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CSR TRANSFORMATION TOWARD ESG AND ITS CONTRIBUTION TO SDGs IN THE ENERGY TRANSITION ERA

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Abstract

The global shift from Corporate Social Responsibility (CSR) toward Environmental, Social, and Governance (ESG) practice, together with Indonesia's commitment to the Just Energy Transition Partnership (JETP), requires state-owned energy enterprises to reframe their community programs beyond charity toward measurable sustainability contribution. This study analyzes the transformation of CSR programs at PT PLN UPDK Bakaru into ESG-based practice, maps program contribution to the Sustainable Development Goals (SDGs), and measures program effectiveness using the Social Return on Investment (SROI) approach. The research employs a sequential explanatory mixed-methods design. Qualitative data are collected through in-depth interviews with company management, program officers, beneficiaries, and community leaders, then analyzed with the Miles-Huberman interactive model. Quantitative analysis maps existing programs into an ESG matrix aligned with the GRI Standards and calculates SROI following the six stages of The SROI Network. The findings demonstrate that reframing UPDK Bakaru's programs within an integrated ESG-SDGs framework reveals significant asymmetry across the three ESG pillars, with the Social pillar dominant and the Environmental and Governance pillars underdeveloped. The SDG mapping identifies strategic gaps on SDG 7 and SDG 13, while the SROI analysis of the Business Capital Assistance program yields a ratio of 1:2.37, indicating positive social return. The study contributes to the CSR-ESG literature in state-owned renewable-energy enterprises and offers a replicable analytical framework for other generation units within the PLN Group.

Keywords: CSR Transformation, ESG, SDGs, Energy Transition, SROI

INTRODUCTION

The paradigm of corporate social responsibility has undergone a fundamental shift over the past two decades. Carroll (2021) originally conceptualized CSR as a pyramid of economic, legal, ethical, and philanthropic responsibilities, and Freeman, Dmytriyev, and Phillips (2021) grounded corporate accountability in stakeholder theory by arguing that firms are answerable not only to shareholders but also to any group affected by corporate action. Building on these foundations, the concept of Environmental, Social, and Governance (ESG) has emerged as a more systematic and measurable framework, integrated into business strategy and oriented toward long-term value creation (Gillan, Koch, & Starks, 2021). The shift from CSR to ESG has been driven by pressure from global investors, the development of sustainability reporting standards such as the Global Reporting Initiative (GRI, 2021), and the International Sustainability Standards Board's IFRS S1 and IFRS S2 (ISSB, 2023), which establish globally comparable disclosure requirements on sustainability and climate-related financial information.

In Indonesia, the regulatory foundation for social and environmental responsibility is set forth in Law Number 40 of 2007 on Limited Liability Companies and Government Regulation Number 47 of 2012 on Social and Environmental Responsibility of Limited Liability Companies. These frameworks were reinforced by Financial Services Authority Regulation Number 51/POJK.03/2017 on the Implementation of Sustainable Finance, which requires financial services institutions, issuers, and public companies to prepare an annual sustainability report. Tanaya and Saerang (2022) argued that Indonesian CSR practice has for a long time been dominated by philanthropic and community-development activities rather than by systematic integration into corporate strategy, an observation that remains relevant to the state-owned enterprise (SOE) sector today. Hariyanto and Ghozali (2024) further confirmed that ESG disclosure among Indonesian firms remains uneven, with the social pillar receiving the most attention while environmental and governance dimensions lag behind.

The Indonesian context has become increasingly salient following the signing of the US$20 billion Just Energy Transition Partnership (JETP) in November 2022, which targets an accelerated energy transition and a peak in on-grid power-sector emissions by 2030. The JETP Comprehensive Investment and Policy Plan (CIPP), launched in November 2023, places PT Perusahaan Listrik Negara (Persero), Indonesia's state electricity company, at the center of the transition through early retirement of coal-fired power plants, expansion of renewable-energy capacity, grid strengthening, and modernization of the power system (Ministry of Energy and Mineral Resources & JETP Secretariat, 2023). Bakaru Hydroelectric Power Plant (PLTA Bakaru), operated by PT PLN Unit Pelaksana Pengendalian Pembangkitan (UPDK) Bakaru, is one of PLN's strategic renewable-energy assets in South Sulawesi with an installed capacity of 2×63 MW. As a clean-energy asset, the operational sustainability of PLTA Bakaru depends heavily on the support of surrounding communities, commonly referred to as the social license to operate (Mabele, Gill, & Walker, 2024), which makes corporate social responsibility programs not merely a matter of regulatory compliance but a strategy for social-risk mitigation.

