

Social Return on Investment (SROI) Analysis of the Kampung ASRI Community Empowerment Program by PT Adaro Indonesia in Tabalong Regency (2019–2025)

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Abstract

This study analyzes the Kampung ASRI Desa Jaro Program as a case of rural community development in South Kalimantan, Indonesia. In pursuing environmental resilience and sustainable livelihoods, the program transforms Corporate Social Responsibility (CSR) into a sustainability strategy. Applying the Social Return on Investment (SROI) approach, the assessment quantifies the multi-faceted impacts of the program from 2019–2024. Data was collected through stakeholder mapping, semi-structured interviews, financial audits, and outcome monetization with 17 governance key stakeholders in government, private, academia, civil society, and media using a pentahelix model of governance. The key finding of this study is an SROI ratio of 5.70, where for every Rp 1 invested, there was a return of Rp 5.70 in social, economic, environmental, and psychosocial value. The substantial return is largely driven by three outcomes that are mutually interdependent with one another: (1) the raised incomes of households with integrated livestock and organic fertilizer systems, (2) avoidance of environmental hazards through the use of biogas technology, and (3) enhancement of community capability through training programs, ecotourism programs, and mental health programs. Furthermore, the initiative facilitated organizational learning and stakeholder change—from adaptive, instrumentally motivated CSR implementation to value-driven development practice. Such evidence testifies to the efficacy of CSR-informed rural intervention in generating concrete, measurable, and replicable yields, towards sustainable rural transformation and shaping practices for wider development policy directions.

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Highlight

- *The Kampung ASRI Desa Jaro Program realized an SROI ratio of 5.70, demonstrating that it took a return of Rp 5.70 in economic, social, environmental, and well-being value for every Rp 1 spent.*
- *The program employed a pentahelix model of business-government-community-academy-media partnerships to facilitate inclusive engagement and co-designed solutions.*
- *Investments were phased through infrastructure and livestock initially, followed by biogas, eco-tourism, and conservation technologies to promote long-term sustainability.*
- *Impacts included better income, reduced application of chemical fertilizer, better mental well-being, better vocational and schooling attendance, with social and well-being areas being estimated at over 50% of the total value.*

- *The program enabled extensive organizational learning wherein the stakeholders evolved from technical implementation to adaptive, ethical, and institutionalized advancement, thereby making the model scalable and transformative.*

Introduction

Corporate Social Responsibility (CSR) has become a key instrument for promoting sustainable development, particularly in resource-dependent areas where local livelihood and ecological environments are closely interconnected. CSR in Indonesia is no longer considered a compliance or philanthropy program but also a strategic field to address multifaceted issues such as environmental degradation, economic inequality, and social vulnerability, particularly in rural and ecologically fragile regions (Frederiksen, 2018; Reji, 2023).

PT Adaro Indonesia, a leading thermal coal miner of the nation under PT Adaro Andalan Indonesia Tbk (AADI), has developed massive-scale CSR programs as corporate responsibility activities. PT Adaro Indonesia operates in Balangan and Tabalong Regencies, South Kalimantan, with mining concessions over complex socio-ecological territories, including tributaries of the Meratus Mountain's catchment areas. These ecosystem are important not only for , cattle, and domestic use but also for cultural identity and ecosystem services supporting agrarian communities along their floodplains. In these riverine landscapes, the success and configuration of CSR activity depend heavily on their ability to ensure water quality, support nature-based economies, and foster community resilience to environmental change (Anwar et al., 2018; Zamroni et al., 2022).

PT Adaro Indonesia's dedication to CSR is reflected in a number of programs, most notably the Kampung ASRI (Adaro Sejahtera dan Lestari) Program in Tabalong Regency Jaro Village. Strategically located near the provincial boundary of South and East Kalimantan, the Jaro Village is directly linked to river-based systems and rainfed lowlands surrounding the Meratus Mountains. Over 90% of its population engages in rice cultivation, horticulture, and cattle keeping—livelihoods that are very water and soil fertility dependent, in turn reliant on upstream–downstream river processes (Anwar et al., 2018). Due to its location close to potential future national capital Nusantara (IKN) as well as its connectivity to it, the village offers a key node to test out models of sustainable rural development.

The Kampung ASRI Program, implemented from 2019 to 2024, was designed as per the Regional Medium-Term Development Plan (RPJMD) and social mapping conducted by PT Adaro Indonesia. The program includes activities such as the construction of communal cattle sheds, treatment of livestock waste, construction of a Biogas Power Plant (PLTBG), irrigation reservoir management, and the utilization of organic fertilizers to reduce runoff and chemical load in surrounding water systems. In addition to the agricultural and energy interventions, the program also promotes the development of climate-resilient tourism, environmental education, and celebrating local cultural events like Aruh Banih that are often held along riverbanks and where water is incorporated as a ritual element (Adaro Indonesia, 2018).

Though wide-ranging activities and visible outcomes have been implemented, there has not yet been a complete impact assessment. While Kalimantan River systems continue to be under environmental pressure from land use transformation, deforestation, and extractive activities, the urgency exists to assess whether CSR initiatives like Kampung ASRI provide benefits not only economically but also ecologically and hydro socially. To address this gap, the Social Return on Investment (SROI) methodology is employed in this research to assess the multi-sector value created by the program—on economic, environmental, social, and well-being bases.

SROI provides an integrated structure that is more than just monitoring of outputs because it also approximates the actual return of social value per unit of investment (Bakar et al., 2023). It is more relevant in riverine and agricultural settings, where the intangible benefits such as improved water quality, reduced ecological risk, social cohesiveness, and psychological well-being often fall through the cracks of conventional evaluation measures (Amoah & Eweje, 2022). In this paper, we tried to calculate the SROI ratio of the Kampung ASRI Program, identify stakeholder-specific values, and reflect on how rural development programs located along a river can be structured in order to be long-term sustainable.

