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From Agricultural Waste to Community Value: The Prakarsa Bagja Juara Program as A Circular CSR Initiative in Karawang, Indonesia

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ABSTRACT: Agricultural communities in rural areas face increasing challenges in managing agricultural residues while maintaining productive and sustainable livelihoods. In Pasirtanjung Village, Karawang, Indonesia, agricultural waste, particularly rice straw, had been largely underutilized and was commonly treated as a disposal problem. The Prakarsa Bagja Juara Program, implemented through the Corporate Social Responsibility (CSR) initiative of PT Pertamina Patra Niaga Fuel Terminal Cikampek, seeks to address this condition by connecting agricultural waste management with community empowerment and local economic activities. This study aims to examine how the program transforms agricultural residues into community resources through a circular CSR approach. A qualitative case study was employed using interviews, participatory observation, group discussions, and program documentation. The analysis focused on three interconnected processes: resource transformation, community collaboration, and value creation. The findings indicate that the program has encouraged the utilization of rice straw, water hyacinth, field snails, and other organic materials as inputs for compost, planting media, mushroom cultivation, and other community-based activities. These practices have contributed to the development of new linkages among farmer groups, women's groups, waste management initiatives, water service activities, and local micro-enterprises. Beyond waste reduction, the program has created opportunities for skills development, resource sharing, product development, and income diversification. The findings suggest that CSR can function not only as a mechanism for delivering community assistance but also as a platform for connecting previously fragmented local resources, actors, and economic activities. The Prakarsa Bagja Juara experience demonstrates how circular economy practices can be embedded within community development to generate broader social, environmental, and economic value at the local level.

KEYWORDS: Agricultural Waste, Circular Economy, Corporate Social Responsibility, Community Empowerment, Local Value Creation, Prakarsa Bagja Juara

I. INTRODUCTION

Agricultural activities provide an important source of income and employment for rural communities, but they also generate large amounts of organic residues that are not always managed productively. Rice straw is one of the most common agricultural residues in rice-producing areas and is frequently treated as a waste material rather than as a potential resource. When agricultural residues are burned or left unmanaged, they may contribute to environmental problems while also representing a loss of materials that could otherwise be returned to local production systems. This situation illustrates a broader challenge in rural development: improving environmental management while ensuring that agricultural resources can continue to support community livelihoods.

The concept of a circular economy offers an alternative way of understanding this challenge. Rather than viewing production and consumption as a linear process in which resources are extracted, used, and discarded, the circular economy emphasizes maintaining the value and usefulness of materials through reuse, recovery, recycling, and regeneration. In agricultural communities, this approach can involve transforming residues into compost, planting media, animal feed, energy sources, or other productive inputs. Recent studies have increasingly highlighted the potential of circular economy practices in agriculture to connect environmental management with economic and social objectives. However, the implementation of circular practices at the community level is not simply a matter of introducing waste-processing technology. It also requires local knowledge, collective organization, access to infrastructure, and mechanisms that enable communities to participate in creating value from recovered resources.

Corporate Social Responsibility (CSR) can provide one mechanism through which these processes are initiated and connected. Contemporary CSR approaches increasingly move beyond philanthropic assistance toward interventions that address social and environmental challenges while creating shared value for communities and other stakeholders (Porter & Kramer, 2011). From this perspective, CSR can function as a facilitator of local innovation by supporting capacity building, infrastructure, institutional development, and collaboration among community groups. The contribution of CSR becomes particularly relevant in rural areas

where communities may possess substantial local resources but face limitations in technology, capital, knowledge, market access, or institutional coordination.

The relationship between circular economy and community empowerment is therefore important to examine. Circular practices can generate new forms of value from materials that were previously considered waste, but the distribution and sustainability of that value depend on the involvement of local actors. Farmer groups, women's groups, waste management initiatives, micro-enterprises, and other community organizations can perform different functions within a local circular system. Their interactions may create new pathways for knowledge exchange, resource sharing, product development, and income diversification. In this sense, circular economy is not only an environmental management strategy but can also become a social process in which communities reorganize the way resources are used and exchanged.

This perspective is relevant to the context of Pasirtanjung Village, Lemahabang District, Karawang Regency, Indonesia. The village is situated within an agricultural landscape where rice cultivation forms an important part of local economic activity. The source study identifies several challenges associated with agricultural practices and community livelihoods, including the underutilization of rice straw, the use of chemical agricultural inputs, limited access to productive resources for many agricultural workers, and dependence on seasonal or daily employment. More than 2,450 tons of rice straw per year were reported as not being optimally managed, with a substantial portion previously being burned. At the same time, around 70% of residents were described as working as agricultural laborers without ownership of agricultural land. These conditions demonstrate that environmental and livelihood challenges are interconnected rather than existing as separate problems.