Prior research by Firdaus, Arfianty, and Bachtiar (2022) at PT PLN UPDK Bakaru found that CSR programs had been implemented in four clusters community empowerment, worship-facility assistance, youth empowerment, and women's empowerment yet concluded that they had not been effective in improving community quality of life. That conclusion leaves considerable analytical space: program effectiveness was not measured with formal indicators, was not mapped against prevailing sustainability frameworks (GRI Standards, IFRS S1/S2, or the SDGs), and did not consider the company's strategic context as an energy-transition asset. Two analytical instruments respond directly to this gap. First, the ESG framework offers three integrated pillars (environmental, social, governance) that allow programs to be structured and disclosed in ways that are comparable across firms (Senadheera et al., 2021). Second, Social Return on Investment (SROI), as developed by Maier, Schober, Simsa, and Millner (2021), provides a rigorous method for quantifying the social value generated by a program relative to its investment cost, enabling research to move from descriptive claims to comparable empirical evidence.

The novelty of this study lies in three areas. First, it applies the ESG framework to a state-owned renewable-energy enterprise at the operational-unit level, an analytical site largely absent from the existing literature. Second, it integrates three complementary instruments ESG matrix mapping, SDG contribution analysis, and SROI calculation into a single coherent framework. Third, it contextualizes CSR-to-ESG transformation within the Indonesian energy transition, linking corporate social programs to the JETP decarbonization roadmap.

Based on the discussion above, this study formulates three research questions: (1) How can the CSR programs of PT PLN UPDK Bakaru be reformulated within the ESG framework? (2) How do the programs contribute to the achievement of the SDGs, particularly SDG 7 (affordable and clean energy), SDG 8 (decent work and economic growth), SDG 11 (sustainable cities and communities), and SDG 13 (climate action)? (3) What is the Social Return on Investment (SROI) value of the priority programs implemented? The study is expected to contribute both theoretically, by extending the CSR-ESG literature into the state-owned renewable-energy subsector, and practically, by producing a replicable analytical framework for other PLN generation units.

This study develops an integrated analytical framework comprising three interconnected instruments. The framework begins with a qualitative assessment of existing CSR programs, which are then mapped into the three ESG pillars using GRI Standards indicators as reference criteria. The ESG-mapped programs are subsequently cross-referenced with the relevant SDG targets to identify contribution levels and strategic gaps. Finally, the priority program identified through the ESG-SDG analysis is subjected to SROI calculation to quantify its social value. The three instruments operate sequentially: the ESG matrix reveals structural gaps, the SDG mapping connects programs to global sustainability targets, and the SROI measurement provides comparable evidence of program effectiveness. Together, they constitute a replicable framework for transforming philanthropy-based CSR into evidence-based ESG practice.

RESEARCH METHOD

Research Design

This study uses a mixed-methods design with a sequential explanatory approach (qualitative → quantitative). The qualitative stage is conducted first to map the existing programs, understand institutional context, and identify stakeholders. The quantitative stage then measures the value of social impact using SROI. This design is selected because the research questions require both a rich description of program implementation (best captured qualitatively) and a comparable measurement of program value (which

requires monetary quantification). The two stages are integrated at the interpretation phase (Creswell & Creswell, 2022).

Research Site and Timeframe

The research site is PT PLN UPDK Bakaru, located in Bakaru Village, Lembang District, Pinrang Regency, South Sulawesi. The site is chosen purposively because: (1) UPDK Bakaru operates a hydropower plant directly relevant to the study's focus on renewable-energy assets; (2) prior research at the same site (Firdaus et al., 2022) has established a baseline understanding of existing CSR programs; and (3) the plant's location amid a rural community makes the social license to operate a live operational issue. The research area covers the villages within the direct social impact radius of the plant. Data collection was conducted over approximately five months, comprising one month of preparation and instrument development, three months of field work, and one month of analysis and writing.

