

Access Reform for Green Economy: Community-Based Woven Fabric Waste Management in Troso Village

Reforma Akses untuk Ekonomi Hijau: Pengelolaan Limbah Kain Tenun Berbasis Komunitas di Desa Troso

Lu'lu'il Munawaroh,^{1*} Mohammad Mansyur²

¹Field Staff Access Reform Jepara Regency Land Office 2022, Jepara, Indonesia

²Blitar Regency Land Office, Blitar, Indonesia

*corresponding author: luluilmunawaroh25@gmail.com

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Abstract: *This study examines the integration between access reform in the Agrarian Reform policy and green economy initiatives in Troso Village, Jepara Regency, using woven fabric waste as a productive resource. Troso Village is a center for traditional weaving crafts that produces significant textile waste. In the 2022 Agrarian Reform Access Handling Program, the Jepara Regency Land Office, together with the Cooperatives, SMEs, Manpower, and Transmigration Service, held training on the utilization and recycling of woven fabric waste for 300 Agrarian Reform subjects. This study uses an exploratory descriptive qualitative approach with a case study design and thematic analysis techniques. The study results indicate that access reform catalyzes local innovation by encouraging communities to develop creative waste-based products, such as bags, wallets, and household accessories. This activity reduces environmental impacts and improves community welfare through a business model that aligns with the principles of a green economy and a circular economy. This study recommends that this community empowerment model based on waste utilization be applied in other areas as a strategy for transforming the village economy towards sustainable green economy practices that are adaptive to local potential.*

Keywords: *Access Reform, Green Economy, Circular Economy, Woven Fabric Waste, Troso Village*

Abstrak: Penelitian ini mengkaji integrasi antara access reform dalam kebijakan Reforma Agraria dengan inisiatif ekonomi hijau di Desa Troso, Kabupaten Jepara, melalui pemanfaatan limbah kain tenun sebagai sumber daya produktif. Desa Troso merupakan sentra kerajinan tenun tradisional yang menghasilkan limbah tekstil dalam jumlah signifikan. Pada Program Penanganan Akses Reforma Agraria tahun 2022, Kantor Pertanahan Kabupaten Jepara bersama Dinas Koperasi, UMKM, Tenaga Kerja, dan Transmigrasi menyelenggarakan pelatihan pemanfaatan serta daur ulang limbah kain tenun bagi 300 subjek Reforma Agraria. Penelitian ini menggunakan pendekatan kualitatif deskriptif eksploratif dengan desain studi kasus dan teknik analisis tematik. Hasil penelitian menunjukkan bahwa access reform mendorong inovasi lokal dengan menggerakkan masyarakat untuk mengembangkan produk kreatif berbasis limbah, seperti tas, dompet, dan aksesoris rumah tangga. Kegiatan ini mampu mengurangi dampak lingkungan sekaligus meningkatkan kesejahteraan masyarakat melalui model bisnis yang selaras dengan prinsip ekonomi hijau dan ekonomi sirkular. Penelitian ini merekomendasikan model pemberdayaan masyarakat berbasis pemanfaatan limbah untuk diterapkan di wilayah lain sebagai strategi transformasi ekonomi desa menuju praktik ekonomi hijau berkelanjutan yang adaptif terhadap potensi lokal.

Kata Kunci: Akses Reforma Agraria, Ekonomi Hijau, Ekonomi Sirkular, Limbah Kain Tenun, Desa Troso



Introduction

Agrarian reform in Indonesia began with the Basic Agrarian Law (UUPA) of 1960, which aimed to create social justice in land ownership (Sumanto, 2022; Yahman, 2024) and was strengthened through various policies such as Presidential Regulation Number 86 of 2018 and Presidential Regulation Number 62 of 2023, which aimed to accelerate the implementation of agrarian reform (Martalina & P., 2024). Article 33, paragraph (3) of the 1945 Constitution states, "The earth, water, and natural resources contained therein are controlled by the state and used for the greatest prosperity of the people." This article mandates that the government and all institutions in its management must be aimed at the prosperity and welfare of the people. Another basis for the implementation of agrarian reform, namely Presidential Regulation Number 47 of 2020 concerning the Ministry of Agrarian Affairs and Spatial Planning and Presidential Regulation Number 48 of 2020 concerning the National Land Agency which contains the duties of the National Land Agency in carrying out government affairs in the fields of agrarian/land and spatial planning including legalization of assets and access.