The Prakarsa Bagja Juara Program, implemented through the CSR initiative of PT Pertamina Patra Niaga Fuel Terminal Cikampek, emerged within this context. Rather than focusing solely on agricultural production, the program developed a series of activities that connected agricultural residues and other local materials with community-based productive activities. Rice straw was utilized as a medium for mushroom cultivation, while spent mushroom media could subsequently be processed into compost or planting media. Other locally available materials, including water hyacinth, field snails, and organic waste, were incorporated into community waste-processing activities. The program also developed initiatives such as Bank Sampah WISE, Bank JEKS, women's community groups, mushroom cultivation groups, Agro Santri, PAMSIMAS and Sahabat Air, and local micro-enterprise activities.

These activities indicate that the program can be understood not only as an environmentally oriented agricultural intervention but also as an attempt to establish connections among resources, community actors, and productive activities. The transformation of rice straw into mushroom cultivation inputs, for example, creates a connection between agricultural production and a new economic activity. Similarly, the processing of organic materials into compost and planting media creates opportunities to return resources to local production rather than treating them as final waste. Through these connections, materials can move between different activities while knowledge and skills are transferred among community members.

Although previous studies have examined sustainable livelihoods, environmentally friendly agriculture, circular economy, and CSR as separate areas of inquiry, there remains a need to better understand how CSR-supported programs connect these elements at the community level. In particular, less attention is given to the process through which agricultural waste is transformed into community value through interactions among local groups and supporting institutions. The issue is therefore not only whether waste is reduced or whether particular products are produced, but how a CSR intervention can facilitate the emergence of a local system in which resources, knowledge, capabilities, and economic activities become more interconnected.

This study addresses that gap by examining the Prakarsa Bagja Juara Program as a circular CSR initiative. The study shifts the analytical focus from sustainable livelihoods as the primary framework toward the process of resource transformation and community value creation. It examines how agricultural residues are transformed into productive resources, how community actors become connected through these activities, and how such connections contribute to environmental, social, and economic value. The study aims to provide insights into how CSR can support community-based circular economy practices in rural agricultural settings and how locally available resources can be reconfigured into assets for community development.

II. LITERATURE REVIEW

The circular economy has increasingly been discussed as an alternative to conventional linear production systems that follow a "take-make-dispose" pattern. Rather than treating waste as the final stage of production, circular economy approaches seek to retain the value of materials through reuse, recovery, recycling, and regeneration. In the agricultural sector, this perspective is particularly relevant because production processes generate substantial amounts of organic residues that can potentially be returned to productive systems. Agricultural residues can be converted into compost, soil amendments, planting media, animal feed, bioenergy, or other productive inputs, thereby reducing dependence on external resources while creating new forms of value within local systems. Murray, Skene, and Haynes (2017) argue that the circular economy should not be understood only as a technical or economic model, but also as a broader system of change involving social practices and organizational arrangements. This perspective is important for rural communities, where resource circulation is often closely connected to collective action and local knowledge.

In agricultural communities, circularity can therefore extend beyond waste processing. It can involve the reorganization of relationships between farmers, community groups, households, enterprises, and supporting institutions. The transformation of one activity's residual materials into inputs for another activity creates opportunities for resource efficiency and local value creation. Recent research on circular agriculture similarly emphasizes the importance of integrating environmental sustainability with economic and social dimensions rather than considering agricultural waste management as an isolated technical intervention. Circular agricultural systems can contribute to resource efficiency and sustainability when material flows are connected with appropriate technologies, knowledge, institutions, and markets. However, the realization of these benefits depends on the capacity of local actors to participate in and maintain the circular processes.

The community dimension is particularly important because resources do not become community assets simply through technological conversion. Community empowerment involves increasing people's capacity to identify problems, access resources, develop knowledge and skills, participate in decision-making, and manage activities that affect their livelihoods. From a community development perspective, empowerment is closely associated with participation and the development of local capabilities rather than the passive receipt of external assistance. In the context of circular economy initiatives, this means that community members need to become actors in resource recovery and value creation. Training, mentoring, group organization, access to productive infrastructure, and opportunities to develop products and services can help communities move from being recipients of CSR assistance toward becoming participants in managing local circular activities.

The role of Corporate Social Responsibility is relevant within this process. Porter and Kramer (2011) introduced the concept of shared value to emphasize that social and environmental challenges can be addressed alongside the creation of economic value. Although CSR has historically included philanthropic and charitable activities, contemporary approaches increasingly consider how companies can contribute to long-term social and environmental development through strategic engagement with communities and other stakeholders. In rural development contexts, CSR can provide resources that are often difficult for community groups to access independently, including training, infrastructure, technology, facilitation, networking, and institutional support. Its potential contribution is therefore not limited to financial assistance; CSR can also help connect fragmented resources and actors within a local development system.

This understanding is consistent with the perspective of social innovation. Murray, Caulier-Grice, and Mulgan (2010) describe social innovation as the development of new ideas, relationships, and approaches that respond to social needs and create social value. Howaldt and Schwarz (2017) further emphasize that social innovation involves changes in social practices and relationships, rather than merely the introduction of new technologies or products. Applied to community-based circular economy programs, this perspective suggests that innovation may occur when communities develop new ways of organizing resources, collaborating, and generating value from materials that were previously regarded as waste. Thus, a circular CSR initiative can potentially become a social innovation when it changes how communities perceive resources, organize collective activities, and create solutions to local environmental and economic challenges.