Through the application of river connectivity logic, local ecological setting, and interdependence among stakeholders, this study contributes to the debate around CSR as a driver of integrated landscape governance. It offers practical suggestions for companies, governments, and local actors in developing CSR programs that align with water-sensitive planning, rural livelihoods, and adaptive learning. Lastly, the findings strive to establish the legitimacy for CSR not only as corporate duty but as an instrument of river-based socio-environmental transformation.

Finding

Stakeholder Engagement and Role Analysis

Implementation of the Kampung ASRI Desa Jaro Program represents a deep faith in inclusive, multi-stakeholder collaboration through embracing the pentahelix model with participation of five major stakeholder groups: academia, business, community, government, and media. In contrast, mainstream corporate social responsibility (CSR) strategies typically rest on top-down efforts from one actor—most often the private sector. Such former models had little community input, in that they had short-term outcomes and minimal systemic change (Porter & Reischer, 2018).

Meanwhile, Kampung ASRI employed the pentahelix model, in which there is more ownership, sustainability, and applicability to the local needs of the village. The multi-stakeholder involvement of actors, from livestock groups up to government and education entities, has been able to generate a more coordinated response towards the development problems of Jaro Village. The model permits program sustainability, innovation, and sharing responsibility across sectors (Kumala et al., 2024; Ramdani & Resnawaty, 2021).

17 stakeholders in all were identified as critical to program success. Each plays a specific, complementary role towards realizing the program's vision. Table 1 summarizes each stakeholder category and role.

Table 1. Summary of Stakeholder Roles in Kampung ASRI Desa Jaro Program

No	Stakeholder	Category	Role
1	PT Adaro Indonesia	Business	Main funder and initiator; provides infrastructure, cattle, and training.
2	PT Cipta Visi Sinar Kencana	Business	Supplies manure machines; supports eco-tech integration.
3	“Lembu Sejati” Livestock Group	Community	Primary beneficiary; manages cattle, biogas, and fertilizer production.
4	“Membangun” Farmers Group	Community	Implements sustainable farming using livestock byproducts.
5	Pokdarwis Jaro	Community	Develops village tourism; organizes events and training.
6	Jaro Village Government	Government	Oversees and funds infrastructure; supports local governance.
7	BPD (Village Consultative Body)	Government	Participates in program planning and public communication.

8	Plantation and Livestock Agency (Disbunnak)	Government	Provides training and technical guidance.
9	Environmental Agency	Government	Promotes climate resilience and ProKlim programs.
10	"Sumber Rezeki" Livestock Group	Community	Replicates Lembu Sejati model in other communities.
11	DKPPTPH (Food & Agriculture Office)	Government	Supplies seeds; supports food security efforts.
12	Tourism Office	Government	Promotes Embung Sawah tourism; improves economic exposure.
13	IPB Graduates	Academia	Conducts research and facilitates livestock management training.
14	SMKN 1 JARO	Academia	Provides vocational training and practical engagement.
15	Lambung Mangkurat University	Academia	Offers training on cattle waste processing and innovation.
16	Jaro Village Community	Community	Indirect beneficiaries; engaged through collective activities.
17	Online Media (e.g., ANTARA, IG Embung Sawah)	Media	Publicizes tourism and program milestones; boosts visibility.

The Kampung ASRI Desa Jaro Program's stakeholder map indicates a well-managed, inclusive, and functionally diverse network of 17 strategic actors that operate under the pentahelix model. A model of five strategic sectors—business, government, community, academia, and media—and designed to promote sustainable, systemic change through cooperation and collective responsibility.

Every stakeholder has a distinctive yet supplementary role in the program. Corporate entities such as PT Adaro Indonesia and PT Cipta Visi Sinar Kencana have significant roles as facilitators of technology, infrastructure, and capital. PT Adaro Indonesia, for instance, is an important orchestrator, not only investing in program segments but also facilitating technical training and planning horizons. This reflects a shift from conventional short-term CSR towards strategic corporate development alliances with visions of social change.

Government stakeholders also have dual roles in implementation and governance. Regulatory compliance, infrastructure support, and environmental conservation are undertaken by institutions such as the Jaro Village Government, the Plantation and Livestock Agency (Disbunnak), and the Environmental Agency. Their participation reasserts local ownership and provides the policy foundation of sustainable operation. The active participation of the Village Consultative Body (BPD) in planning and communication is further evidence of the integration of bottom-up governance institutions.

Community organizations, like the "Lembu Sejati" Livestock Group, the "Membangun" Farmers Group, and Pokdarwis (Village Tourism Awareness Group), are positioned as immediate beneficiaries and local implementors. Their engagement in livestock waste management, organic agriculture, and designing eco-tourism is a deliberate action to facilitate the empowerment of local stakeholders as co-creators of change. This shift from passive recipients to active stakeholders is essential to designing program sustainability and social cohesion.

Academia, in the form of institutions such as IPB University, SMKN 1 JARO, and Lambung Mangkurat University, plays a crucial role in knowledge transfer, capacity building, and innovation support. These institutions bridge the gap between scientific research and application at the field level, empowering the community with context-appropriate solutions and improving vocational training.

In the process, media players like Instagram Wisata Embung Sawah and ANTARA News are key to program visibility and online interaction, encouraging Jaro Village's development and

augmenting the endorsement of the people through narrative and advocacy. The role they play in the creation of a virtual village image brings value by maximizing tourism and investor attractiveness.