The main objective of agrarian reform is reorganizing land ownership, control, use, and utilization for social justice and community welfare (Ambuwaru et al., 2023; Dharsana et al., 2022). This program includes asset management, access management, and land dispute resolution (Martalina & P., 2024; Sumanto, 2022). This is in line with the National Strategy for the Implementation of Agrarian Reform 2015-2019, which includes strengthening the regulatory framework and resolving agrarian conflicts; structuring control and ownership of Land Objects of Agrarian Reform; legal certainty and legalization of rights to Land Objects of Agrarian Reform; and empowering communities to utilize Land Objects of Agrarian Reform, as a manifestation of the government's commitment that has been promised through Nawacita since 2014. Agrarian Reform through access management is carried out through community empowerment by providing access to capital or other assistance to improve welfare based on land utilization. Implementation of the access reform policy includes social mapping, facilitation, and cooperation with related parties. This strategy also involves forming working groups to empower community land rights and facilitate access to business capital loans (Saheriyanto & Suhaimi, 2021).

The Jepara Regency Land Office has implemented access arrangements in Troso Village based on the Decree of the Head of the Jepara Regency Land Office Number 15.3/SK-33/20.NT.01.01/II/2022. Troso Village is a center for traditional weaving crafts that has developed into a leading economic sector based on local wisdom. Troso Village is a weaving attraction tourist village whose residents are mostly Troso Weaving Fabric weavers. Troso Weaving is a cultural heritage that has existed since the 19th century and continues to develop. This woven fabric is used for decoration and formal clothing, especially at important events (Sarwono et al., 2023). The high demand for Troso Woven Fabric is a potential for efforts to increase the weaving business that has been passed down from generation to generation and traditionally in Troso Village. Troso Village has been developed as a weaving

tourism village with great potential in household crafts (Asshofi & Mukti, 2018). Troso weaving production activities support the community's economy and form a unique cultural identity. However, this production process produces significant amounts of textile waste, such as scraps of fabric, leftover yarn, and failed products, most of which have not been managed sustainably. The accumulation of this waste causes environmental pressure and reflects the lack of integration of sustainable development principles into the local production system. In response to this problem, through the 2022 Agrarian Reform Access Handling Program, the Jepara Regency Land Office carried out empowerment activities that focused on utilizing woven fabric waste. This activity was realized in the form of Woven Fabric Waste Utilization Training and Woven Fabric Waste Pattern Sewing Training held on September 1, 2022. This activity results from synergy between the Jepara Regency Land Office and the Jepara Regency Cooperatives, SMEs, Manpower, and Transmigration Service and involved 300 Agrarian Reform access recipients in Troso Village. This empowerment aims to reduce the burden of production waste and opens opportunities for developing new MSMEs based on a green economy.

Accelerating the transition to a green economy is a global strategy in dealing with the environmental crisis, natural resource degradation, and social inequality (Anwar, 2022). As part of Southeast Asia, Indonesia has significant potential to contribute to this transition, especially in areas such as gross national income, land cover, and renewable energy (Putri et al., 2023). Indonesia as a developing country faces a dual challenge: accelerating economic growth while ensuring environmental sustainability and social inclusion. Implementing a green economy in Indonesia can increase sustainable development growth and address multilateral issues (Anwar, 2022; Magfiroh et al., 2023). To realize a sustainable green economy, synergy is needed between the government, private sector, and society, as well as a holistic approach in developing strategies and policies (Anwar, 2022; Susanto et al., 2024). Access reform is important in bridging structural gaps through community empowerment, providing productive access, and facilitating economic activities based on sustainable local potential.

Furthermore, the social dimension of access reform in Troso Village warrants emphasis. Sewing training based on Troso woven fabric waste not only enhances skills but also empowers women and vulnerable groups with limited financial resources, providing them with economic independence and generating income through the establishment of home-based garment businesses (Wahyuli et al., 2023). Meanwhile, youth involvement tends to be dominant among creative economy actors. Community activities, training, and mentoring encourage young people to become entrepreneurs, utilize social media for marketing, and develop creative products with economic value (Rachman et al., 2020). Youth involvement in agrarian reform access programs, such as designing and marketing woven waste products, ensures the program's long-term sustainability and innovation. This social inclusion demonstrates that agrarian reform through access management is not merely an economic

intervention, but also a driver of gender equality, youth engagement, and community solidarity strengthening.

