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Modeling *of Sustainability Balance Score Card* Social and Environmental Aspects Based on Local Wisdom at PT Asmin Bara Bronang Central Kalimantan

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Abstract

This research develops an integrated Sustainability Balanced Scorecard (SBSC) model for managing social and environmental aspects in Indonesia's coal mining sector, focusing on PT Asmin Bara Bronang in Central Kalimantan. Despite adhering to national and international standards, the company faces challenges in gaining recognition from the local Dayak Ngaju community, whose indigenous wisdom, rooted in the Tumbang Anoi Agreement, influences their perceptions. This research aims to develop an integrated model for managing social and environmental aspects within Indonesia's coal mining sector using the Sustainability Balanced Scorecard (SBSC) approach. The research focuses on PT Asmin Bara Bronang, a major mining company in Central Kalimantan that has implemented corporate social and environmental responsibility initiatives based on both national and international standards. However, the effectiveness of these initiatives remains challenged by limited recognition from the local Dayak Ngaju community, who adhere to indigenous wisdom embodied in the Tumbang Anoi Agreement. The proposed SBSC model integrates the four classical BSC perspectives (financial, customer, internal processes, learning and growth) with social and environmental indicators drawn from ISO 26000, SDGs, PROPER, and locally grounded cultural norms. Findings reveal that the model effectively aligns sustainability strategies with community expectations, reduces social conflict, and strengthens operational and financial performance. This research offers valuable contributions to the sustainability practices of extractive industries in Indonesia and supports policy formulation grounded in indigenous values.

Keywords: Sustainability Balanced Scorecard, coal mining, social responsibility, environment, local wisdom, Dayak Ngaju, PROPER, SDGs ISO 26000.

INTRODUCTION

Countries around the world have agreed to contain the rate of temperature increase below 2 degrees Celsius before the industrial revolution, achieve efforts to limit temperature change to at least 1.5 degrees Celsius, improve the ability to adapt to the impacts of climate change, increase climate resilience, and implement low-greenhouse gas emission development without threatening food production, creating a consistent financial supply to achieve this development that is low in greenhouse gas emissions and resilient to climate change in the 2015 Paris agreement. The State of Indonesia has ratified it in Law of the Republic of Indonesia Number 16 of 2016 concerning the ratification of the Paris *Agreement* and sets a national target of reducing state emissions or *nationally determined contribution* (NDC) of 29% with its own efforts and 41% with international assistance by 2030.

The increase in greenhouse gas concentrations from fossil energy has increased significantly from 1990 to 2019 by 38 giga tons of carbon dioxide with an average increase of 0.9% per year. A special report by an intergovernmental panel of experts on climate change in 2018 showed that the 2 degrees Celsius target was not enough to avoid climate disaster. A difference of just 0.5 degrees can cause fatal consequences for the earth, especially in areas in the southern hemisphere including Indonesia. Indonesia is particularly vulnerable to global

warming that triggers a rise in sea level geographically. Indonesia has the second longest coastline in the world and tens of millions of people live on the coast, so the risk is multiplied.

Indonesia's climate policy rests largely on land-based sectors such as forestry, peatlands, agriculture, and land conversion, but the burden of reducing emissions in the energy sector is left loose, especially in the coal energy sector. In the next ten years, this sector will actually become the largest source of emissions that surpass the land-based sector. Indonesia's coal production until the end of 2019 set a record high with a realization of 687 million tons (Savana, 2024). Indonesia's coal production is focused on fulfilling world energy and national foreign exchange, although on the other hand increasing production increases the environmental and social impact that occurs (Zhengfu, 2010).

The coal mining sector is the engine of the economy and contributes trillions of rupiah per year amid negative sentiment in the form of carbon emissions, climate change and environmental damage. The contribution of the mining sector to Indonesia's GDP tends to increase throughout the period from 2004 to 2015. BPS data shows fluctuations in the contribution of the coal mining sector's GDP between 3.8% and 4.2% during 2019–2022. The contribution of the mining sector to GDP in Indonesia during 2022 was 4.1% with a value of Rp. 803.1 trillion.