In order to complement this qualitative role analysis, the study applied a Matrix Power Grid to ascertain each of the stakeholders' power and interest levels in the program (figure 1).

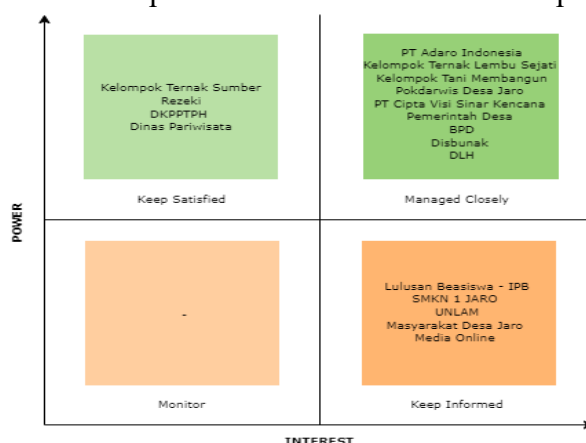


Figure 1. Stakeholders' Matrix Power

The Kampung ASRI Desa Jaro Program stakeholder power–interest map reflects a well-balanced engagement approach where all stakeholders are brought into proportion to their power and interest. The program instrument labeled such high-power, high-interest stakeholders as the Jaro Village Government and PT Adaro Indonesia as outstanding influencers and investors and therefore are at the center of program planning and delivery. While so, more interested but weaker stakeholders—vocational students, community farmers, and youth organizations—are identified as core grassroots stakeholders, and they are aimed to be empowered through empowerment and capacity-building programs to have their power entrenched in the long term. Inclusive mapping here ensures that all the stakeholders who bear importance are not only involved but also represented based on their likely contribution and hence the overall effect of the program is optimized (de Vente et al., 2016). The planning for this network of stakeholders across sectors—ranging from policy formulation and financing to community implementation and scholarly support—demonstrates the potential of intersectoral collaboration. Such multi-level partnerships are not only vital to the program's immediate success but also to its future replicability and sustainability, positioning Kampung ASRI Desa Jaro as a model for transformational and integrative rural development.

Program Investment and Input Valuation

The Kampung ASRI Desa Jaro Program offers a solid commitment to equality and sustainable development through a series of structured investments made by PT Adaro Indonesia and the Village Government of Jaro. Investments span the gamut of financial support, infrastructure, machinery, scholarships, technology, and capacity building. All investments were calculated in Indonesian Rupiah (Rp) to meet SROI analysis standards. Table 2 below summarizes major investment activities and values.

Table 2. Integrated Investment Summary of Kampung ASRI Desa Jaro Program (2019–2024)

Year	Contributor	Investment Activity	Unit/Qty	Investment Value (Rp)	Notes
2019	Jaro Village Government	Organic Fertilizer Warehouse	1 unit	90,000,000	Supports composting and organic farming

2019	Jaro Village Government	150m Irrigation System	1 unit	75,000,000	Improves water supply for rice fields
2019	Jaro Village Government	Tractor Machine	1 unit	30,000,000	Enhances land cultivation efficiency
2019	Jaro Village Government	Grinding Machine	1 unit	50,000,000	Supports livestock feed processing
2019	Jaro Village Government	Bridge (Tourism Infrastructure)	1 unit	100,000,000	Improves access to Embung Sawah
2019	Jaro Village Government	Retaining Wall for Cattle Shed	1 unit	22,590,000	Infrastructure support for livestock housing
2019	PT Adaro Indonesia	Adaro-IPD Scholarship	1 program	93,650,000	Human capital development
2019	PT Adaro Indonesia	Provision of Bali Cattle	24 heads	360,000,000	Livestock development for communal farming
2019	PT Adaro Indonesia	Feed Warehouse	1 unit	50,000,000	Secures livestock feed storage
2019	PT Adaro Indonesia	Forage Demonstration Plot	0.5 ha	23,000,000	Promotes sustainable fodder cultivation
2019	PT Adaro Indonesia	Communal Cattle Shed	1 unit	50,000,000	Centralized livestock management facility
2019	PT Adaro Indonesia	Biogas Power Plant (PLTBG)	1 unit	65,891,000	Renewable energy from cattle waste
2020	PT Adaro Indonesia	ASRI Village (ProKlim Lestari) Development	1 program	150,000,000	Environmental resilience initiative
2022	PT Adaro Indonesia	Pavilion for Embung Sawah Tourism	1 unit	250,000,000	Boosts eco-tourism infrastructure
2024	PT Adaro Indonesia	Renovation of Communal Cattle Shed	1 unit	241,051,000	Upgrades for sustainability and hygiene
2024	PT Adaro Indonesia	Screw Press & Granulator Technology	1 set	232,303,000	Supports livestock waste processing
2024	PT Adaro Indonesia	Electricity Installation for Cattle Shed	1 unit	226,646,000	Improves facility operations
2024	PT Adaro Indonesia	Water System & Conservation Seeds	50 packages	5,000,000	Enhances water retention in fields
—	—	Total Combined Investment	—	Rp 2,199,240,865	—

The levels of investment in Table 2 indicate a deliberate and stepped approach to allocation, and that the Kampung ASRI Desa Jaro Program was not only well-capitalized but also carefully planned to grow over time. In the initial phase (2019–2020), the lion's share of the money was used for construction of core infrastructure and productive assets, such as irrigation, cattle sheds, warehouses, agricultural implements, and provision of animals. These early components served as the foundation for pursuing integrated farming, livestock production, and community-based tourism, creating the physical and operational basis for further development.