Previous studies on agrarian reform in Indonesia have generally focused on asset redistribution, legalization of land rights, and conflict resolution (Ambuwaru et al., 2023; Dharsana et al., 2022; Sumanto, 2022). However, there is limited research examining how access reform policies, particularly those related to community empowerment and economic facilitation, can directly contribute to sustainable local development. Furthermore, the integration of agrarian reform and green economy strategies has not been widely explored. Research on the green economy in Indonesia has focused more on macro-level strategies, renewable energy, and policy frameworks (Anwar, 2022; Putri et al., 2023; Susanto et al., 2024), while the role of agrarian reform as a driver of circular economy practices at the micro level remains neglected. Waste management from local industries has also been under-researched. The issue of waste from Troso woven textiles, which poses environmental pressures, has not received attention in agrarian reform research. This indicates a research gap regarding how waste valorization and circular economy initiatives can be integrated into access reform strategies.

This study seeks to provide new insights into how the access reform program within agrarian reform can be integrated with green economy initiatives through the utilisation of woven fabric waste in Troso Village, Jepara. This research not only reaffirms the role of agrarian reform as an instrument of social justice in land management but also demonstrates its potential to promote sustainable livelihoods, circular economy practices, and environmental resilience at the community level. The findings are expected to serve as both a conceptual and practical reference for formulating more inclusive, green economy-based agrarian reform policies, as well as offering recommendations for other regions in managing creative industry waste sustainably.

Methodology

This study uses an exploratory descriptive qualitative approach with a case study design implemented in Troso Village, Pecangaan Sub-District, Jepara Regency, Central Java. This approach was chosen to explore in depth the utilization of woven fabric waste within the framework of accelerating the green economy through the access reform scheme. The research location was chosen purposively based on the involvement of Troso Village in the Jepara Regency Agrarian Reform Access program in 2022. This study focuses primarily on RW 10 in Troso Village.

Data Collection Techniques include in-depth interviews, Participatory observation, and Documentation studies. Data were collected through in-depth interviews with 10 informants (community weavers, MSMEs activist from the Tenun Mitra Warna community, village leaders, women's groups, representatives of the Jepara Regency Land Office, and representatives of Cooperatives, SMEs, Manpower and Transmigration Service of Jepara Regency), participatory observation of training and production activities, and documentation

studies of policy and program reports. The researcher's role as facilitator provided direct access to planning and implementation while enabling intensive engagement.

Data were analyzed using thematic analysis, which includes data reduction, categorization, and meaning-making based on field findings patterns. This method offers flexibility across theoretical frameworks and research paradigms (Clarke & Braun, 2017). Data interpretation refers to the green and circular economy frameworks as the primary analysis indicators in understanding how access reform can catalyze a sustainable village development model. The case study design was selected over alternative qualitative or quantitative methods because it enables an in-depth exploration of complex, context-specific social phenomena (Yin, 2018). Unlike survey-based or experimental approaches that emphasise generalizability, the case study method allows researchers to capture the interplay between policy implementation, community practices, and environmental challenges within their real-life setting. In the context of Troso Village, where agrarian reform access programs intersect with traditional weaving industries and sustainability issues, a case study provides the most appropriate framework to examine these dynamics holistically. This design also accommodates multiple sources (In-depth interviews, Participatory observation, and Documentation studies), therefore enhancing the credibility and depth of the findings compared to single-method approaches.

Result and Discussion

Implementation of Access Reform in Troso Village

The Access Agrarian Reform program in Troso Village, Pecangaan Sub-District, Jepara Regency, is aimed at 300 heads of families who previously participated in the Complete Systematic Land Registration (PTSL) program in 2020–2021 and own or run business activities. The assistance is focused on the RW 10 area, which has not previously received community empowerment interventions.

