



Research Paper

Potency and Development Strategy of Cattle Business for Martabe Post-Gold Mining in PT. Agincourt Resources Batang Toru District South Tapanuli Regency

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ABSTRACT:

Batang Toru is a cattle farming base area in South Tapanuli Regency. The problem of land conversion for cattle development can be solved by integrating cattle with post-mining areas. The study aims are to analyze the condition of the resource to enhanced the productivity of beef cattle which contributes to the meat commodity. Research conducted using survey method. The objectives of the research were: (1) to identify factors influencing the development of beef cattle business, (2) to establish the scale of beef cattle and appropriate marketing and (3) to develop alternative strategy of beef cattle business development for improvement income of farmers in Batang Toru District. Processing and data analysis used: (1) External Factor Evaluation (EFE) and Internal Factor Evaluation (IFE), (2) external internal (IE) matrix; (3) Strengths, Weaknesses, Opportunities, Threats (SWOT); and (4) Quantitative Strategic Planning Matrix (QSPM) analysis. Determination of priority strategies with QSPM, based on the results of alternative strategies resulting from the SWOT matrix. Based on the calculation of QSPM matrix, there are three strategic priorities that can be implemented, 1. Improving government support programs through training activities / technical guidance on breeding, feed and health for farmers, procurement programs for cattle assistance every year and procurement of medicines through the APBD budget, increasing absorption of the cattle-buffalo business insurance program (AUTSK) 2. Add or establish POS IB in Batang Toru District and complete existing POS IB infrastructure. 3. Improving services for reproductive disorders and livestock health.

KEYWORDS: Potency, Strategy, Gold Mining, Cattle Developmnet, Batang Toru.

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I. INTRODUCTION

Increasing food of animal origin is one of the efforts to create a strong, intelligent, and innovative nation in the era of globalization that is competitive in all fields. It is urgent to provide quality feed to support food from animals such as beef to fulfill people's needs of nutrition. In order to meet the demand food from animal form domestic beef, the Government will take steps to import 502,000 heads of beef equivalent to 112,503 tons of beef, 85,500 tons of beef imports, and 100,000 tons of Brazilian beef and Indian buffalo meat in certain circumstances. This is done because the domestic demand for beef in 2021 is estimated to still be in a deficit of 223,142 tons (Directorate General of Livestock and Animal Health the Republic of Indonesia, 2021).

High demand for beef must be adjusted by the population growth and domestic beef production, so that domestic demand for meat can be fulfilled from smallholder livestock businesses while imports can be gradually reduced. According to Diwyanto and Priyanti (2006), several problems in the development of beef cattle business in Indonesia are: (1) livestock productivity is still low, (2) the availability of high quality local seeds is limited, (3) human resources are less productive and the level of knowledge is low, (4) marketing of the produce is not yet efficient, (5) the farming system is not optimal, and (6) the availability of feed is not consistent, especially during the dry season. The availability of feed is closely related to the availability of agricultural land because cattle farms are maintained in farmer integrated system. Agricultural land is currently

reduced every year due to conversion. BPS, BIG, and LAPAN analysis conducted through imaging of Indonesian agricultural land reduced from 7.75 million hectares in 2013 to 7.1 million hectares in 2019 (Sutawi, 2020). Productive agricultural land is converted into housing, shops, educational facilities, roads, factories, entertainment venues, tourist attractions, markets, and malls every year with an area hundreds of hectares.

Depreciation farmland and livestock in Batang Toru District also occurs along with the presence and activities of PT. Agincourt Resources. This is because forest lands and community gardens have been used as active sites for the martabe gold mining company PT. Agincourt Resources (PTAR) with an area of 479 hectare. As a result, farmers can no longer access grass for animal feed as before, and even have problems because the garden road to other gardens has been closed. Forest land and community gardens can contribute to the availability of cattle fodder in the form of forage grass (HMT), in accordance with the opinion of Nell and Rollinson (1974), which states that forest land and community gardens contribute 5% per hectare to the provision of forage grass. livestock (HMT).

PT. Agincourt Resources is a gold mining company that manages the Batang Toru block in accordance with a government-approved contract of work permit. Mine construction started in 2008 and production started in 2012 (United Tractor, 2020). The mining method used is open system (open pit mining), by forming large holes as a result of dredging the surface soil to reach the excavation material in a deeper layer. After mining is complete, the mining area must be reorganized and returned to its original state in accordance with the mandate of Undang-Undang No. 32 of 2009 concerning Environmental Protection and Management (PPLH). The return of the soil layer after dredging the excavated materials in post-mining excavations is not able to restore the land condition to the same as the condition before mining due to changes in soil composition.

Various alternatives have been developed to take advantage of land damage caused by mining activities so that it is not only seen from the side of the problem, but also has potential for its use, such as the introduction of beef cattle. Utilization of reclaimed land or ex-gold mines integrated with beef cattle is a strategic choice in order to improve soil fertility from manure or organic fertilizer produced. Beef cattle farming in mining areas in addition to reducing the impact of pressure on land clearing on the Batang Toru forest ecosystem, can also create multiplier effects such as: opening up employment opportunities, increasing farmers' income, alleviating poverty, increasing Gross Regional Domestic Product (GRDP/PDRB) regions, provide food needs and compensating for the shrinkage of productive land that changes function.