It is another matter when the latter investment phase (2022–2024) illustrates a strategic turn toward long-term sustainability and innovation. Substantial investments have been placed in the installation of biogas power plants, screw press and granulator technology, and electrification of cattle sheds, all of which reflect orientation to renewable energy, smart agriculture, and ecologically effective production. Development of tourism infrastructure such as the Embung Sawah pavilion and water conservation facilities is also an entrance into eco-tourism and conservation—both of which contribute towards diversified revenue generation and ecosystem resilience.

This sequentially temporal process—setting up first, followed by technological upgrading—is reflective of a systematic transition from setup to sustainability. Rather than spend-and-forget or ritualistic CSR engagements, the investment trend reflects a long-term horizon with a focus on capacity development, innovation, and scalability.

Furthermore, the dual-source funding model, with PT Adaro Indonesia and the Jaro Village Government, demonstrates a model of shared responsibility. The corporate world contributed high-value technology and assets, with local government capital contribution supporting vital public infrastructure. Such partnership improves program legitimacy, enables efficient resource utilization, and increases local ownership—a driving force behind post-program sustainability.

The viability of this investment strategy is also reflected through the Social Return on Investment (SROI) ratio of 5.70, indicating that every Rp 1 invested there were society, economy, environment, and well-being benefits of Rp 5.70. Such a return indicates not only smart financial handling but also multi-dimensional impact derived from prudent matching of resources to people's needs.

All in all, the Kampung ASRI Desa Jaro Program's structure of investment says more than dollars and cents—it says it embodies a vision for adaptive, inclusive, and resilient rural development. The program is a compelling witness to the difference achievable through phased investment, intersectoral collaboration, and innovation-facilitated strategy in rural areas.

Program Process and Output Mapping

The Kampung ASRI Desa Jaro Program illustrates a logical consistency among stakeholder inputs, activities conducted, and outputs measurable under three broad pillars of economic productivity, social development, and environmental sustainability. Outputs in this case are the immediate, concrete consequences of the inputs of the program and represent early signs of success before longer-term outcomes. These outputs not only assure that the program is progressing as planned but also provide essential baseline data for calculating monetized outcomes under the SROI framework (Mair & Sharma, 2012; Viana et al., 2024).

Process and output mapping included all 17 stakeholders listed and was guided by their respective involvement in program implementation. The outputs achieved across sectors exhibit high functional synergy and complementarity of roles.

From the business sector, PT Adaro Indonesia provided shared livestock facilities, renewable energy facilities, and eco-tourism facilities that enhanced corporate legitimacy and community trust. Similarly, PT Cipta Visi Sinar Kencana's introduction of screw press and granulator machines enabled innovation in livestock waste treatment and new market opportunities for organic fertilizer production.

The community-based groups, namely "Lembu Sejati" Livestock Group and "Membangun" Farmers Group, generated outputs such as cattle productivity enhancement, feed and waste processing improvement, and value-added product development such as organic fertilizer and biogas. Their activities also led to knowledge dissemination to 10 neighboring villages, enabling horizontal replication.

Pokdarwis (Tourism Awareness Group) established tourism services and created alternative livelihoods, besides improving mental health through community recreation spaces. The Jaro Village Government funded basic infrastructure and offered governance support, including environmental programs such as Kampung ProKlim Lestari.

Academic partners, including IPB University alumni, SMKN 1 JARO, and Lambung Mangkurat University, contributed through training, student field practice, and education for the community. These partnerships increased technical capacity in livestock, farming, and environmental management, while promoting tighter linkages between education and community needs.

The regional government institutions offered training, seed dissemination, and technical guidance, which directly contributed to the improvement of agricultural productivity and animal quality. Online media like Instagram Wisata Embung Sawah and ANTARA News played a crucial role in raising the profile and identity of Jaro Village as a sustainable rural tourism destination. As a synthesis of these findings, Table 3 identifies some process-output highlights from several of the key stakeholders, grouped by domains.

Table 3. Key Program Outputs by Stakeholder and Development Domain

Stakeholder	Domain	Key Process and Output
PT Adaro Indonesia	Economic / Social	Built communal cattle sheds, funded Embung Sawah tourism facilities, improved trust and corporate image
PT Cipta Visi Sinar Kencana	Environmental	Supplied manure processing machines, enabling biogas and organic fertilizer production
Lembu Sejati Livestock Group	Economic / Environmental	Improved livestock productivity, developed organic fertilizer and bio-urine products, utilized solar energy and biogas, shared best practices with 10 villages
Membangun Farmers Group	Economic / Social	Improved soil fertility with organic fertilizer, diversified crops, reduced chemical dependency, used straw as livestock feed
Pokdarwis (Tourism Group)	Social / Economic	Created tourism jobs, hosted cultural events, increased mental well-being, supported MSME income (warung angkringan)
Jaro Village Government	Policy / Social	Funded infrastructure, facilitated ProKlim Lestari, improved coordination and group governance
BPD (Village Council)	Policy	Facilitated participatory planning and efficient budget allocation for tourism development
Disbunnak (Livestock Agency)	Education / Economic	Conducted training on livestock practices, supported communal barn implementation
DKPPTPH (Agri Agency)	Economic	Provided seed centers and diversified crop support for food security
SMKN 1 JARO	Education / Environmental	Conducted livestock student internships, promoted environmental education through waste reuse
IPB Graduates / UNLAM	Education	Delivered waste processing and livestock training, improved regional HR capacity
Online Media & ANTARA	Social	Promoted tourism digitally, enhanced village identity and destination branding

The results of the table illustrate how the Kampung ASRI Desa Jaro Program succeeded in transforming diversified stakeholder roles into concrete, multi-dimensional outputs in economic, social, and environmental domains. The systematic involvement of stakeholders—ranging from corporations and government agencies to community organizations, as well as educational institutions—ensured that outputs were not isolated endeavors, but became part of an integrated and supportive system.