Informants and Sampling

Informants were selected through purposive sampling with a snowball technique for beneficiary respondents. Four categories of informants were targeted: (1) UPDK Bakaru management, including the plant manager and finance-administration supervisor, to obtain data on program strategy, budget allocation, and institutional mechanism; (2) the officer in charge of the CSR/community-development program to obtain operational data on program design and implementation; (3) beneficiaries of at least three program clusters selected through snowball referral, with a target of six to ten beneficiaries per cluster to reach information saturation; and (4) community leaders, including the village head, religious leaders, and youth leaders, to obtain triangulating perspectives on program effectiveness.

Data Collection Techniques

Primary data were collected through three complementary techniques. First, in-depth semi-structured interviews using an interview guide constructed from the ESG pillars and SDG indicators. Second, participant observation of program implementation sites to verify claims from interviews and document the physical and social context. Third, documentary study was undertaken on UPDK Bakaru CSR program reports, PLN's Sustainability Report (PT PLN, 2023), the Electricity Supply Business Plan (RUPTL), the JETP CIPP document (Ministry of Energy and Mineral Resources & JETP Secretariat, 2023), and relevant regulatory instruments. All interviews were recorded with informed consent, transcribed verbatim, and returned to informants for member checking before analysis.

Data Analysis Procedure

Qualitative analysis follows the interactive model of Miles, Huberman, and Saldaña (2020), comprising three concurrent flows of activity: data condensation (thematic coding using an initial code frame derived from ESG pillars and SDG targets, refined inductively as analysis proceeds), data display (arranging coded material into thematic matrices such as the ESG matrix and the SDG matrix presented in the Results section), and conclusion drawing and verification (cross-checking patterns against documentary evidence and additional interviews).

Quantitative analysis proceeds in two stages. In the first stage, existing programs are mapped into the ESG matrix and cross-referenced with the relevant GRI Standards disclosures (GRI, 2021), particularly the GRI 300 environmental series and GRI 400 social series. In the second stage, SROI is calculated for the priority programs following the six stages of The SROI Network (Maier et al., 2021): (i) establishing scope and identifying key stakeholders; (ii) mapping outcomes through a theory of change linking inputs, activities, outputs, and outcomes; (iii) evidencing outcomes and giving them value through financial proxies drawn from local market data; (iv) establishing impact by discounting for deadweight, attribution, and drop-off; (v) calculating the SROI ratio as the net present value of impact divided by the present value of investment, using the Bank Indonesia policy rate as the discount rate; and (vi) reporting and using the results to inform program prioritization.

Trustworthiness and Rigor

The trustworthiness of the qualitative findings is ensured through source triangulation (management, beneficiaries, community leaders) and method triangulation (interviews, observation, documents), as well as member checking of transcripts and preliminary findings. Transferability is established through thick description of the research context. Dependability is maintained through an audit trail of coding decisions and analytical memos, and confirmability through documentation that allows an

independent researcher to trace conclusions back to the underlying data. The rigor of the SROI calculation is enhanced by conducting sensitivity analysis on key assumptions (discount rate, deadweight, drop-off) to test the robustness of the resulting ratio.

Ethical Considerations

This research was conducted in compliance with research ethics principles. Informed consent was obtained from all informants prior to interviews. Informants were informed of the research objectives, their right to withdraw at any time, and the confidentiality of their responses. Interview recordings and transcripts are stored securely and accessible only to the research team. The research received institutional approval from the Faculty of Economics and Business, Universitas Muhammadiyah Parepare.

RESULTS AND DISCUSSION

Profile of Existing Social Responsibility Programs

Based on field data collection through interviews with UPDK Bakaru management and program officers, supplemented by documentary analysis of program reports, the existing CSR programs at PT PLN UPDK Bakaru are organized into four operational clusters. Table 1 presents the profile of each cluster, including activities, beneficiaries, annual budget, and disbursement mechanism.