Mining companies in Indonesia realize that the life of the coal business will soon be replaced by more environmentally friendly energy by 2035 and will last with limited volumes until 2045, especially in emerging markets. Mining companies in Indonesia have prepared a business strategy with 2 strategic frameworks, namely maximizing coal reserve mining by doubling production until 2035 and preparing technology to process coal into a more environmentally friendly gas so that the mining life can still be extended (Dadi, 2020). The paradox occurs when the high negative pressure on the coal business actually encourages an increase in the massive production of coal mining in Indonesia. The push to maximize coal mining in Indonesia is also triggered by a negative trade balance because the coal sector is still one of the largest contributors to state revenue.

The conflict of economic and environmental interests in the coal mining sector in Indonesia requires a breakthrough to focus on reducing negative impacts while increasing the positive impact of coal mining in Indonesia. Social and environmental issues are a challenge to multiply the production of new coal in Indonesia. The breakthrough in integrating social and environmental aspects in the management system of coal companies in Indonesia will be a solution for the company as well as the community and the company's environment. Coal mining's awareness of social and environmental issues is increasing, which can be seen from the achievement of social and environmental performance of mining companies. In 2020, thirty-two companies received a PROPER GOLD rating from the Ministry of Environment and Forestry there are 6 coal mining companies.

Large mining companies have implemented social and environmental management systems well, but the measurement of their performance is still separate from the measurement of the company's financial performance. Performance measurement still uses qualitative measurement in the form of recognition of success from the government and third parties. Performance measurement that is separate from the company's financial perspective results in the amount of the company's social and environmental program budget is designed only for programs that meet applicable legislation and is not designed for the sustainability of the coal

business in the future. The general standard uses the subjective value of the company's leadership and the business's momentary interests as additional costs. The measure of the amount of social and environmental costs in achieving the business objectives of mining companies in Indonesia is only based on the principles of propriety and fairness in accordance with Government Regulation of the Republic of Indonesia Number 47 of 2012 concerning Social and Environmental Responsibility of Limited Liability Companies.

The success of the integration of social and environmental aspects of coal mining companies must be able to be measured in the financial aspects of the company. One of the company performance measurement tools that is able to integrate the performance of social, environmental and business aspects is *the Sustainability Balance Score Card* (SBSC). SBSC is an extension of the Score*Card* developed by Kaplan and Norton since 1994. BSC is adopted by companies around the world to help them implement corporate strategies and company performance evaluations. BSC provides the ability of companies to adopt *intangible* factors to ensure business success in the future. BSC with 4 perspectives, namely *financial, customer, internal processes and learning and growth*, is a reference that is widely used in various industries, including in the mining sector (Moller, 2005).

BSC has developed into an SBSC because of the business world's awareness of social and environmental factors that affect business activities and sustainability. Business is not only seen in an exclusive system but must change inclusive in the midst of world problems in general and make social and environmental issues the *company's core* business strategy (Scheyvens, et al., 2016). The development of SBSC still refers to the traditional BSC model of providing new hope for integrating environmental and social aspects in business activities according to the framework of the 3 pillars of sustainable development, namely economic, environmental and social (Figge, 2002). In addition, SBSC can be used to implement sustainable strategies and link sustainability goals with appropriate corporate actions and good corporate performance outcomes (Tsalis, 2013). Nikolic (2015) revealed that the prevention of reducing negative business impacts and pollution can be done by improving environmental management integrated with *SBSCs*. Businesses are increasingly interested in social and environmental responsibility. The evaluation of company performance has shifted from conventional financial performance in a single dimension to *a multidimensional triple bottom line* (Tsalis, 2013).

SBSC modeling in the improvement and measurement of company performance uses diverse social and environmental indicators. Wagner (2010) uses GRI (*Global Reporting Initiative*) as a reference for social and environmental performance achievements. Nikolic (2015) in an SBSC modeling of mining companies in Serbia prefer to use ISO14001 as a reference in environmental management systems. A petroleum company in Iran modeled SBSC based on the applicable legal standards in the Iranian state (Rabbani, 2014). SBSC modeling has never been done in Indonesia.

SBSC modeling refers to the standards that apply in Indonesia and internationally in addition to the opportunity for local parameters from the community affected by the company's social and environmental activities. The local socio-cultural aspect is one of the components of important parameters in the company's relationship with the social and environmental of the affected community (Soemarwoto, 1992). The Ministry of Environment and Forestry's PROPER is currently the only official environmental performance measurement in Indonesia, apart from the Financial Services Authority Regulation Number *51/POJK.03/*2017 concerning

the Implementation of Sustainable Finance for companies listed on the stock exchange in Indonesia and financial institutions. SBSC modeling in coal mining companies can be carried out on companies that have received the performance of the Ministry of Environment and Forestry's BIRU PROPER so that it can be ensured that the company does not violate environmental regulations. Companies must also gain recognition in social programs recognized by the Indonesian government. As stipulated in the Law of the Republic of Indonesia Number 40 of 2007 Article 74 paragraph 1 concerning Limited Liability Companies, every company that carries out its business activities in the field of and/or related to natural resources is obliged to carry out social and environmental responsibility.