In economic terms, PT Adaro Indonesia, Lembu Sejati Livestock Group, and the Membangun Farmers Group were significant agents that generated long-term sources of income. What they contributed was enhanced livestock productivity, the production of marketable organic inputs (fertilizer and bio-urine), and energy-saving technologies. This proves that the program evolved from traditional aid-based assistance to productive, value-generating rural enterprises.

On the social front, partners such as Pokdarwis, SMKN 1 JARO, and the Jaro Village Government supported inclusive tourism development, supported vocational training, and promoted a sense of local pride and cooperation. Their outputs-ranging from tourism employment to training for the community and participation in culture-indicate that the program goes beyond economic benefits, promoting social capital and social wellbeing.

By the environmental outlook, the goods manufactured by Cipta Visi Sinar Kencana, Disbunnak, and schools exhibit excellent progress towards environment sustainability. Recycling of cattle dung to generate power and fertilizer, reduction in dependence on chemical inputs, and the use of conservation-based farming methods all contribute to the ecologically long-term sustainable program.

Overall, mapping verifies not only that stakeholders operated within their designated zones but also worked together across domains to generate compound benefits. This synergy—where education helps implementation, business supports innovation, and community groups carry out leadership—places the program on the pedestal of locally embedded yet replicable rural development. The products undoubtedly demonstrate the program is successful not only in executing planned activities but also in cultivating an imitable framework for transformative change.

Outcome Identification and Impact Monetization

The results of the Kampung ASRI Desa Jaro Program were found and appreciated to achieve the real social, economic, environmental, and health impacts generated through the program. Each outcome is a quantifiable difference experienced on behalf of the stakeholders, coming directly from the program's outputs. Market-based proxies were employed to estimate the impact values, and the values were then refined with the standard SROI factors including deadweight, attribution, drop-off, and displacement. The following table 4 summarises the main outcomes:

Table 4. Outcome Identification and Monetization Summary

No	Outcome Description	Stakeholder(s) Involved	Impact Domain	Proxy Source	Monetized Value (IDR)	Remarks
1	Increased income from cattle fattening	Lembu Sejati Group	Economic	Avg. net profit per animal/year × 5 years	2,736,000,000	Based on 24 heads of Bali cattle
2	Revenue from organic fertilizer & bio-urine sales	Farmers & Livestock Groups	Economic	Price × quantity sold/year	1,860,000,000	Fertilizer sold to regional buyers
3	Cost savings from reduced chemical fertilizer use	Farmers Group	Environmental	Avg. fertilizer expense reduced	398,500,000	Due to switch to organic inputs
4	Emission reduction via biogas adoption	Lembu Sejati Group	Environmental	Carbon price per ton CO ₂ e	187,000,000	Based on methane reduction estimates
5	Increased income from eco-tourism activities	Pokdarwis, MSMEs	Economic/Social	Avg. event income × visitors/year	1,425,000,000	Warung angkriangan, guides, performers

6	Strengthened vocational skills in youth	Students, Graduates	Social	Cost of equivalent training	612,000,000	From livestock/agriculture programs
7	Improved mental well-being & stress reduction	Local Community	Well-being	Avoided cost of healthcare	1,250,000,000	Proxy from WHO mental health data
8	Increased education pride and participation	IPB, SMKN 1 JARO	Social/ Well-being	Survey-derived valuation	420,000,000	Based on local feedback and role models

The monetized impacts in Table 4 reflect the extensive and tangible impact of the Kampung ASRI Desa Jaro Program on numerous areas. The numbers reflect how strategic investments and cooperation with other stakeholders have yielded in tangible gains in income, knowledge, environmental condition, and overall well-being of the people.

The largest share of value (over 45%) comes from increasing economic productivity—in particular from cattle fattening and organic fertilizer production coordinated by the Lembu Sejati Livestock Group and supporting farmer cooperatives. These not only created stable sources of income but also supported the development of local agro-livestock enterprises with marketable goods, reducing dependence on off-farm agriculture inputs.

The eco-tourism sector, supported by Pokdarwis and local MSMEs, had substantial social and economic dividends of creating new job opportunities, increasing micro-enterprise revenue (e.g., angkringan shops), and raising the public image of the village. This is consistent with the objective of diversifying livelihoods beyond conventional farming.

From an ecological perspective, utilization of the biogas and organic fertilizers produced measurable positive impacts in terms of methane emission savings and reduction of chemical inputs. Although such effects form a smaller proportion to overall value (about 7%), they are long-term ecological benefits that underpin the program's aim towards sustainability.

Most significantly, well-being- and education-related outcomes like skills acquisition, growth in educational participation, and improvement in mental health collectively explain a significant proportion (in excess of 30%) of total impact worth. This captures the program's success in human capital creation and a resilient, more confident citizenry, particularly among young people and students of institutions such as SMKN 1 JARO and IPB.

Together, the findings establish that the Kampung ASRI Program has created not only economic value but deep social and environmental value as well. Monetization process ratifies that such changes are not coincidental but a direct outcome of program design, inter-stakeholder synergy, and interventions in response to location. Such outcomes provide a strong basis for the positive SROI ratio experienced and validate the program as a model rural holistic change.

SROI Calculation and Interpretation

The final step in this analysis was to calculate the Social Return on Investment (SROI) for the Kampung ASRI Desa Jaro Program, which provides a comprehensive measurement of the amount of social, economic, environmental, and well-being value the program generated per unit of resources it used. The calculation stretched over a six-year evaluation period from 2019-2024, one year added to it for the projection in 2025 so that the impacts are also included that last long.