Table 1. Profile of Existing CSR Programs at PT PLN UPDK Bakaru

No.	Program Cluster	Activities	Beneficiaries	Annual Budget (IDR)	Disbursement Mechanism
1	Community Empowerment	Business capital assistance; free electricity connections for underprivileged households	30 micro-entrepreneurs; 45 households	150,000,000	Direct grant through village coordination
2	Worship-Facility Assistance	Mosque equipment; computer aid for tahfidz boarding schools	5 mosques; 2 pesantren	75,000,000	In-kind provision through community request
3	Youth Empowerment	Skills training; equipment provision for youth organizations	25 youth participants	50,000,000	Training-based with equipment handover
4	Women's Empowerment	Capacity building; productive-economic activities (handicrafts, food processing)	20 women participants	50,000,000	Group-based facilitation
Total				**325,000,000**	

Source: Compiled from UPDK Bakaru CSR program reports and management interviews (2024).

Table 1 reveals that the total annual CSR budget allocation amounts to IDR 325,000,000, with the community empowerment cluster receiving the largest share (46.2%), followed by worship-facility assistance (23.1%), and youth and women's empowerment receiving equal allocations (15.4% each). The disbursement mechanism varies across clusters, ranging from direct grants to in-kind provision and group-based facilitation. The concentration of funding in the community empowerment cluster reflects the company's historical emphasis on poverty alleviation over other sustainability dimensions a pattern consistent with Tanaya and Saerang's (2022) observation that Indonesian SOE CSR remains philanthropy-oriented.

Reformulation into the ESG Matrix

Existing programs are mapped into the three ESG pillars using GRI Standards indicators as reference. Table 2 presents the mapping across sub-dimensions, identifying areas of strength, gaps, and specific recommendations for each sub-dimension.

Table 2. ESG Matrix Mapping of UPDK Bakaru Community Programs

ESG Pillar	Sub-dimension	Existing Program		GRI Reference	Assessment	Recommendation
Environmental	Climate & emissions	Plant is a renewable asset (2×63 MW hydropower); no dedicated community climate program		GRI 305	Underdeveloped	Develop energy-literacy campaign and community carbon awareness program
		Water & watershed (DAS Mamasa)	No formal conservation program identified	GRI 303	**Gap – Priority**	Initiate DAS Mamasa conservation partnership with local government and NGOs
		Biodiversity & land Use	No formal program identified	GRI 304	Gap	Conduct biodiversity baseline assessment around plant area
Social	Community empowerment	Business capital assistance; free electricity connections (30 entrepreneurs, 45 households)		GRI 413	**Strong**	Strengthen with outcome-based monitoring and SROI measurement
		Local employment & green jobs	No dedicated vocational or green-jobs program	GRI 202, 401	**Gap – Priority**	Develop vocational training linked to plant maintenance and renewable-energy skills
		Education	School supplies; computer aid to pesantren (2 institutions)	GRI 413	Moderate	Expand to include scholarship program and STEM education support
		Gender equality	Women's empowerment cluster (20 participants)	GRI 405	Moderate	Scale up and link to productive-economic outcomes with measurable targets
		Community health & safety	Limited; no structured health program	GRI 403, 416	Gap	Introduce community health screening and safety awareness around plant perimeter
Governance	Grievance mechanism	Not yet formalized; complaints handled informally		GRI 2-25	**Gap – Priority**	Establish formal community grievance mechanism with documented procedures
		Transparency & reporting	Partial (internal reporting only; not publicly accessible)	GRI 2-27	Gap	Publish annual CSR report aligned with GRI Standards
		Stakeholder engagement	Ad-hoc, largely top-down consultation	GRI 2-29	Gap	Institutionalize multi-stakeholder forum with regular schedule

Source: Analysis based on field data, Firdaus et al. (2022), mapped against GRI Standards (GRI, 2021). Assessment categories: Strong = systematic and documented; Moderate = exists but ad-hoc; Gap = little or no activity; Gap – Priority = high-relevance gap for a renewable-energy asset.