PT Asmin Bara Bronang is the largest coal mining company in Central Kalimantan with coal production of 5 million tons in 2020. PT Asmin Bara Bronang will maximize coal production up to 8 million tons starting in 2026 as a strategic step to deal with negative coal pressures. Social and Environmental Responsibility PT Asmin Bara Bronang has fulfilled all aspects of the applicable legislation with the GREEN PROPER criteria since 2022. PT Asmin Bara Bronang has been carrying out social responsibility since 2016 and in accordance with national and international standards both PROPER, NAWACITA, SDGS, ISO26000, and GRI (Suhartanto, 2020). PT Asmin Bara Bronang has received various awards in the social and environmental fields, namely the AFC in the health sector in 2018, the TOP TJSL *Award* in 2018 to 2020, the Indonesia TJSL *Award* in 2019, the Green PROPER 2021 and the PADMAMITRA AWARD 2020 from the Ministry of Social Affairs (Suhartanto, 2021).

PT Asmin Bara Branang's social and environmental programs provide great benefits to the company in the form of reducing the company's operational disruptions due to social conflicts. The cessation of production operations due to social and environmental conflicts decreased from year to year, namely 146 hours of production operations in 2014 to 0.2 hours in 2018 and no cessation of production operations due to conflicts in 2019. The social and environmental responsibility program is a profitable social investment for PT Asmin Bara Bronang with a SROI (*social return on investment*) value above 1 (1.7) within 5 years (Rum, 2019). The social and environmental responsibility program directly supports the company's performance in terms of operations and finances of PT Asmin Bara Bronang because the smaller the time lost, the company's production and income will run well (Dadi, 2020).

The measurement of environmental performance that has been good at PT Asmin Bara Bronang has not met the expectations of the community even though it has met national and international standards. This dissatisfaction is shown by the low public perception of PT Asmin Bara Barang's environmental management in 2018. The community around the mine has its own standards which are believed to be in accordance with habits and values that develop based on religious norms and customs or better known as local wisdom (Rum, 2019). The Dayak Ngaju community as a community affected by PT Asmin Bara Bronang mining makes forests and rivers not only physical but also socially and spiritually meaningful. The management of PT Asmin Bara's mining water has been in accordance with the standards of laws and regulations but is still seen as damaging and polluting river water as an example of local wisdom having its own assessment. Local wisdom as a parameter of social management and mining environment is essential for improving the social and environmental performance of coal mining companies.

This research departs from the need to integrate social, environmental, and economic aspects in the performance of coal mining companies, especially at PT Asmin Bara Bronang. The formulation of the problem includes the identification of socio-environmental criteria based on national and international standards, as well as local wisdom (Tumbang Anoi Agreement), the development of a model of the SBSC-based socio-environmental management system, the simulation of its impact in the future, and the formulation of sustainable business strategies. This research is limited to the application of the Balanced Scorecard (BSC) as a company management system, referring to ISO 26000, SDGs 2015, and PROPER LHK 2021, and using Dayak Ngaju local wisdom in social, economic, and environmental aspects. The goal is to build an SBSC model that is integrated with local and regulatory contexts, which can be a company's long-term sustainability strategy.

This research provides theoretical and practical contributions, ranging from academic references in SBSC modeling based on local wisdom, to concrete inputs for companies, regions, and national policies. Its novelty value lies in the fusion between SBSC, Dayak local wisdom, and SROI-based measurement that has never been applied in the context of the Indonesian or global mining industry. In addition, this research is a pioneer in raising social aspects into the strategic modeling of mines, which previously focused more on the environmental dimension, thereby strengthening the role of the community in sustainable development with companies and governments.