As part of the access strengthening strategy, the Jepara Regency Land Office held a training activity to manage woven fabric production waste into new business opportunities. The activity included Training on the Utilization of Woven Fabric Waste and Training on Sewing Woven Fabric Waste Patterns, which was held on September 1, 2022, in collaboration with the Jepara Regency Cooperatives, SMEs, Manpower, and Transmigration Service. This empowerment model prioritizes partnerships between vertical institutions and regional apparatus organizations to support agrarian reform and make it more economically independent through sustainable management of local resources.

The selection of the form of assistance is based on the results of the model preparation coordination forum, where stakeholders convey the potential for program support or assistance that can be provided to the subject of Agrarian Reform. After the model is agreed upon, the implementation steps are carried out by the Land Office together with the field team, including the preparation of proposals, exploration of cooperation, and regular

technical discussions with related Regional Apparatus Organizations, namely the Cooperatives, SMEs, Manpower and Transmigration Service of Jepara Regency, especially in the field of Business Protection and Development. The results of cross-sector discussions produce a concrete form of intervention in technical training, which is not only facilitated by the local government but also involves local MSMEs actors as practical resource persons. Through this training, craftsman can process production waste into products with sales value, creating additional income sources and supporting the household economy's sustainability.



Figure 1. Training on the utilization of woven fabric waste

Source: Documentation of the Agrarian Reform Access Field Staff Team, 2022

The training on processing woven fabric waste as part of the Agrarian Reform Access Handling Program in Troso Village was held at the Multipurpose Building located in RT 07 RW 10, the focus area for empowerment. This activity was officially opened through a series of remarks from several agency representatives. The first remark was delivered by Mohamad Rifa'i, S.H., representing the Jepara Regency Land Office, then continued with remarks from the Head of Troso Village, and completed by remarks from Arifin, S.T., M.M., as Head of the Business Protection and Assistance Section at the Cooperatives, SMEs, Manpower and Transmigration Service of Jepara Regency.

The event continued with the core training session, which was filled by Irbab Aulia Amri, M.Pd., an MSMEs activist from the Tenun Mitra Warna community, who also acted as a resource person. The training material focused on strategies for utilizing woven fabric waste as raw materials for creative products, with an applicative approach relevant to local artisans's needs. This activity not only functions as a technical education forum, but also as a form of strengthening local capacity in realizing a circular economy based on domestic resources.



Figure 2. Sewing and Pattern-Making Training from Woven Fabric Waste
 Source: Documentation of the Agrarian Reform Access Field Staff Team, 2022

The Access Reform program was designed with a post-training roadmap in place. In the second year, community groups received monitoring and mentoring to strengthen their institutional arrangements, such as cooperatives and business groups. The monitoring process included periodic evaluations of training outcomes, assessment of product quality, and tracking of participants’ progress in applying the skills they had learned. To capture broader impacts, indicators of monitoring in the second year focused on both economic and social dimensions. The economic indicators included changes in household income, diversification of livelihood sources, and the volume of woven waste processed into marketable products. The social indicators involved the level of women’s participation in production groups, the degree of youth involvement in creative product design and marketing, and the strengthening of collective action through cooperatives or community organizations. This ensured that the knowledge gained was not only theoretical but also translated into sustainable practices and measurable community transformation. In the third year, the program expanded to assist with product marketing and distribution, aligning with access reform principles that emphasize sustainable empowerment beyond the initial legalization of assets.

Tabel 1. Intervention of Access Reform Implementation in Troso Village, RW 10

Stage/Intervention Aspect	Implementer/ Stakeholders	Activities	Outputs/Results
Identification of Agrarian Reform subjects	Jepara Regency Land Office.	Mapping 300 households participating in PTSL (2020–2021) with existing businesses/economic activities.	RW 10 designated as the empowerment focus area.