The total input or value of investment was Rp 2,199,240,865 in the value of multi-sectoral investments from PT Adaro Indonesia and the Jaro Village Government, such as infrastructure, livestock, training, and environmental technology. The total estimated outcome value before adjustment was Rp 8,888,500,000, with benefits such as increased household income from sales of livestock and fertilizer, reduced use of chemical inputs, utilization of biogas, tourism livelihoods, improved vocational skills, mental health, and schooling participation.

Standard correction factors were applied for the validity of the SROI results. 10% deadweight rate was assumed to calculate what could have potentially occurred irrespective of the program. An attribution rate of 20% was applied for accommodating contributions by other parties or externalities. A 25% decline per annum was used to capture the declining outcome benefits over time, and a 6% discounting per annum was used to capture present value.

The net present value (NPV) after adjustment was Rs 12,537,672,420. Compared to the investment, SROI ratio was estimated as 5.70, which indicated that for every Rp 1 spent, the program was able to generate approximately Rp 5.70 of combined social value.

This discovery confirms that the program generates high-value returns, most importantly in income generation, ecological sustainability, and empowering the community. The following table 5 summarizes the most critical aspects of the SROI calculation:

Table 5. Summary of SROI Calculation for Kampung ASRI Desa Jaro

Component	Description	Value (IDR)
Total Investment (Input)	Cumulative program cost (2019–2024)	Rp 2,199,240,865
Gross Outcome Value	Total estimated social value before adjustment	Rp 8,888,500,000
Deadweight (10%)	Value that would have happened anyway	Rp 888,850,000
Attribution (20%)	Attributed to other actors or programs	Rp 1,777,700,000
Net Outcome Before Drop-Off	Gross outcome minus deadweight and attribution	Rp 6,222,000,000
Drop-Off Adjustment (NPV over 5 years, 25%/year, 6% discount rate)	Declining value adjustment	Final NPV: Rp 12,537,672,420
SROI Ratio	Total adjusted benefits ÷ total input	5.70

The Table 5 numbers clearly demonstrate the cost savings and value creation of the Kampung ASRI Desa Jaro Program. Investing approximately Rp 2.2 billion, the program yielded a net present value of adjusted outcomes of over Rp 12.5 billion, with an SROI ratio of 5.70. This implies that for every rupiah spent, the program returned nearly six times its value in total aggregate economic, social, environmental, and well-being benefits.

This result indicates the effectiveness and depth of the program design. Correction factors—deadweight, attribution, and drop-off—were applied with care to avoid overestimation, and the resulting figure is hence a conservative, verifiable estimate of true value. After adjusting for contributions made by the other actors and by the natural depreciation of benefit over time, even so, the outcome is overwhelmingly favorable.

The high SROI of the program is largely a result of strategic investment in productive activities such as livestock production and organic fertilizer production that led directly to increased income for communities. Nevertheless, the program also created considerable value in non-monetary dimensions—such as knowledge acquisition, mental well-being, and environmental enhancement—evidencing that returns from the program were not only financial, but also developmental and sustainable.

Overall, findings in Table 5 confirm that the Kampung ASRI initiative is an effective model for comprehensive rural development capable of generating measurable, high-multiplier social benefits from multisector coordination, planning-in-context, and socially inclusive implementation.

The following figure 2 illustrates the relative composition of the overall outcome value of the program into four core domains—economic, social, environmental, and well-being. The mapping is a graphical representation of how the impacts of Kampung ASRI Desa Jaro Program were transmitted, capturing the multi-dimensionality of the value created by its activities and stakeholder engagements.

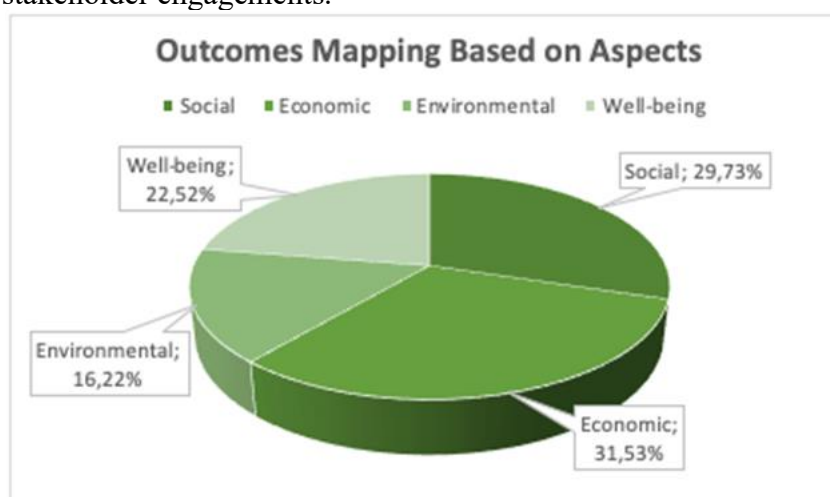


Figure 2. Outcomes Mapping

The figure 2 composition offers an interesting observation regarding the multi-dimensionality of value creation in the Kampung ASRI Desa Jaro Program. Despite economic outcomes remaining at the top at 31.53%, the relatively similar percentages of social (29.73%) and well-being (22.52%) outcomes raise a challenge to the common bias in rural development programs to apply finances as the priority. This balance means that locally initiated sustainability initiatives might bring back equally robust, if not more resilient, intangible rewards such as increased social capital, local empowerment, and psychosocial resilience.