The ESG matrix reveals a pronounced asymmetry across the three pillars. The Social pillar carries most of the program activity, particularly in community empowerment, which is assessed as "Strong." The Environmental pillar is significantly underdeveloped a notable gap given that UPDK Bakaru's operational sustainability depends directly on the ecological health of the Mamasa Watershed (DAS Mamasa). This finding aligns with Senadheera et al. (2021), who observed that environmental scoring in ESG assessments frequently lags behind social indicators, particularly in developing-country contexts. On the Governance pillar, the absence of a formalized grievance mechanism, limited public reporting, and ad-hoc stakeholder engagement constitute significant gaps that undermine both ESG reporting quality (as required by POJK

51/POJK.03/2017) and the company's social license to operate. Kujala et al. (2022) argued that stakeholder engagement must be formalized and institutionalized rather than left to informal channels, reinforcing the priority of governance reform. Moreover, Luo and Tang (2023) found that adherence to GRI standards is associated with measurable reductions in carbon emissions, reinforcing the argument that ESG reporting produces real behavioral effects beyond symbolic compliance. Wasiuzzaman and Subramaniam (2023) further demonstrated that diverse governance structures improve ESG disclosure completeness, particularly in developing economies, underscoring the importance of governance reform at UPDK Bakaru.

The addition of a "Recommendation" column in Table 2 distinguishes this analysis from the prior study by Firdaus et al. (2022), which described programs without prescribing actionable improvements. Each recommendation is grounded in the corresponding GRI indicator, providing a clear pathway for program development within an internationally recognized framework.

Contribution to the Sustainable Development Goals

The programs' contribution to the SDGs is mapped in Table 3. The mapping uses four contribution levels High, Moderate, Low, and Strategic Gap and adds an "Evidence / Indicator" column to anchor each assessment in observable data.

Table 3. Mapping of Existing Programs to the Sustainable Development Goals

SDG	Relevant Target	Contributing Program	Contribution Level	Evidence / Indicator
SDG 1 – No Poverty	1.2, 1.4	Business capital assistance; free electricity connections for underprivileged households	**High**	30 micro-entrepreneurs received capital; 45 households connected; avg. income increase IDR 500,000/month
SDG 4 – Quality Education	4.1, 4.4	School supplies; computer aid to tahfidz pesantren	Moderate	2 pesantren received computer sets; school supplies distributed to 3 schools
SDG 5 – Gender Equality	5.5, 5.a	Women's empowerment cluster	Moderate	20 women trained in handicrafts and food processing; 8 established micro-businesses
SDG 7 – Affordable & Clean Energy	7.1, 7.a	Not yet strategically addressed	**Strategic Gap**	Potential: village microhydro, solar for public facilities, energy literacy campaign
SDG 8 – Decent Work	8.3, 8.5	Business capital for micro-enterprises; youth skills training	Moderate	30 micro-enterprises supported; 25 youth received vocational training; 10 part-time jobs created
SDG 11 – Sustainable Communities	11.a	Worship-facility and social-facility support	Low	5 mosques received equipment; contribution is facility-based, not systemic
SDG 13 – Climate Action	13.1, 13.3	Not yet strategically addressed	**Strategic Gap**	Potential: DAS Mamasa conservation, climate-resilience programs, tree planting

Source: Analysis based on UN (2023) 2030 Agenda, field data, and program documentation. Contribution categories: High = systematic with documented outcomes; Moderate = observable outcomes; Low = marginal; Strategic Gap = highly relevant to the company's identity as a renewable-energy operator but not yet addressed.

A striking finding from Table 3 is that SDG 7 (Affordable and Clean Energy) and SDG 13 (Climate Action) the goals most directly aligned with the company's operational identity as a hydropower operator are the two areas categorized as Strategic Gaps. Free electricity connections contribute to SDG 1 (poverty alleviation) but do not amount to a strategic clean-energy program. This disconnect between operational identity and community program orientation represents a significant missed opportunity. García-Sánchez et al. (2022) demonstrated that companies with stronger alignment between core operations and SDG programs produce more credible sustainability narratives and higher-quality ESG disclosures. Repositioning selected activities around SDG 7 and SDG 13 through village microhydro pilots, community-scale solar for public facilities, energy-literacy campaigns for youth, and watershed conservation

partnerships would allow UPDK Bakaru to communicate a coherent sustainability narrative in which the plant's core operation and its community programs reinforce a single strategic identity. This argument is supported by Pizzi, Rosati, and Venturelli (2021), who found that companies with more comprehensive ESG disclosure make more measurable contributions to SDG targets.

Measurement of Social Return on Investment

SROI is calculated for the Business Capital Assistance program, selected as the priority program based on its largest budget allocation and the highest contribution level in the SDG mapping. Table 4 presents the full six-stage calculation. The theory of change underpinning the calculation is: input (grant capital, mentoring hours) → activity (disbursement and business coaching) → output (30 micro-entrepreneurs operating businesses) → outcomes (increased monthly income, additional part-time employment, avoided informal-lending cost).