Collaboration among stakeholders is another important component of this process. Community-based development rarely operates through a single actor. Local governments, corporations, community organizations, farmer groups, women's groups, educational institutions, and other stakeholders may possess different resources and capabilities. Ansell and Gash (2008) explain collaborative governance as a process in which public and non-public actors engage in collective decision-making and problem solving. Emerson and Nabatchi (2015) similarly highlight the importance of cross-boundary collaboration in addressing complex public and community problems. In a circular economy context, collaboration is particularly significant because material flows often cross organizational and activity boundaries. Agricultural residues may originate from farmers, be processed by community groups, and subsequently become inputs for other productive activities. The effectiveness of such a system therefore depends partly on the relationships and coordination among the actors involved.

The concept of local value creation provides a useful link between circular economy, community empowerment, and CSR. Value in this context should not be restricted to monetary income. The transformation of agricultural waste can generate environmental

The circular economy has increasingly been discussed as an alternative to conventional linear production systems that follow a “take-make-dispose” pattern. Rather than treating waste as the final stage of production, circular economy approaches seek to maintain the value and usefulness of materials through reuse, recovery, recycling, and regeneration (Stahel, 2016; Kirchherr, Reike, & Hekkert, 2017). Geissdoerfer et al. (2017) further position the circular economy as a sustainability paradigm that connects resource efficiency with broader environmental and economic objectives. In agricultural settings, these principles are particularly relevant because biological residues can potentially be returned to production systems rather than being treated as final waste.

Agricultural circularity involves more than recycling materials. It can include strategies for closing, slowing, narrowing, and regenerating resource loops through changes in products, production processes, and business models (Bocken et al., 2016). In agricultural systems, residues such as rice straw can be converted into compost, soil amendments, mushroom substrates, animal feed, bioenergy, and other value-added products. Recent research has emphasized the growing role of biomass utilization and other

resource-recovery pathways in circular agriculture (Peng et al., 2025). This suggests that agricultural waste can be considered a potential input for new production activities when appropriate technologies, knowledge, and institutional arrangements are available.

The valorization of agricultural residues is also important from an environmental perspective. Open burning and other forms of unmanaged disposal can result in the loss of potentially useful biomass and create environmental pressures. A circular approach instead seeks to retain material value within the production system. Research on rice-straw valorization has demonstrated the potential for converting this residue into useful agricultural and productive inputs, including compost and mushroom-related substrates (Singh & Patel, 2022). Such practices illustrate how resource recovery can connect environmental management with opportunities for local production.

Murray, Skene, and Haynes (2017) argue that the circular economy should not be understood only as a technical or economic model but also as a broader system of social and organizational change. This perspective is important in rural communities because resource circulation depends on collective practices, local knowledge, and relationships among actors. The circular economy therefore has a social dimension: materials circulate because people organize activities, exchange knowledge, and establish arrangements that enable resources to move from one activity to another.

The role of social actors becomes particularly visible in activities involving mushroom cultivation and the subsequent use of spent mushroom substrate. Rather than treating spent substrate as a final waste stream, recent studies have explored its potential as a bioresource for agricultural and circular applications (Parihar et al., 2026). This is relevant to community-based agricultural programs because the same material can pass through several productive stages, increasing resource utilization while creating opportunities for additional community activities.

Circular economy practices can also contribute to community empowerment when local people become active participants in resource recovery and value creation. Community empowerment involves strengthening people's capabilities to identify problems, access resources, develop skills, participate in decision-making, and manage activities that affect their lives. In this context, training, mentoring, group organization, productive infrastructure, and market access are not simply supporting components; they are mechanisms through which communities can develop the capacity to sustain circular practices.

Corporate Social Responsibility provides one institutional mechanism through which these processes can be initiated and connected. Porter and Kramer (2011) argue that social and environmental challenges can be addressed alongside the creation of economic value through a shared-value perspective. More recent research also indicates that CSR can contribute to sustainable agricultural practices and farmer livelihoods when corporate engagement is connected with community needs and productive activities (Misra, Kumari, & Miglani, 2024). Thus, CSR can potentially function not only as a source of financial or material assistance but also as a facilitator of knowledge, infrastructure, networks, and institutional coordination.

The relationship between CSR and circular economy is particularly relevant when local environmental problems are interconnected with livelihood challenges. Community groups may possess agricultural residues and other local resources but lack the technology, capital, knowledge, or organizational capacity to transform those resources into productive inputs. CSR interventions can help bridge these gaps by facilitating training, infrastructure, partnerships, and access to wider networks. The effectiveness of such interventions, however, depends on whether local actors are able to appropriate and continue the practices after external support is reduced.

This perspective is closely related to social innovation. Murray, Caulier-Grice, and Mulgan (2010) describe social innovation as the development of new ideas and approaches that respond to social needs and create social value. Howaldt and Schwarz (2017) emphasize that social innovation involves changes in social practices and relationships rather than merely the introduction of new technologies. In community-based circular economy initiatives, innovation can therefore occur when communities establish new ways of organizing materials, sharing knowledge, cooperating across groups, and creating value from resources previously regarded as waste.