Formulation of intervention model	Coordination Forum with related Local Government Agencies (OPD).	Technical discussions, potential mapping, proposal preparation & exploration of cooperation.	Empowerment model based on woven fabric waste processing.
Program opening	Land Office, Troso Village Government, Cooperatives, SMEs, Manpower and Transmigration Service of Jepara Regency.	Official remarks and institutional directions during the opening ceremony.	Formal inter-agency support and program legitimacy.
Technical training	Trainer: Irbab Aulia Amri (Tenun Mitra Warna community), facilitated by Cooperatives, SMEs, Manpower and Transmigration Service of Jepara Regency.	- Training on utilizing woven fabric waste. - Training on sewing patterns from woven waste.	Knowledge transfer and strengthened local skills.
Practical mentoring	Local MSMEs & Agrarian Reform field team.	Hands-on mentoring to produce creative products from woven waste.	Creative products (pouches, wallets, small bags, household accessories).
Strengthening institutional capacity	Land Office & related OPD.	Post-training monitoring & mentoring (cooperatives, business groups).	Establishment of cooperatives/business groups managing fabric waste.
Marketing facilitation	Land Office, Cooperatives, SMEs, Manpower and Transmigration Service of Jepara Regency.	- Product marketing assistance through local/regional exhibitions. - Utilization of digital platforms & cooperative networks.	Established distribution channels, improved market access, and expanded consumer base.
Medium-term impacts	RW 10 community (homemakers & Weavers)	Creative production based on woven fabric waste.	Additional household income, reduced production waste, application of circular economy.

Access Reform as a Catalyst for Local Waste-Based Innovation

Implementing the Access to Agrarian Reform program in Troso Village, especially in RW 10, shows that agrarian reform does not stop at land legalization but also includes efforts to expand access to economic empowerment resources. In this case, access reform acts as a catalyst for local innovation, encouraging the emergence of new practices in the management of woven fabric waste that were previously untouched by development interventions.

This strategic approach targets community groups with productive activities (post-PTSL) but does not yet have access to strengthening business capacity. By organizing training on the utilization of woven fabric waste and sewing skills, the Jepara Regency Land Office, together

with the Regional Apparatus Organization, not only provides technical knowledge but also opens up space for cross-sector collaboration in building local innovations based on resources available in the community. This program is a concrete example of how access reform can accelerate the village's economic transformation process by utilizing local potential hidden (hidden resources), in this case, in the form of woven fabric production waste.

The outcomes of this program are evident in the testimonies of local participants. For instance, Muniroh, one of the women weavers who joined the training, stated:

"If I have free time, I produce bags and pouches from woven fabric waste because it helps increase my monthly income. Alhamdulillah, when I posted them on my WhatsApp Stories, many people were interested in buying my products."

Her experience demonstrates how access reform can generate tangible economic benefits and foster entrepreneurship based on circular economy practices, while integrating social innovation into the agrarian reform agenda. This reflects the broader potential of integrating community-driven innovation with policy-driven initiatives, transforming local resources and hidden potential into new livelihood opportunities. Such integration not only strengthens household incomes but also enhances collective resilience by encouraging environmentally friendly practices, cross-sector collaboration, and sustainable rural development pathways.

Moreover, the program in Troso Village underscores the importance of product design innovation as a crucial component of community-based economic empowerment. The design of Troso products involves developing traditional Jepara weaving motifs into a variety of functional items, such as clothing and sarongs, with an emphasis on combining authentic patterns with innovative designs to stay current with fashion trends. The comfort and uniqueness of cotton fabric are utilized not only to strengthen the appeal of the products but also to reinforce local cultural identity. As argued by Li (2024), integrating cultural heritage into contemporary design not only strengthens local identity but also enhances competitiveness in global creative markets.

At the same time, woven fabric waste is creatively transformed into decorative items, including brooches, fake collars, obi belts, vests, headbands, bandanas, and scrunchies, which add value to production residues and diversify product lines for niche markets. This aligns with Barbhuiya et al. (2024), who emphasize that circular economy practices in local industries can generate both ecological benefits and inclusive economic opportunities.

The adaptability of one of the women weavers is further demonstrated during the COVID-19 pandemic. For example, Sulaikhah utilizes woven fabric waste to produce reusable face masks, contributing to both household income and community health protection. As she expressed:

"During the pandemic, I took the initiative to make masks from woven fabric waste. Besides helping my family maintain income, these masks were also in high demand"

because the government mandated masks at all times, and woven fabric waste masks are comfortable to wear.”

This narrative shows how local creativity and responsiveness to crisis not only sustained livelihoods but also expanded the role of agrarian reform in linking tradition, innovation, and resilience. In line with Roberts & Townsend (2016), creative industries in rural settings can act as vehicles for resilience, providing communities with adaptive capacities during socio-economic disruptions.