Table 4. SROI Calculation Business Capital Assistance Program

Element	Value (IDR)	Notes / Source
PANEL A. INPUTS (Stage 1: Scope & Stakeholders)		
Program investment (annual)	150,000,000	UPDK Bakaru CSR budget allocation for Business Capital Assistance
Number of beneficiaries	30	Micro-entrepreneurs selected through village coordination
Analysis horizon	3 years	Estimated benefit duration based on beneficiary interviews
Discount rate	6.00%	Bank Indonesia policy rate (BI Rate) at time of analysis
PANEL B. OUTCOME VALUATION – YEAR 1 (Stages 2 & 3)		
Income increase (30 × IDR 500,000/mo × 12)	180,000,000	Financial proxy: average monthly income delta from beneficiary survey
Part-time jobs created (10 × IDR 500,000/mo × 12)	60,000,000	Financial proxy: local part-time wage rate (UMR reference)
Informal-lending cost avoided (30 × IDR 100,000/mo × 12)	36,000,000	Financial proxy: interest rate differential between formal and informal credit
Gross Year-1 outcome value	**276,000,000**	Sum of above
PANEL C. IMPACT ADJUSTMENTS (Stage 4)		
Less: Deadweight (20%)	(55,200,000)	Estimated change that would have occurred without the program
Less: Attribution to other actors (15%)	(41,400,000)	Contribution from village government, family support, other programs
Adjusted Year-1 impact	**179,400,000**	276M − deadweight − attribution
Year-2 impact (after 30% drop-off)	125,580,000	179.4M × 0.70
Year-3 impact (after further 30% drop-off)	87,906,000	125.58M × 0.70
PANEL D. NET PRESENT VALUE & SROI RATIO (Stages 5 & 6)		
PV of Year-1 impact (÷ 1.06)	169,245,000	Discounted at 6%
PV of Year-2 impact (÷ 1.06^2)	111,766,000	Discounted at 6%
PV of Year-3 impact (÷ 1.06^3)	73,807,000	Discounted at 6%

Element	Value (IDR)	Notes / Source
Total Present Value of Impact	**354,818,000**	Sum of PV
Present Value of Investment	**150,000,000**	Year-0 investment
SROI Ratio	**1 : 2.37**	**354.8M ÷ 150M**

Source: Calculation based on UPDK Bakaru program budget, beneficiary income surveys, and local market proxies. Financial proxies validated through informant interviews and cross-referenced with local government economic data.

The SROI ratio of 1:2.37 indicates that every IDR 1 invested in the Business Capital Assistance program generates approximately IDR 2.37 in social value over a three-year horizon. In SROI literature, ratios above 1:1 indicate positive social return; well-designed programs commonly report ratios in the range of 1:2 to 1:6 (Corvo et al., 2022). The result places UPDK Bakaru's program within the lower end of the positive-return range, suggesting room for improvement through better outcome targeting and beneficiary selection. This finding aligns with Lhutfi, Ludigdo, Rusydi, and Baridwan (2024), who demonstrated that the integration of CSR, SDGs, and ESG scores is positively associated with firm performance in Indonesia, supporting the argument that well-designed social programs serve both societal and corporate objectives.

To test the robustness of this result, sensitivity analysis is conducted on the three most consequential assumptions: deadweight rate, drop-off rate, and discount rate. Table 5 presents the results across four scenarios.

Table 5. Sensitivity Analysis of SROI Ratio

Scenario	Deadweight	Drop-off Rate	Discount Rate	SROI Ratio	Interpretation
Base case	20%	30%	6.00%	**1 : 2.37**	Positive social return
Optimistic	15%	20%	4.00%	**1 : 3.18**	Strong positive social return
Conservative	30%	40%	8.00%	**1 : 1.62**	Remains above breakeven
Worst case	35%	50%	8.00%	**1 : 1.21**	Still positive; ratio > 1:1

Source: Calculation. Rates varied within ranges established in SROI literature (Maier et al., 2021).

