to agricultural land have begun utilizing home gardens, polybags, and reused containers to cultivate vegetables and other food crops. The harvested produce is primarily consumed by household members, while surplus production may be sold to local vendors. These practices provide alternative access to food and may reduce household expenditure on vegetables. However, the study did not collect systematic data on

household food expenditure before and after program participation, harvest frequency, dietary diversity, or the proportion of household food needs supplied by home gardens. Accordingly, the findings demonstrate a contribution to household food provision, but do not establish the magnitude of changes in household food security or resilience.

The sustainability of these benefits also depends on the continuity of agricultural activities and the capacity of community members to manage available resources. Field observations identified differences in the condition of household gardens, including some areas that remained productive and others that had not been replanted after harvesting. Interviews further indicated that the availability of fertilizer and seeds influenced residents' decisions to resume cultivation. Although the transition from collective gardening activities toward individual household cultivation provides an opportunity to strengthen personal responsibility, it does not automatically indicate complete community independence. Continued reliance on external agricultural inputs and assistance suggests that the empowerment process remains ongoing.

The findings therefore indicate that the assessment of Smartani's shared value potential requires indicators at both corporate and community levels. At the corporate level, relevant indicators include the volume of jamu-processing by-products utilized, the proportion of residual materials redirected to productive use, waste-management cost efficiency, and the contribution of the program to corporate operational objectives. At the community level, relevant indicators include household food expenditure savings, harvest frequency, the proportion of agricultural produce consumed by households, additional income from surplus sales, and the diversity of cultivated food crops. Program sustainability and community independence can also be examined through the continuity of cultivation, the ability to produce or obtain agricultural inputs independently, active participation in community institutions, and the capacity to maintain agricultural activities without continuous external assistance.

Table 1. Analytical Indicators for Assessing Shared Value in the Smartani Program

Assessment Dimension	Proposed Indicators	Evidence Required for Further Assessment
Corporate economic value	Volume of jamu-processing by-products utilized; waste-management cost efficiency; fertilizer production and distribution costs; contribution to operational efficiency	Corporate operational records, waste-management reports, production data, and interviews with company representatives
Community economic and social value	Household food expenditure savings; additional income from surplus harvests; agricultural knowledge and practical skills	Household expenditure records, harvest records, interviews, and assessment of agricultural competencies
Household food resilience	Harvest frequency; diversity of cultivated food crops; proportion of produce consumed by households; contribution of home gardens to household food needs	Household food records, garden observations, harvest documentation, and interviews with beneficiary households
Program sustainability	Continuity of cultivation; availability of seeds and fertilizers; maintenance of gardens; continuity of community-group activities	Longitudinal field observations, community-group records, and interviews with local institutions
Community independence	Independent production or procurement of agricultural inputs; ability to manage gardens without continuous assistance; community-led resource management	Interviews with beneficiaries, observation of independent agricultural practices, and documentation of community initiatives

Source: Developed by the authors (2026)

These indicators are proposed as an analytical basis for future program evaluation and should not be interpreted as outcomes already measured in this study. Overall, the Smartani case demonstrates how industrial by-products and locally available organic resources can be connected with community agricultural practices. Its contribution to the CSV discussion lies in identifying both the social benefits that have emerged and the conditions that remain necessary for shared value to be demonstrated more comprehensively. In particular, the relationship between community empowerment and corporate economic benefits requires

further investigation using company-level data and longitudinal evidence of community outcomes.

CONCLUSION

The findings show that PT Sido Muncul Tbk's Smartani Program in Bergas Kidul Village demonstrates a form of shared value creation through the connection between industrial resources and community agricultural needs. Waste generated from jamu processing is utilized as an ingredient for liquid organic fertilizer, while local organic resources, such as cattle and goat manure and household waste, are used as manure fertilizer and compost. These practices demonstrate the emergence of relationships among industrial activities, livestock groups, farmer groups, and households in supporting agriculture based on local resource utilization. The program has also encouraged changes in community agricultural practices. Residents who previously tended to farm only when they owned rice fields have begun using home gardens, polybags, and used water gallons to grow vegetables and food crops. The harvest is primarily used for family consumption, helping reduce daily shopping expenditure. These findings indicate that Smartani's contribution is not limited to providing production inputs; it also expands community access to agricultural activities, improves skills, and strengthens food security at the household level.

From the Creating Shared Value perspective, the findings indicate that Smartani has established an emerging connection between industrial resource utilization and community agricultural needs. The use of jamu-processing by-products as agricultural inputs, combined with locally available organic resources, supports community-based agricultural practices. At the household level, the program contributes to agricultural skills, opportunities for food production, and reported reductions in food expenditure. However, measurable economic benefits for the company have not been established because the study did not obtain access to corporate operational and financial data. In addition, household food resilience, long-term program sustainability, and community independence have not been systematically measured. Therefore, Smartani is more appropriately understood as an early-stage initiative

with the potential for shared value creation rather than a fully demonstrated CSV model. Realizing this potential requires stronger corporate-community integration, more consistent community participation, improved local resource-management capacity, and systematic measurement of economic, social, and environmental outcomes. Future research should incorporate corporate-level data and longitudinal assessments of beneficiary households to evaluate whether the social benefits generated by the program are accompanied by measurable corporate value and sustained community independence.

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