The collaborative dimension is equally important. Circular resource systems often cross the boundaries of individual households, farmer groups, community organizations, enterprises, and government institutions. Ansell and Gash (2008) describe collaborative governance as a process through which different actors engage in collective problem solving, while Emerson and Nabatchi (2015) emphasize the importance of cross-boundary collaboration for addressing complex public problems. Within a community-based circular system, collaboration can enable one actor's residual material to become another actor's productive input.

Business-model and supply-chain perspectives further indicate that circularity requires relationships that connect resource flows with productive activities (Geissdoerfer, Morioka, de Carvalho, & Evans, 2018). At the community level, these relationships may be less formal than conventional supply chains, but the underlying principle remains relevant: value can be retained when materials, knowledge, and capabilities are connected across stages of production and use. This reinforces the need to examine circular economy initiatives as systems of relationships rather than isolated waste-processing technologies.

The creation of value within such systems should also be understood broadly. Economic value may emerge through new products, services, savings, or income-generating activities, while environmental value may arise through improved resource utilization and reduced unmanaged waste. Social and institutional value may emerge through learning, participation, collective

organization, and stronger local institutions. This multidimensional understanding is consistent with the view that circular economy initiatives can generate sustainability benefits only when environmental, economic, and social dimensions are considered together (Korhonen, Honkasalo, & Seppälä, 2018).

These perspectives provide the conceptual basis for examining the Prakarsa Bagja Juara Program through a lens that differs from the Sustainable Livelihoods Framework used in the original study. Rather than treating livelihood capitals as the primary analytical categories, this study focuses on the interaction between resource transformation, community collaboration, and local value creation. The framework views agricultural waste as a potential community resource, CSR as a facilitating mechanism, and circular practices as processes through which environmental, social, and economic value can emerge.

III. RESEARCH METHODS

This study employed a qualitative case study approach to examine the Prakarsa Bagja Juara Program as a community-based circular CSR initiative. A qualitative approach was considered appropriate because the study focused on understanding processes, community practices, interactions among local actors, and the ways in which agricultural residues were transformed into productive resources. Rather than measuring the program through experimental or statistical comparisons, the study sought to understand how the intervention operated within its local social, environmental, and economic context.

The research was conducted in Pasirtanjung Village, Lemahabang District, Karawang Regency, West Java, Indonesia, where the Prakarsa Bagja Juara Program was implemented by PT Pertamina Patra Niaga Fuel Terminal Cikampek. The research site was selected purposively because the program integrates agricultural activities, waste management, community empowerment, and local economic initiatives within the same community setting. The case provides an opportunity to examine how agricultural residues and other locally available resources can be connected with community-based productive activities.

Data were collected through interviews, participatory observation, group discussions, and program documentation. Interviews and discussions were used to obtain information concerning community experiences, program activities, changes in resource utilization, capacity development, and collaboration among community groups. Participatory observation was used to understand how circular activities were practiced in the field, including the processing and utilization of agricultural and organic materials. Program documents were also reviewed to complement information obtained from field interactions and to provide evidence concerning the development and implementation of program activities.

The study involved community members and groups participating in or associated with the Prakarsa Bagja Juara Program, as well as relevant program stakeholders. These included members of farmer and women's groups, community-based waste management initiatives, productive groups, and other actors involved in the implementation of the program. Participants were selected purposively based on their involvement and knowledge of the activities being examined. This approach enabled the research to obtain information from actors who directly experienced or contributed to the program's development.

Data analysis followed an iterative qualitative process consisting of data condensation, data display, and conclusion drawing and verification, following Miles, Huberman, and Saldaña (2018). Information collected from interviews, observations, discussions, and documents was organized according to the central analytical themes of the study. The analysis focused on three interconnected dimensions: (1) resource transformation, (2) community collaboration, and (3) local value creation. Resource transformation examined how agricultural residues and other organic materials were redirected from disposal toward productive uses. Community collaboration examined relationships among community groups and supporting stakeholders in implementing these activities. Local value creation examined the environmental, social, and economic benefits emerging from the circulation and productive use of local resources.

Triangulation was applied by comparing information obtained from different data sources and research techniques. Findings from interviews were compared with observations, group discussions, and available program documentation to strengthen the credibility of the interpretation. The analysis also considered the context in which program activities developed, recognizing that community-based CSR outcomes are influenced by local institutions, participation, available resources, and the continuity of community involvement.

The study adopts a process-oriented interpretation rather than claiming direct causal effects of the CSR intervention. Reported activities and outcomes are therefore understood as documented developments within the program context. The research does not employ a counterfactual design or longitudinal control group; consequently, the findings are intended to explain the mechanisms and patterns observed in the case rather than statistically attribute all observed changes to the program. This approach is consistent with the purpose of the study, which is to understand how CSR can facilitate the transformation of agricultural waste into productive community resources and how these processes support local value creation.