RESEARCH METHODS

This research was conducted at PT Asmin Bara Bronang, covering the head office in Jakarta and the operational area in Baranang Village, Central Kalimantan, with a implementation time from January to August 2023. This research uses a mixed approach between qualitative and quantitative descriptive methods, with tools such as SPSS and secondary data from ISO 26000, SDGs, PROPER, and Dayak local wisdom based on the Anoi Tumbang Agreement. Data was collected through interviews, questionnaires, literature studies, and documentation from corporate stakeholders, local communities, government agencies, suppliers, and community organizations. The selection of samples was carried out purposively to represent diverse perspectives.

The analysis was carried out on relevant social and environmental indicators, referring to four main frameworks, namely the SDGs, ISO 26000, PROPER, and Dayak local values. The next process includes clarification, weighting of indicators with Chi-square tests, materiality tests, and modeling of SBSC-based sustainability strategies. The model tested included various forms of integration of social and environmental perspectives into the Balanced Scorecard system, as well as the use of the Social Return on Investment (SROI) method to measure program effectiveness. The final result is the selection of the most suitable SBSC model for PT Asmin Bara Bronang to support business efficiency, socio-environmental sustainability, and the fulfillment of stakeholder expectations.

RESULTS AND DISCUSSION

Identification of Stakeholders and Socio-Environmental Impacts

The research identified six main stakeholder groups of PT Asmin Bara Bronang, namely shareholders, employees, suppliers, the community, the government, as well as community organizations and the media. Each stakeholder has a dynamic reciprocal relationship with the company, where mining activities have a social and environmental impact on them, as well as they have a negative impact on the company's operations.

The most significant impact occurred on the people of Baranang Village, especially related to land acquisition which generated a turnover of Rp 36.6 billion for the 2013-2015 period. This land acquisition drastically changed the economic pattern of the community, with 56% of the income being used for consumption, 31% for recreation, and only 13% for long-term investment. This phenomenon creates social inequality due to the unequal distribution of land payments, with certain community leaders controlling the largest portion through the management power system.

In terms of employment, PT Asmin Bara Bronang and its contractors absorbed 4,211 employees in 2023, with a composition of 47% local employees and 53% non-local. The increase in local labor absorption from 43% (2019) to 47% (2023) demonstrates the company's commitment to local economic empowerment, despite the constraints of low levels of community education and the availability of alternative livelihoods such as gold mining and swallow's nest business.

Environmental Aspects and Impact Management

Analysis of the Life Cycle Assessment (LCA) shows that the production of 1 ton of coal produces a Global Warming Potential (GWP) of 71.80 kg CO2eq, with the largest contribution coming from the overburden removal process unit (34.12 kg CO2eq). The impact of the Acidification Potential (AP) reached 0.12 kg SO2eq, with the highest value from blasting activity (0.05 kg SO2eq) due to the use of ammonium nitrate.

The issue of pollution of the Kuatan River is the main concern of the community. Even though PT Asmin Bara Bronang has met the TSS quality standard <400 ppm according to regulations, visually the water still looks cloudy at TSS 200-400 ppm conditions, creating a negative perception in the community. To overcome this, the company increased the quality of wastewater to <100 ppm and implemented a clean water program through drilled wells for 73% of households in Barunang Hamlet and 43% in Mamput.

Materiality Assessment dan Sustainability Balanced Scorecard

The research identified 19 social and environmental aspects that were considered important by stakeholders, of which 14 aspects were categorized as "most material" based on the assessment of stakeholders' interests and impact on business sustainability. The five aspects with the highest materiality value (25 points) are: business sustainability and corporate reputation, ESG transparency and social regulation, customary land rights and land conflicts, water pollution due to mine waste, and compliance with environmental and social regulations.

The Chi-Square test showed a significant difference in interests between stakeholders ($p<0.05$), except between shareholders-government, employee-supplier, community-CSO/media, and government-CSO/media. These differences reflect different focus interests: shareholders place more emphasis on corporate image and regulation, employees focus on safety and well-being, while communities prioritize land rights and economic opportunities.

Production Increase Simulation 2026

The plan to increase production from 4 million tons (2023) to 8 million tons (2026) will add two new material aspects: regulating the volume of water out of pond sediments and sterilizing coal transport roads. This change changes the composition of the Sustainability Balanced Scorecard with 16 KPIs distributed in four perspectives: Financial (3 aspects, 18.1%), Customer (3 aspects, 19.5%), Internal Process (8 aspects, 46.2%), and Learning & Growth (2 aspects, 13.4%).