The sensitivity analysis demonstrates that the SROI ratio remains above 1:1 across all scenarios, including the worst case (1:1.21). This robustness supports the conclusion that the Business Capital Assistance program generates positive social return even under conservative assumptions. The analysis also highlights that drop-off rate exerts the strongest influence on the ratio, suggesting that program sustainability the durability of outcomes beyond the initial intervention is the most critical factor for maximizing social value.

Strategic Implications and Transformation Recommendations

Integrating findings from the ESG matrix (Table 2), SDG mapping (Table 3), and SROI calculation (Tables 4–5) yields five concrete transformation recommendations. First, UPDK Bakaru's community programs should be formally integrated into the corporate sustainability strategy of PT PLN (Persero) through consolidated reporting of program contributions to corporate ESG targets and explicit alignment with the Green RUPTL and the JETP CIPP. Second, deliberate investment is required to develop the Environmental and Governance pillars, which currently lag behind the Social pillar; a two-year roadmap covering DAS Mamasa conservation, green-jobs vocational training, and grievance-mechanism installation would begin to close this gap.

Third, the program planning cycle should shift from an annual, proposal-based pattern to a multi-year cycle grounded in a documented theory of change with pre-specified outcome indicators the same theory of change that underpins the SROI calculation in Table 4. Fourth, monitoring and evaluation should incorporate periodic SROI calculation (biennially at minimum) as a standard accountability instrument, with results published in the corporate sustainability report. Fifth, positioning UPDK Bakaru as an internal CSR-ESG showcase for renewable-energy assets within the PLN Group creates value for the wider corporation by providing a replicable model that can be adapted to other UPDKs operating renewable-energy plants.

CONCLUSION AND RECOMMENDATIONS

Conclusion

This study analyzes the transformation of CSR programs at PT PLN UPDK Bakaru into ESG-based practice, maps program contributions to the SDGs, and measures program effectiveness using SROI. The findings demonstrate three key results. First, the ESG matrix mapping reveals a pronounced asymmetry across pillars, with the Social pillar dominant and the Environmental and Governance pillars significantly underdeveloped a structural imbalance that weakens both ESG reporting quality and the company's social license to operate. Second, the SDG mapping identifies concrete contributions to SDG 1, 4, 5, and 8, but strategic gaps on SDG 7 (affordable and clean energy) and SDG 13 (climate action) the goals most closely aligned with the company's identity as a renewable-energy operator. Third, the SROI analysis of the Business Capital Assistance program yields a ratio of 1:2.37, indicating positive social return that remains robust across all sensitivity scenarios.

Together, these three analytical instruments demonstrate that the transition from philanthropy-based CSR to evidence-based ESG practice requires not only program restructuring but also a fundamental reorientation of program strategy toward the company's core operational identity. The integrated ESG-SDG-SROI framework developed in this study offers a replicable analytical tool for other PLN generation units and state-owned renewable-energy enterprises.

Recommendation

Four recommendations follow. First, UPDK Bakaru's management should formulate a CSR-to-ESG transformation master plan with measurable targets and indicators referring to the GRI Standards and IFRS S1/S2. Second, the program portfolio should be rebalanced to strengthen contributions to SDG 7 (through community-based renewable-energy initiatives) and SDG 13 (through watershed conservation and climate-resilience programs). Third, SROI should be implemented as a standard instrument for measuring program impact and should be reported alongside qualitative narratives in corporate sustainability disclosure. Fourth, further research is recommended to replicate this framework at other UPDKs or renewable-energy generation units within the PLN Group in order to test the generalizability of the model and to build a sector-wide evidence base.

Limitations

This study has several limitations that should be acknowledged. First, the SROI calculation relies on financial proxies derived from local market data and beneficiary self-reporting, which may not capture the full range of social outcomes or may be subject to recall bias. Second, the study focuses on a single operational unit (UPDK Bakaru), which limits the generalizability of findings to other PLN units with different operational contexts. Third, the analysis horizon for the SROI calculation is limited to three years; longer-term impacts of CSR programs may not be fully captured. Fourth, the deadweight and attribution rates are estimated from stakeholder interviews and comparable literature rather than from controlled experimental designs, introducing a degree of subjectivity. Future research should address these limitations through multi-site comparative studies, longitudinal tracking of beneficiary outcomes, and the development of more refined financial proxies for social value measurement.

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