Researcher interpretation was also informed by the principle that community members should be understood as active participants in the development process rather than merely beneficiaries. This perspective was important in examining the transition from externally supported activities toward locally managed practices. Attention was therefore given not only to the physical

transformation of materials, but also to changes in knowledge, collaboration, organizational capacity, and the emergence of community actors who could continue program activities.

Through this methodological approach, the study seeks to provide a contextualized account of the Prakarsa Bagja Juara Program and its contribution to community-based circular economy practices. The resulting analysis connects observed field practices with the conceptual framework developed in the literature review, particularly the relationship between agricultural waste, resource transformation, community collaboration, and local value creation.

IV. RESULTS

A. From Agricultural Waste to Community Resources

The implementation of the Prakarsa Bagja Juara Program indicates a gradual shift in how agricultural residues are perceived and managed within the community. Before the development of the program, rice straw was largely treated as an agricultural residue with limited economic use. The source study reports that more than 2,450 tons of rice straw were generated annually and were not optimally managed, with a substantial portion being burned. This condition created an environmental management challenge while simultaneously leaving a potentially valuable local resource unused.

The program introduced a different approach by connecting agricultural residues with productive community activities. One of the clearest examples was the utilization of rice straw as a growing medium for mushroom cultivation. After its use in mushroom production, the spent mushroom medium could subsequently be processed into compost and planting media. This created a resource flow in which material that would previously have been discarded could enter another stage of local production.

The resource transformation process was not limited to rice straw. Other locally available materials, including water hyacinth, field snails, and organic household or agricultural waste, were incorporated into community-based processing activities. These materials were processed into compost, planting media, liquid fertilizer, biogas-related inputs, and other productive uses. The program therefore developed a broader approach in which different forms of local waste were connected to different community activities rather than being managed independently.

Table 1. Transformation of Local Residues into Productive Resources

Local Residue	Initial Condition	Program-Based Utilization	Potential Community Value
Rice straw	Underutilized and partly burned	Mushroom growing medium	Production input and potential income source
Spent mushroom medium	Residual material after cultivation	Compost and planting media	Agricultural input
Water hyacinth	Organic material requiring management	Compost and planting media	Productive material
Field snails	Agricultural waste/pest material	Organic processing inputs	Resource recovery
Organic waste	Discarded household/community material	Compost, planting media, and related processing	Reduced waste and productive inputs

The results suggest that the central change was not simply the introduction of waste-processing activities, but the creation of connections between different material flows. A residue from one activity could become an input for another. This principle provided the foundation for the circular approach developed through the program.

B. Building a Community-Based Circular System

The transformation of agricultural residues was supported by the development of several community groups and initiatives. The program connected agricultural production with waste management, food production, water services, micro-enterprises, and community learning. Among the initiatives documented in the program were Bank Sampah WISE, Bank JEKS (Jerami, Eceng Gondok, Keong, Sampah), women's community groups, mushroom cultivation groups, Agro Santri, PAMSIMAS/Sahabat Air, and UMKM Dapur Teteh.

These initiatives performed different functions but were connected through the broader objective of utilizing local resources more productively. Bank JEKS, for example, reflects an effort to organize several types of locally available materials within a community-based resource management system. The Tukar Jerami Senilai initiative further introduced the idea that agricultural residues could possess exchange value rather than simply being materials for disposal.

The development of these activities indicates that circularity within the program operated through both material circulation and social connections. Material circulation occurred when residues were redirected toward productive activities, while social circulation occurred through the exchange of knowledge, skills, materials, and services among community members and groups.

The program can therefore be viewed as a developing community-based circular system rather than a collection of unrelated activities. Its activities created linkages between agriculture and mushroom cultivation, waste management and compost production, organic materials and agricultural inputs, and community resources and local economic activities.

C. Community Capacity and Local Ownership

The results also show that resource transformation was accompanied by efforts to strengthen community capabilities. Training, implementation assistance, and mentoring were used to introduce technical knowledge and support community members in applying new practices. The program emphasized the transfer of knowledge and skills rather than relying exclusively on external actors for implementation.

This process was important because circular activities require continuous participation. The ability to process agricultural residues into productive materials depends not only on equipment but also on people's understanding of the processes, their willingness to collaborate, and their capacity to maintain the activities after initial support.

Community organization consequently became an important component of the program. Farmer groups, women's groups, productive groups, and waste-management initiatives provided organizational spaces through which members could share responsibilities and develop activities collectively. The emergence of local actors and community leaders also supported the continuity of activities and the transfer of knowledge to other community members.

The program's development further involved institutional recognition and wider community engagement. The source study documents the replication of environmentally oriented activities to 10 ProKlim locations, as well as the development of Village Regulation No. 4/2025 concerning environmental management and conservation and a village appeal concerning sustainable agriculture and straw management.

These developments indicate that the program's influence extended beyond individual productive activities toward community-level norms and institutional arrangements. Local ownership was therefore reflected not only in participation but also in the increasing role of community institutions in maintaining and extending the practices introduced through the program.

D. Resource Recovery and Economic Value Creation

The circular activities developed through Prakarsa Bagja Juara also created pathways for economic value creation. The transformation of agricultural residues into mushroom cultivation inputs, compost, planting media, and other products allowed materials that previously had little or no direct economic value to become inputs for productive activities.