Discussion

Relevance to Stakeholder Theory and the Triple Bottom Line

The findings of this research support Freeman's (1984) stakeholder theory which emphasizes the importance of identifying and managing relationships with various stakeholders for business sustainability. The significant differences in interests between stakeholders, as shown by the Chi-Square test, confirm the complexity of stakeholder management in the extractive industry put forward by Prno & Slocombe (2012).

The implementation of the Triple Bottom Line concept (Elkington, 1997) is clearly seen in the approach of PT Asmin Bara Bronang which integrates the aspects of profit (financial perspective), people (customer and learning & growth perspective), and planet (internal process perspective) in the Sustainability Balanced Scorecard. However, the dominance of the internal process perspective (46.2%) shows that the environmental aspect is still a top priority, in line with the characteristics of the mining industry which has a high environmental impact (Azapagic, 2004).

Comparison with Previous Studies

The results of this research are consistent with the findings of Moffat & Zhang (2014) on the importance of "social license to operate" in the mining industry, where the aspect of customary land rights and land conflicts is one of the highest materiality values (25 points). In contrast to the research of Prno & Slocombe (2012) which found that local communities generally prioritize economic compensation, this research shows that the people of Barunang Village are also very concerned about environmental aspects, especially water pollution in the Kuatan River.

The findings on the disparity in the distribution of economic benefits from land acquisition are in line with Bebbington et al.'s (2008) criticism of the Corporate Social Responsibility approach that does not always result in an equitable distribution of benefits. The phenomenon where community leaders control the largest portion through the management power system reflects the "elite capture" that often occurs in community development programs (Platteau, 2004).

In contrast to the research by Owen & Kemp (2013) which found that mining companies tend to ignore social aspects in the phase of increasing production, PT Asmin Bara Bronang instead added a new social aspect (sterilization of coal transport roads) in its 2026 expansion plan, showing lessons from previous operational experiences.

Scientific Interpretation of Findings

From the perspective of strategic management science, the dominance of aspects with a materiality value of 25 points in the financial and customer perspective categories indicates that sustainability is still seen as a risk management tool rather than a value creation mechanism (Porter & Kramer, 2011). This can be seen from the KPI parameters that focus more on preventing losses (loss of working time, public complaints, bill deductions) rather than creating shared value.

Sociologically, changes in people's consumption patterns after land acquisition (56% for consumption, 31% for recreation, 13% for investment) confirm the "resource curse" theory that communities that receive natural resource compensation tend to experience long-term economic dependence and unsustainability (Sachs & Warner, 2001). This phenomenon is reinforced by the finding that people are dependent on corporate programs and government assistance.

From the point of view of political ecology, the land conflicts that occurred in 111 cases for the 2015-2023 period reflect the contestation between the capitalist accumulation regime and the traditional resource management system of indigenous peoples. Although PT Asmin Bara Bronang claims to follow the Anoi Tumbang Agreement, its implementation still faces challenges in practice, in line with Tsing's (2005) criticism of the complexity of land rights negotiations in Kalimantan.

Implications for Practices and Policies

a. Implications for Corporate Management Practices

The findings of the research show the need to evolve from a compliance-based approach to value-creation-based in sustainability management. PT Asmin Bara Bronang needs to develop a Creating Shared Value (CSV) strategy by integrating three proposed strategic programs: road infrastructure development (Rp 76 kilometers), clean water revitalization, and village electrification. With an investment of IDR 170 billion over 10 years, this program is projected to generate an NPV of IDR 54 billion and an SROI of 1.3 years, demonstrating economic and social feasibility.

The implementation of the Sustainability Balanced Scorecard with 14-16 KPIs requires strengthening the technology-based monitoring and evaluation system. Companies need to develop digital dashboards that integrate real-time data from various operational, social, and environmental aspects to facilitate more responsive and data-driven decision-making.

In the context of increasing production in 2026, companies need to adopt an "adaptive management" approach that allows for strategy adjustments based on feedback from stakeholders and changes in field conditions. This is important considering the prediction of an increase in socio-environmental risks of up to 3 times from current conditions.

b. Implications for Government Policy

The findings of the research indicate the need for mining regulatory reforms that are more responsive to local socio-economic dynamics. Current regulations, although they have met technical standards (TSS <400 ppm), have not been effective in addressing public perceptions of environmental pollution. The government needs to develop stricter but still applicable standards, as well as strengthen public communication mechanisms about environmental standards.