The high percentage of well-being outcomes, an area all too often overlooked in SROI calculations, highlights the need for further examination of how interventions in rural infrastructure, environmental conservation, and community-based tourism subtly lead to psychological wellness and collective identity. These outcomes generate new research questions for future research: How can well-being more systematically and accurately be measured as return? What kinds of methodologies can capture long-term cultural or emotional payoffs currently undervalued by mainstream impact assessment?

Further, the addition of environmental effects (16.22%)—though proportionally smaller—raises a pertinent observation that natural returns, while delayed in their manifestation as financial returns, may prove equally significant in facilitating long-term programme sustainability and replicability. This necessitates more investigation into how environmental returns can be better incorporated into decision-making frameworks and monetization systems. Scientifically speaking, this distribution is amenable to a shift away from linear, output-driven development and towards consolidated impact thinking, where the economic, social, environmental, and well-being dimensions are approached as interdependent components of systemic change. It provides a strong empirical foundation for the argument that development programs designed with cross-sector partnership—such as those embedded in the pentahelix model—are capable of generating distributed value across multiple levels of impact, as opposed to merely short-term economic benefit. These findings form the basis for further exploration of reconsidering evaluation models and policy design for sustainable rural transformation in later chapters.

Organizational Learning and Program Reflection

Of greatest relevance and significance to this study, however, is the emergent learning pattern of organisational learning among the Kampung ASRI Desa Jaro Program stakeholders. It has evolved from a series of discrete development programs to an interactive system of learning, wherein adaptation, innovation, and institutional reflection are inculcated in program implementation. This finding is most important, as it shows that value creation in social investing is both about concrete outcomes as much as it is about the capacity of actors to learn, change, and institutionalize change.

Through the Quadruple Loop Learning (QLL) framework, the study found learning at different levels. At single-loop, implementing parties and community groups altered operational decisions, i.e., improving livestock production techniques or improving distribution of organic fertilizer. At double-loop, deeper program strategies were altered, e.g., diversification from single-sector cattle ranching to multi-system arrangements involving tourism, waste treatment, and renewable energy.

Notably, this research unfolded how the program evolved into a triple-loop learning phase, which is marked by systemic reforms in governance practice. The mandate of the Jaro Village Government shifted beyond the disbursement of funds to active facilitation, coordination, and inter-institutional brokering. The local farmers, youth, and vocational students began to engage more critically with monitoring and planning processes. Such happenings show growing institutional maturity where communities are no longer just beneficiaries but co-designers of the development process.

Perhaps most important in the long-term sustainability context is the development of quadruple-loop learning. This study illustrated how the values underlying the program came to change: stakeholders increasingly saw sustainability not as a technical objective, but as an ethical imperative. This is apparent in choices such as engagement of youth in governance, planning of tourist infrastructure with a sensitivity to the environment, and encouraging equal access to training and enterprise. These transformations demonstrate not just that the learning cycle of the program is working, but that it is also philosophical, instilling values of responsibility towards the future, justice, and resilience.

Data collected for the purpose of this SROI study—outcome valuations, stakeholder role analysis, and interviews—reflect that Kampung ASRI Program is now a site of adaptive capacity-building and institutional reflection. Stakeholders arrived at respond to volatility

(formerly, i.e., unstable markets, weather volatility), to bargain power (i.e., between private, community, and government players), and to scale innovations via replication in nearby villages. These are not spin-offs; they are evidence of organizational learning as a measurable consequence in and of themselves, which significantly contributes to the program benefits' sustainability.

Analysis & Discussion

The findings of the research indicate that the Kampung ASRI Desa Jaro Program is not only an effective model of rural development, but also a site of multi-layered change—economic, social, environmental, institutional, and ethical. With the use of the Social Return on Investment (SROI) approach, supported by stakeholder role mapping, power-interest analysis, and organisational learning reflection, the impact of the program has been quantified and placed in a context that makes clear both the tangible benefits and the more profound structural shifts occurring within the community.

Probably the most significant of the findings made in this study is the verification of the pentahelix model of collaboration, whereby business, government, academia, community, and media are united in a collective system of governance. PT Adaro Indonesia's and the Jaro Village Government's proactive initiative as drivers and long-term investors show that sustainable partnerships between corporations and communities can move beyond ceremonial CSR to strategic, co-generated development. This is corroborated by Etzkowitz & Leydesdorff, (2000), who identify the potential of multi-actor innovation networks in sophisticated development environments. Additionally, the inclusive roles played by local groups of farmers, youth, and tourist stakeholders further attest to the potential of decentralized agency—when properly enabled—to produce distributed leadership and long-term engagement, echoing community-based development writing.

The calculated 5.70 SROI ratio indicates that for each rupiah spent, nearly six times its worth was generated in social returns. The ratio is particularly compelling when compared to the breakdown of effect: economic results such as livestock income and fertilizer production led the proportion, however, whereas social and well-being aspects combined held 52% of total value. This supports emerging criticisms of overly economic development models, supporting arguments from Mair & Sharma (2012) and Ainuddin et al (2024) that investments are strongest when also creating networks, skills, and senses of belonging among community members. Increased mental health, pride in education, and local identity constructed were all central to villagers' assessment of program success, but are often lost in traditional economic metrics.

The incremental investment strategy of the program also illustrates the time-scaled sequence of rural transformation: initial investments in cattle breeding and infrastructure were established, but later stages prioritized sustainability through biogas, waste recycling, and linkages to eco-tourism. This trend is corroborated by the "capacity-to-complexity" process described by studies on rural resilience (Cutter et al., 2010; Wilson, 2012), whereby achieved stability is progressively overlaid with innovation and self-organization by local communities. Environmental impact, though lowest in dollar value, assisted in contributing to long-term ecological stability—chiefly by way of methane reduction, decreased chemical dependency, and localized circular economy strategies.