The Tukar Jerami Senilai initiative is particularly relevant to this process because it introduced an exchange mechanism for rice straw. Instead of treating straw only as waste requiring disposal, the initiative positioned it as a resource with exchange value. This represents a change in the economic meaning of agricultural residues within the community.

Economic value was also developed through diversification of community activities. Mushroom cultivation, waste-bank activities, organic fertilizer and planting-media production, water-related services, and local food enterprises provided different opportunities for community members to participate in productive activities. The source study also identifies the development of UMKM Dapur Teteh as part of the broader community empowerment activities.

These activities should not be interpreted as evidence that the program alone caused increases in household income. Rather, they demonstrate the creation of new economic opportunities and productive pathways within the program ecosystem. The economic dimension of circularity was therefore expressed through a combination of new products, resource savings, reduced dependence on some external inputs, and opportunities for income diversification.

E. Livelihood Diversification and Community Resilience

The development of circular activities also broadened the types of resources and activities available to community members. This is particularly relevant in a local context where many residents depend on agricultural labor and seasonal employment. The source study reports that approximately 70% of residents were agricultural laborers without land ownership, indicating that access to agricultural income could be limited by land ownership and employment seasonality.

Within this context, the creation of activities outside conventional farm labor provided additional avenues for participation. Mushroom cultivation, waste management, compost production, water services, and micro-enterprise activities enabled community members to engage with agriculture through different roles, including production, processing, service provision, and resource management.

The results therefore indicate that circular economy practices can contribute to livelihood diversification by expanding the range of activities through which community members can utilize local resources. The contribution to resilience should be understood in this broader sense: rather than relying on a single agricultural activity, community members can participate in multiple interconnected activities.

This finding also demonstrates the relationship between environmental and livelihood dimensions. Better utilization of agricultural residues can reduce unmanaged waste while simultaneously providing materials for productive activities. Similarly, the

development of organic inputs can connect waste management with agricultural production. Environmental improvement and livelihood development consequently become interconnected rather than being treated as separate program objectives.

F. Integrated Value Creation through the Prakarsa Bagja Juara Program

Taken together, the results show that the Prakarsa Bagja Juara Program developed an integrated approach to community-based resource management. The program did not rely on a single intervention but connected several activities through the principle of resource circulation.

Table 2. Main Dimensions of Value Creation

Dimension	Program Process	Observed Direction of Change
Environmental	Agricultural and organic residues are redirected from disposal toward productive use	Improved resource utilization
Social	Groups, training, mentoring, and collaboration are developed	Increased community participation and knowledge sharing
Economic	Residues become inputs for products and productive activities	New opportunities for value creation and diversification
Institutional	Community organizations and village-level arrangements are strengthened	Greater local ownership and continuity
Learning	Knowledge and skills are transferred among community members	Increased capacity to continue circular practices

The results suggest that the main contribution of the program lies in its ability to connect previously separated resources and activities. Agricultural residues become inputs, community groups become actors within resource circulation, and CSR support provides facilitation for infrastructure, capacity development, and institutional strengthening.

Rather than representing circular economy solely as a technical process of recycling or waste conversion, the Prakarsa Bagja Juara experience demonstrates its potential as a community development process. The value created through the program is multidimensional, encompassing environmental management, community capacity, economic opportunities, institutional development, and knowledge transfer.

This integrated pattern provides the basis for the subsequent discussion of how CSR can function as a platform for circular economy development and how community-based resource transformation can contribute to broader local development.

V. DISCUSSION

A. Reframing Agricultural Waste as a Community Resource

The findings of the Prakarsa Bagja Juara Program suggest that the meaning of agricultural waste can change when communities are provided with opportunities, knowledge, and organizational mechanisms to reuse local materials. Rice straw, water hyacinth, field snails, and other organic residues were initially associated primarily with disposal and environmental management challenges. Through the program, however, these materials were incorporated into mushroom cultivation, composting, planting media, and other productive activities. This indicates that the central change was not simply the reduction of waste, but a shift in the way local resources were understood and utilized.

This finding is consistent with the fundamental principle of the circular economy, which seeks to maintain the value and usefulness of materials for as long as possible. In the agricultural context, circularity becomes particularly relevant because agricultural production naturally generates biological residues that can be returned to production systems. Murray et al. (2017) emphasize that the circular economy encompasses not only material and economic processes but also social and organizational dimensions. The Prakarsa Bagja Juara case illustrates this broader interpretation because material recovery was accompanied by community organization, skills development, and collaboration among different groups.

The findings therefore indicate that agricultural waste should not necessarily be understood as a fixed category. Its value depends partly on how communities organize resources and develop pathways for reuse. A material considered waste in one activity can become an input in another when appropriate knowledge, technology, and institutional arrangements are available. This process represents an important conceptual shift from waste management toward resource management.

B. Circular Economy as a Community Empowerment Mechanism

The findings also demonstrate that circular economy practices can function as a mechanism for community empowerment. The program did not merely provide facilities for processing agricultural residues; it also involved training, mentoring, group development, and knowledge transfer. Community members were positioned as participants in the implementation of activities, including mushroom cultivation, waste management, compost production, and other productive initiatives.