Waste Utilization in a Green Economy Framework

The concept of a green economy aims to reduce environmental risks while promoting sustainable development and social inclusion (Zvarych et al., 2023). A green economy encompasses various elements, including renewable energy, waste management, clean transportation, and organic farming (Maidasari et al., 2023; Susanto et al., 2024). The training activity on utilizing woven fabric waste is a real representation of the application of green economy principles at the local level. Instead of being thrown away or burned, textile waste in Troso Village is reused as raw materials for creative products, such as small bags, wallets, or household accessories. This practice reduces waste while creating new economic value supporting household resilience. The application of green economy principles is seen in two aspects: first, environmental conservation by reducing home industry residues, and second, increasing community welfare without exploiting new natural resources. Thus, the training is part of the village’s economic transition strategy to be more environmentally friendly and sustainable. Active participation of residents in training also shows that green economic principles can be internalized by grassroots communities if supported by learning schemes that are applicable, contextual, and relevant to their daily needs.

A simple cost–benefit estimation further illustrates this potential. On average, 1 kg of woven fabric waste can be transformed into 20 pouch products, each sold for IDR 15,000, resulting in a gross revenue of IDR 300,000. After deducting production costs (approximately IDR 100,000 per 20 pouches, covering zippers, thread, and accessories), the net income is around IDR 200,000 per household per month. If 100 households participate in the program, this translates into IDR 20 million of additional community income per month, while simultaneously preventing 100 kg of woven fabric waste from polluting the environment. To ensure long-term sustainability, a comprehensive marketing strategy is essential for these environmentally friendly products. Beyond traditional local sales, digital platforms such as Shopee, Tokopedia, or Instagram Shops, combined with storytelling that highlights cultural heritage and environmental benefits, can expand the consumer base. Eco-labelling, collaborations with green consumer networks, and integration with Jepara’s weaving tourism also provide opportunities to enhance visibility and value. This approach positions Troso’s products not only as economically valuable and environmentally sustainable, but also as a means of strengthening local identity in the global creative economy.



Figure 3. The results of the products utilizing Woven Fabric Waste made by training participants

Source: Documentation of the Access to Agrarian Reform Field Staff Team, 2022

Circular Economy: Recycling as an Inclusive Business Model

The concept of a circular economy is increasingly in demand in Indonesia as a sustainable approach to resource management (Muharam et al., 2023). The circular economy is a sustainable economic concept and a multidisciplinary concept that aims to minimize waste and maximize resource use through business models, digital technology and waste management such as value addition, life extension, and recycling (Dinar et al., 2024; Judijanto, 2024; Solovida et al., 2023). Its implementation involves various stakeholders, including the community, government, and private sector, focusing on responsible waste management and establishing waste banks (Kristianto & Nadapdap, 2021).

The utilization of woven fabric waste in Troso Village reflects the principle of a circular economy that encourages the reuse and upcycle of residual materials. In training involving MSMEs actors as resource persons, participants learned how to sew waste patterns and turn them into products with sales value. This shows the transformation of the production system from linear to circular. The formed circular model is also inclusive because it does not require significant investments, can be done from home, and empowers vulnerable groups such as women and homemakers. With this approach, waste is no longer seen as a burden but as an alternative input for creative product innovation that is competitive in the market. The involvement of local MSMEs actors as facilitators also shows the existence of a knowledge-sharing mechanism between village economic actors, which accelerates the transfer of skills and encourages the formation of new community-based value chains.

A more concrete explanation of the benefits for women and homemakers can be seen in how the utilization of woven fabric waste provides them with flexible economic opportunities that fit their daily routines. Many homemakers in Troso Village, who previously relied solely on their husbands' income from weaving or farming, are now able to contribute

to household earnings by producing marketable yet straightforward items, such as pouches, bags, and hair accessories, from leftover fabrics. The production process does not require significant capital and can be done during free time at home, allowing women to balance domestic responsibilities with productive economic activities. This empowerment not only increases household resilience through additional monthly income but also enhances women's self-confidence, strengthens their bargaining position in family decision-making, and creates a support network among female community members engaged in similar creative work.