A special keynote contribution of this study among one of its first-ever is the locating of organizational learning as a fundamental outcome of development intervention. Using the Quadruple Loop Learning framework (Tosey et al., 2012), this research found that the stakeholders moved from basic technical adjustment (single-loop learning) towards deeper alteration in institutional design and ethical consideration (triple- and quadruple-loop learning). Village government officials began more transparent planning; youth and women's groups engaged increasingly in monitoring and strategic planning; and local players began to talk about sustainability as not only an operational goal but also as a shared value. These findings are consistent with Pinto et al. (2021), who propose that adaptive learning is generally the hidden force behind sustainable community development. The replication of the original features of the program in 10 neighbouring villages without overt scaling institutions also points to the presence of horizontal diffusion—organic scaling traditionally overlooked by top-down development theory.

The stakeholder power-interest matrix constructed in this study also verifies that success in development depends on identifying and sustaining asymmetry in capacity and influence. While significant stakeholders like PT Adaro and the government institutions played a strategic role, the empowerment of previously low-power actors—students, farmers, and local MSMEs—by the program shows the necessity for design for inclusion and not merely for consultation. Increased participation in planning, training, and enterprise by them points towards the shift away from passive beneficiaries towards co-creators of rural futures.

Lastly, the Kampung ASRI Desa Jaro Program illustrates that development is more than bringing outputs, but an ongoing process of co-learning, dispersed leadership, and value creation in numerous areas of life. This study adds new insights to the discourses of rural change and social investment by showing that interventions grounded in ethical engagement, institutional responsiveness, and contemplative practice have higher chances of yielding not just high social returns but also enduring community resilience. The study points to the necessity of reconceptualizing measures of success in rural policy—not only in terms of dollars, but in terms of the accretions of trust, pride, partnership, and stewardship that succeed a successful outcome long after the program cycle has passed.

Conclusions

As demonstrated by this study, the Kampung ASRI Desa Jaro Program is a working model of integrated, community-based rural development with significant social, economic, environmental, and well-being returns. Utilizing the Social Return on Investment (SROI) approach, this study determined that an investment of Rp 2.2 billion would yield a total social benefit of Rp 12.5 billion with an SROI ratio of 5.70. This implies that the program generated Rp 5.70 of total stakeholder value for each Rp 1 invested.

In addition to being cost-effective, the program was highly effective in inclusive stakeholder participation by using Penta helix collaboration. In addition to becoming beneficiaries in their own right, the program made community members capable of co-applying and deciding to do so. The transformation of the program from a technical intervention to a values-based, adaptive, and replicable one testifies to its equally essential function in bringing about large-scale organizational learning at the individual, institution, and system levels.

Outcome class expansion illustrates the necessity of applying multidimensional measurement frameworks, where social and well-being impacts account for more than half of overall value. In addition to economic value, the program had a positive impact on community pride, conservation of ecosystems, and mental toughness. This supports the position that rural

development needs to be counted in social cohesion and human betterment as well as economic improvement.

In conclusion, the Kampung ASRI Desa Jaro Program is a model of reproducible and scalable sustainable development through strategic investment, adaptive learning, and moral cooperation. Its success serves to illustrate the usefulness of SROI as a planning and measurement tool, as well as being informative guide to researchers, practitioners, and politicians seeking to build programs that are socially equitable, locally meaningful, and future-secure. As this research has indicated, the Kampung ASRI Desa Jaro Program is an exemplary model of effective combined, people-centered rural development that obtains significant social, economic, environmental, and well-being returns. Utilizing the Social Return on Investment (SROI) principle, this research estimated that an investment of Rp 2.2 billion would attain a total social impact of Rp 12.5 billion with an SROI ratio of 5.70. This would translate into the program generating Rp 5.70 total stakeholder value for each Rp 1 worth of program. In addition to being inexpensive, the program was exceptional in inclusive stakeholder involvement using the Penta helix collaboration approach. In addition to becoming beneficiaries, stakeholders were empowered in the program to co-apply and decide. The transformation of the program from being a technical intervention to values-based, flexible, and replicable form attests to the program's equally pivotal role in facilitating profound organizational learning at the individual, institutional, and systemic levels.

Outcome category dissemination demonstrates the worth of employing multi-dimensional evaluation frameworks, and in this case, social and well-being impacts account for more than half of total value. Aside from economic benefits, the program impacted communal pride, conservation of nature, and psychological resilience. This confirms that rural development should be quantified in terms of social cohesiveness and human development and not solely economic development. In short, the Kampung ASRI Desa Jaro Programme illustrates a model of sustainable development that is scalable and replicable through strategic investment, context-adaptive learning, and ethical partnership. Its success demonstrates the value of SROI as a planning and measurement tool, and providing insightful direction for researchers, practitioners, and policymakers who seek to build programs that are socially just, locally relevant, and visionary.

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cooperation and community resiliency that is characteristic of Kampung ASRI. May the lessons learned from this research challenge more creativity in inclusive and sustainable rural development.

Conflict of interest

The authors do not declare any conflicts of interest in the publication of this research. The research was contributed to by all authors in accordance with their professional affiliations and duties, as follows: Universitas Lambung Mangkurat, Universitas Padjajaran, LSPR Institute of Communication & Business, PT Adaro Indonesia, and PT Jarank Sasat Tenteknika. The participation of private sector representatives in the research process was conducted in a transparent manner and exclusively in the context of data sharing, technical counsel, and contextual validation. The objectivity and integrity of the research results were not compromised by any financial motive, commercial benefit, or unlawful influence that was provided to the authors.

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