This finding supports the argument that community empowerment involves strengthening people's capacity to manage resources and participate in processes that affect their lives. Within the Prakarsa Bagja Juara Program, empowerment occurred through practical learning and participation in productive activities. The process enabled community members to acquire knowledge concerning resource processing while simultaneously creating opportunities to apply that knowledge.

The relationship between circular economy and empowerment is important because technical infrastructure alone does not guarantee the continuity of circular practices. Processing equipment may facilitate resource recovery, but its long-term use depends on whether community members possess the skills, organizational structures, and motivation to operate and maintain the activities. In this case, the combination of infrastructure, mentoring, group organization, and productive activities created a more socially embedded form of circularity.

The findings consequently extend the understanding of circular economy from a primarily material perspective toward a human-centered perspective. Materials circulate because people organize, cooperate, learn, and make decisions concerning their use. Circularity at the community level is therefore partly a question of social capacity.

C. CSR as a Connector of Local Resources and Actors

The findings provide further insight into the role of CSR in community-based circular economy development. The contribution of PT Pertamina Patra Niaga Fuel Terminal Cikampek was not limited to providing resources or supporting individual activities. The program helped connect different community initiatives, resources, and productive functions. Through this process, CSR operated as a facilitating mechanism that supported the development of relationships between agricultural activities, waste management, productive groups, and local enterprises.

This role can be connected to the shared value perspective proposed by Porter and Kramer (2011), which emphasizes the potential for addressing social and environmental challenges while simultaneously creating economic value. In the Prakarsa Bagja Juara context, the environmental challenge of agricultural waste was connected with opportunities for community production and resource efficiency. The value generated was therefore not exclusively economic; it also included environmental and social dimensions.

The findings also support the collaborative perspective of CSR and community development. Complex local problems rarely fall within the responsibility or capacity of a single institution. Agricultural waste management, for example, involves farmers, community organizations, households, local institutions, and supporting actors. CSR can help create spaces and resources for these actors to interact, but the continuation of the system depends on community participation and local institutional capacity.

In this sense, CSR can be understood as a connector rather than merely a provider. Its strategic role lies in helping communities identify relationships between resources and activities that may previously have operated separately. This interpretation provides a different perspective from conventional CSR models that primarily evaluate programs according to the amount of assistance delivered.

D. From Material Circulation to Local Value Creation

One of the important findings of the study is that circularity generated value through several pathways. Rice straw could become an input for mushroom cultivation; spent mushroom media could subsequently be used for compost or planting media; and other organic materials could be processed into agricultural inputs. These connections demonstrate that the value of a resource can increase when it moves through several stages of productive use.

This pattern reflects the principle of value retention within circular economy systems. Instead of allowing materials to leave the local production system after a single use, circular practices seek to extend their functional life. In community settings, such circulation can also create opportunities for new economic activities and reduce the need to purchase certain external inputs.

However, the findings suggest that value creation should not be interpreted only in terms of revenue. Environmental value emerges through improved utilization of organic residues and reduced dependence on disposal practices. Social value emerges through collective learning, group participation, and cooperation. Economic value emerges through productive activities, resource savings, product development, and opportunities for income diversification. Institutional value can also emerge when circular practices become embedded within community organizations and local regulations.

This multidimensional form of value creation is consistent with the broader understanding of social innovation proposed by Murray et al. (2010) and Howaldt and Schwarz (2017). The innovation in this case does not lie exclusively in a particular product or technology. Rather, it emerges through new combinations of materials, activities, relationships, and community practices.

E. From Livelihood Assets to Livelihood Resilience

Although the present study does not use the Sustainable Livelihoods Framework as its primary analytical framework, the findings remain relevant to discussions of rural livelihoods. The original study identified the dependence of many residents on agricultural labor and the limitations associated with seasonal employment and land ownership. The circular activities developed through

Prakarsa Bagja Juara created additional ways for community members to participate in productive activities beyond conventional agricultural labor.

This finding suggests a relationship between circular resource use and livelihood diversification. When agricultural residues become inputs for mushroom cultivation, compost production, planting media, waste management, or other activities, they can support economic activities that are different from primary agricultural production. Community members can therefore participate in multiple stages of the local resource cycle.

The significance of this process lies in diversification rather than in the assumption of guaranteed income improvement. Diversification can provide communities with a broader portfolio of activities and resources, potentially reducing dependence on a single source of livelihood. In the context of rural communities exposed to seasonal agricultural conditions, this can be relevant to livelihood resilience.

The results should nevertheless be interpreted cautiously. The qualitative design does not establish a direct causal relationship between the program and changes in household income or long-term livelihood resilience. Instead, the findings demonstrate that the program created additional productive pathways and strengthened access to knowledge, community networks, and locally available resources. These mechanisms provide a basis through which livelihood resilience may be supported.