The need to develop policy instruments that encourage a more equitable distribution of economic benefits. Based on the findings on "elite capture" in land acquisition, local governments need to strengthen regulations on land acquisition mechanisms that are more transparent and participatory, including strengthening the role of BPDs and customary institutions in oversight.

The implementation of the "local content" policy in the mining industry needs to be strengthened with a systematic capacity building program. The low absorption of local labor (47%) indicates a gap between industrial needs and the quality of local human resources. The government needs to develop vocational programs that are integrated with the needs of the mining industry.

c. Implications for Sustainable Development Policies

The findings on the change in people's economic patterns from subsistence to cash-based economy require a development strategy that anticipates a "post-mining economy". The government needs to develop a post-mining economic master plan that optimizes the infrastructure that has been built for the diversification of the local economy, such as the development of ecotourism, agribusiness, and the creative economy.

In the context of Indonesia's commitment to Net Zero Emission 2060, the case of PT Asmin Bara Bronang shows the need for a just transition framework that considers the socio-economic impact of reducing coal mining activities. The energy transition program needs to be accompanied by an alternative economic empowerment strategy for communities that depend on the coal industry.

d. Implications for the Development of Science

This research confirms the relevance and applicability of the Sustainability Balanced Scorecard framework in the context of extractive industries in Indonesia. However, further adaptations are needed that integrate local wisdom, as shown by the relevance of the Okoi Tumbang Accords in the management of land conflicts. This opens up opportunities for the development of a more contextual "indigenous-based sustainability framework" for industries in Indonesia.

The findings on the dynamics of materiality assessment that change along with changes in business strategy (from 14 to 16 aspects) indicate the need to develop an adaptive materiality assessment methodology that is more responsive to changes in the operational context. This is important for the development of sustainability reporting standards that are more dynamic and relevant.

The integration between quantitative assessment (LCA, SROI, NPV) and qualitative stakeholder analysis in this research shows the effectiveness of the mixed-method approach in sustainability research. This approach can be further developed as a best practice for

sustainability research in the extractive sector, especially in the context of developing countries with high socio-cultural complexity.

This research produced a comprehensive Sustainability Balanced Scorecard framework for PT Asmin Bara Bronang with 14-16 KPIs distributed in four strategic perspectives. The findings show that the sustainability of the mining business is not only determined by compliance with regulations, but also by the ability to create value together with stakeholders. The implementation of a sustainable strategy with an investment of IDR 170 billion has the potential to generate positive returns economically and socially, while mitigating operational risks which are projected to increase 3-fold in the 2026 expansion period. This research contributes to the development of sustainability management science by integrating local wisdom in a modern framework, as well as providing a blueprint for the transformation of extractive industries towards a more sustainable and inclusive business model.

CONCLUSION

This research identifies 14 very important social and environmental aspects of PT Asmin Bara Bronang consisting of business sustainability and corporate reputation, ESG transparency and social regulations, customary land rights and land conflicts, water pollution due to mining waste, compliance with environmental and social regulations, occupational safety and welfare, consistency of coal supply, advocacy for indigenous peoples' rights and environmental transparency, local business opportunities and healthy competition, environmental performance and PROPER ratings, post-mining land reclamation, contract and payment transparency, product quality standards and carbon footprint, as well as monitoring of pollution and ecosystem changes, which are then modelled in the framework of the Sustainability Balanced Scorecard (SBSC) with a Financial Perspective structure (business reputation and sustainability of the company, consistency of supply, product quality standards and carbon footprint), Customer Perspective (contract and payment transparency, customary land rights and land conflicts, water pollution from mine waste), Internal Process Perspective (environmental performance and PROPER ratings, post-mining land reclamation, compliance with environmental and social regulations, monitoring of pollution and ecosystem change, occupational safety and welfare, local business opportunities and healthy competition), and Learning & Growth Perspective (ESG and regulatory transparency advocacy for indigenous peoples' rights and environmental transparency). The simulation of increasing production 1.5 times in 2026 adds two new important aspects, namely the regulation of water discharge out of pond sediment and the sterilization of coal transport roads from non-mining activities integrated in the SBSC model in 2026, where although the increase in production volume has the potential to increase social and environmental risks up to 3 times with the threat of shutting down operations, however, the implementation of a sustainable strategy through increasing the budget of social programs and strategic environments according to the SBSC modeling has been proven to be able to eliminate the risk of stopping the company's operations and provide a favorable social investment value with SROI of 1.3 in a 10-year period.

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