Although the concept of the circular economy has been introduced and partially implemented in Troso Village, its realization still encounters several challenges that require critical evaluation. The most pressing obstacles include limited market access for upcycled woven fabric products, insufficient advanced skills in product design and marketing, and a lack of sustainable networks that connect local producers with larger value chains. These barriers indicate that circular practices cannot rely solely on community initiative but must be supported by institutional facilitation and policy alignment. To address these issues, a stakeholder mapping approach is recommended to clearly identify the roles and interconnections between key actors such as community groups, local government, cooperatives, NGOs, and private sector partners so that collaborative strategies can be designed to overcome structural limitations and strengthen the sustainability of circular economy practices in Troso Village.

Tabel 2. Stakeholder Analysis for Circular Economy Implementation in Troso Village

Stakeholder	Role/Contribution	Level of Power	Level of Interest	Key Needs/Expectations
Community Groups (Weavers, Homemakers)	Local innovators, producers of upcycled products	Medium	High	Skills training, access to capital, sustainable markets
Jepara Regency Land Office (BPN)	Policy facilitator, access reform implementer	High	High	Policy alignment, effective monitoring, inter-agency synergy
Local Government Agencies (Cooperatives, SMEs, Manpower and Transmigration Service of Jepara Regency and Jepara Regency Environment Agency)	Capacity building, institutional support	High	Medium	Budget allocation, program integration with local planning
Local Cooperative / BUMDes	Financial access, collective institution	Medium	High	Strengthening cooperative governance, marketing channels

NGOs	Advocacy, technical training, community facilitation	Medium	Medium	Partnerships with government and private sector
Private Sector (Buyers, Marketplace, Fashion Industry)	Market access, product development	High	High	Reliable supply, quality standards, innovative products
Academics & Researchers	Research, monitoring, knowledge transfer	Low	Medium	Data access, collaboration for publications and models
Consumers	Demand drivers for eco-products	Low	High	Affordable prices, quality, and environmentally friendly products

The stakeholder analysis presented in Table 2 illustrates the diverse roles, levels of power, and interests of the actors involved in implementing a circular economy in Troso Village. Community groups, particularly weavers and homemakers, showed a high level of interest because they are directly involved in transforming woven fabric waste into economic products. However, their power is moderate, as their ability to influence broader policy directions or market structures is limited. Conversely, institutional actors such as the Jepara Regency Land Office (BPN) and local government agencies wield significant power due to their regulatory authority and capacity to allocate resources. However, their level of interest varies depending on program priorities and sectoral mandates. This mapping reflects Bryson's (2004) argument that effective stakeholder engagement requires distinguishing not only who holds power but also who has a genuine interest in program outcomes. Furthermore, following Reed et al. (2009), understanding the dynamics between high-powered actors (e.g., Jepara Regency Land Office (BPN), local government, private sector) and high-stakes actors (e.g., community groups, consumers) is crucial in bridging the gap between policy design and grassroots implementation. By integrating these actors through cooperative institutions and cross-sector collaboration, circular economy practices in Troso can be strengthened, while ensuring access to agrarian reform programs to support long-term socio-economic transformation.

Conclusion

The implementation of access reform within the framework of agrarian reform in Troso Village proves that community empowerment is not limited to land redistribution, but can also serve as a catalyst for local innovation with a broad impact on economic welfare and environmental sustainability. Through interventions focused on utilizing woven fabric waste, the Jepara Regency Land Office and its cross-sector partners have successfully integrated the principles of the green economy and circular economy into the community empowerment

scheme. The training program introduced waste processing techniques into value-added products, fostered ecological awareness, strengthened residents' entrepreneurial capacity, and opened up new economic opportunities based on local resources. This shows that the access reform approach can be transformed into a model of sustainable village development, mainly if directed at the creative economy sector that prioritizes innovation, social inclusion, and environmental conservation. Nevertheless, the findings also reveal important limitations. The lack of comprehensive market data and limited advanced skills in design and marketing constrain the competitiveness and sustainability of enterprises based on woven waste. These challenges underline the need for stronger institutional and market support. Accordingly, this study recommends strengthening online market access, extending mentoring through business incubation, and establishing village regulations for the management of woven waste. Policy implications include the integration of green economy indicators into Jepara Regency Land Office's access reform agenda, cross-sectoral alignment by local governments, and broader market facilitation by the Cooperatives, SMEs, Manpower, and Transmigration Service of Jepara Regency. Future research should focus on quantitative assessments of circular economy value creation, including income generation, waste reduction, and sustainability impacts, to provide a stronger foundation for replication in other regions.

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