F. Community Ownership and Institutionalization of Circular Practices

Another important finding concerns the transition from program activities toward broader community ownership. The development of community groups, local actors, and village-level environmental arrangements indicates that circular practices were increasingly connected with local institutions. The documented replication of activities to 10 ProKlim locations and the development of Village Regulation No. 4/2025 concerning environmental management and conservation illustrate how program practices could extend beyond individual activities.

This finding can be interpreted through the collaborative governance perspective of Ansell and Gash (2008) and Emerson and Nabatchi (2015). Community development initiatives become more sustainable when different actors participate in shaping and maintaining collective solutions. In the Prakarsa Bagja Juara case, local groups provided an organizational foundation for implementation, while village-level institutional arrangements created a broader context for environmental practices.

The institutional dimension is particularly important for CSR programs because external corporate support may have a defined program period, whereas community development challenges continue beyond that period. Institutionalization can help reduce dependence on external actors by embedding practices within local organizations, norms, and decision-making structures.

The findings therefore suggest that the sustainability of circular CSR initiatives depends partly on whether program activities can move from project-based interventions toward locally embedded practices. CSR can initiate and facilitate the process, but long-term continuity requires community ownership and institutional support.

G. Implications for CSR and Community Development

The Prakarsa Bagja Juara case offers several implications for the design of CSR programs in agricultural communities. First, CSR interventions may generate broader value when they begin with an understanding of local resource flows rather than focusing exclusively on predefined activities. Identifying materials that are currently discarded can reveal opportunities for new productive relationships.

Second, circular economy initiatives should be designed as social systems rather than technological projects. Equipment and infrastructure are useful, but they need to be accompanied by capacity building, mentoring, organizational development, and mechanisms for community participation. Without these social components, resource recovery may remain dependent on external program support.

Third, CSR can play a strategic role as a facilitator and connector. Instead of creating isolated beneficiary groups, CSR programs can encourage linkages among farmer groups, women's groups, waste-management initiatives, productive groups, micro-enterprises, and local institutions. Such connections can increase the possibility that one group's residual materials become another group's productive inputs.

Finally, program evaluation should recognize multiple forms of value. Environmental improvements, knowledge transfer, collective capacity, institutional development, resource savings, and economic opportunities may all represent meaningful outcomes. A broader evaluation perspective can provide a more complete understanding of how CSR contributes to community development.

Overall, the discussion reinforces the central argument of this study: the contribution of Prakarsa Bagja Juara is better understood not simply as an agricultural or waste management intervention, but as a process of reconfiguring local resources and relationships. Through CSR facilitation, agricultural residues were connected with community capabilities, productive activities, and institutional arrangements. This process demonstrates how circular economy principles can become embedded within community development and generate multiple forms of local value.

VI. CONCLUSION

The Prakarsa Bagja Juara Program demonstrates how Corporate Social Responsibility can support the transformation of agricultural waste into productive community resources. Implemented in Pasirtanjung Village, Karawang, the program developed connections between agricultural residues, community-based productive activities, local organizations, and environmental management practices. Through the utilization of rice straw, water hyacinth, field snails, and other organic materials, resources that were previously underutilized or treated as waste were redirected toward mushroom cultivation, composting, planting media, waste management, and other community activities.

The findings indicate that the value generated through the program extends beyond waste reduction. Resource transformation was accompanied by community capacity building, knowledge transfer, collaboration among local groups, and the development of new productive pathways. These processes created environmental, social, economic, and institutional value within the community. The program also illustrates that circular economy practices at the community level depend not only on technology and infrastructure, but also on participation, organization, local knowledge, and institutional support.

From a CSR perspective, the case highlights the importance of moving beyond a provider-oriented approach toward a facilitating and connecting role. CSR can help communities identify relationships among local resources, actors, and productive activities, while community organizations provide the local capacity needed to operate and sustain these practices. The development of community groups and village-level environmental arrangements further indicates the potential for CSR-supported initiatives to become increasingly embedded within local institutions.

The study contributes to the discussion of community-based circular economy by demonstrating that circularity can be understood as both a material process and a social process. Materials circulate when agricultural residues are converted into productive inputs, while social value is created through collaboration, learning, participation, and collective organization. In this sense, the Prakarsa Bagja Juara Program provides an example of how circular economy principles can be integrated into community development through CSR.

However, the findings should be interpreted within the limitations of the qualitative case study design. The study does not establish a counterfactual or statistically measured causal effect of the program on household income, environmental conditions, or long-term livelihood outcomes. The documented changes are therefore interpreted as program developments and observed pathways of value creation rather than as effects attributable exclusively to the CSR intervention.

Future research could build on this case by examining the long-term sustainability of community-owned circular activities, measuring material flows and economic value more systematically, and comparing similar CSR initiatives across different agricultural communities. Such research would help clarify the conditions under which circular CSR initiatives can move from individual projects toward self-sustaining local resource ecosystems.

Overall, the Prakarsa Bagja Juara experience suggests that agricultural waste can become a starting point for broader community transformation when CSR support, local capabilities, productive activities, and institutional arrangements are connected. The transition from agricultural waste to community value is therefore not simply a process of converting materials, but a process of creating new relationships between resources and people within the local development system.

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