The integration of the cattle business is expected to be part of the post-mining program planning to prepare the directly community for the mine closing period after the PTAR contract ends. The closure of the PTAR martabe gold mine, was submitted to the Ministry of Energy and Mineral Resources in (2014), and the mine closure plan document has been approved by the government for the closure of purnama pit and TSF mRL 360 tailings dam. The steps taken have reached the stage of paying the mine closure guarantee in accordance with government regulations as stated in the Regulation of the Minister of Energy and Mineral Resources No. 18/2008. In 2019, the mine closure document was revised for four pits. Meanwhile, for reclamation activities, it is regulated in Law no. 9 of 2014 (PT. Agincourt Resources, 2019)¹.

The mine closing plan was strengthened by workshop closing a site in June 2017. In September 2017, the PTAR mine closing plan was used as a reference for determining the closing bonds. Renewal by including pit barani and pit ramba joring and has received approval from the Ministry of Energy and Mineral Resources. The specified closing guarantee fee has also been fully deposited by PTAR (PT. Agincourt Resources, 2017)¹. Estimated mine closed time is **five years next from now its** starting from the purnama pit or barani pit.

Introduce beef cattle business development in mining areas is expected to be applicable or can be directly implemented because area reclamation is already available without having to wait for post-mining after the mine site is closed. In accordance with Ariansyah's opinion (2016) that the use of revegetation/reclamation land carried out by mining companies in addition to only revegetating land, which is one of the centers for livestock cultivation on ex-mining land in order to build a sustainable community economy. Thus the development of beef cattle business in mining areas or villages around the mine is a strategy that can empower the community through knowledge and skills about beef cattle business.

Thus, this program does not stop at the mining area but extends to *Directly Affected Villages (DAVs)* around the mine and even to all villages in Batang Toru district. The development of cattle business in the mining area is managed by the company. After breeding up to a certain amount, the calves (feeder seeds) are distributed to *Directly Affected Villages (DAVs)* as a program corporate social responsibility (CSR). Cattle farming in the martabe mine area serves as a source of beef cattle breeders, as a study center for breeders and prospective breeders as well as a model for beef cattle cultivation in Batang Toru District and South Tapanuli District. Another option that can be applied is community empowerment through partnerships or collaborations between PTAR and farmer groups in *Directly Affected Villages (DAVs)* "(Desa Lingkar Tambang)."

The objectives of the research were: (1) to identify the factors that influence of development beef cattle raising business; (2) Formulating a beef cattle business development strategy based on regional potential and development programs that have been implemented in the future

II. MATERIALS AND METHODS

Research materials: The direct interview with cattle farmer and stake holder.

Research tools: The equipment used is a question sheet and set of stationery.

Method: This research conducted using survey method, carried out in Batang Toru district South Tapanuli Regency. This research was conducted for 3 months, from March to June 2021.

Observed Variables: The variables observed in this research using qualitative data analysis techniques consisting of stages: Matriks Internal Factor Evaluation (IFE) dan External Factor Evaluation (EFE), (b) Matriks Internal External (IE), (c) Analisis SWOT (Strengths, Weaknesses, Opportunities, Threats) dan (d) Matriks QSP (Quantitative Strategic Planning Matrix).

III. RESULTS AND DISCUSSION

Batang Toru is a district in South Tapanuli Regency, North Sumatra Province, Indonesia. The capital of this is in Kelurahan Wek I Batang Toru. Position is on $0^{\circ} 28'48''$ North Latitude and $99^{\circ}04'00''$ East Longitude. The administrative area is 38,004.19 ha, Batang Toru District consists of 19 villages and 4 urban villages, 55 hamlets and 10 neighborhoods. Administratively, Batangtoru District borders North Tapanuli Regency in the North, Central Tapanuli Regency in the west, Angkola Sangkunur District and Muara Batang Toru District in the South and Angkola Timur District in the East. Batang Toru District is an area rich in natural resources. The rubber plantation owned by PT Perkebunan Nusantara (PTPN) III is widespread in this area. In this area there is also the largest gold mine in North Sumatra managed by PT. Agincourt Resources (PTAR). The topography of villages and villages in Batangtoru District ranges from flat to hilly. The distance from the village / kelurahan to the subdistrict capital ranges from 0.1 to 9 Km. The Batangtoru region generally has a flat topography. The population of Batangtoru Subdistrict reached 33.635 people in 2020. The population of Batang Toru district is 33.635, the total population of South Tapanuli Regency is 281.931, the number of cattle in Batang Toru is 461 The number of cattle in South Tapanuli Regency is: 3.225 (BPS 2020). Location Quotation (LQ) 1,19 it means that the Location Quotation of Batang Toru district is greater than 1 which is the base sector of beef cattle farming.

Weekdays or market days in Batang Toru District are set every Tuesday and Friday, which is a place for Batang Toru District residents to shop and sell plantation products and catches from the Batang Toru river at Batang Toru Market. On Sunday, Tuesday, Batang Toru will be crowded with many people who come from many areas even from outside Batang Toru District. The livelihoods of the people of Batang Toru Subdistrict are generally farming, gardening, oil palm plantations, rubber, and salak. Some people work as traders, entrepreneurs and entrepreneurs, plantation employees, martabe mining employees and civil servants. The martabe gold mining in Batangtoru regions can be seen as in Figure 1 below.

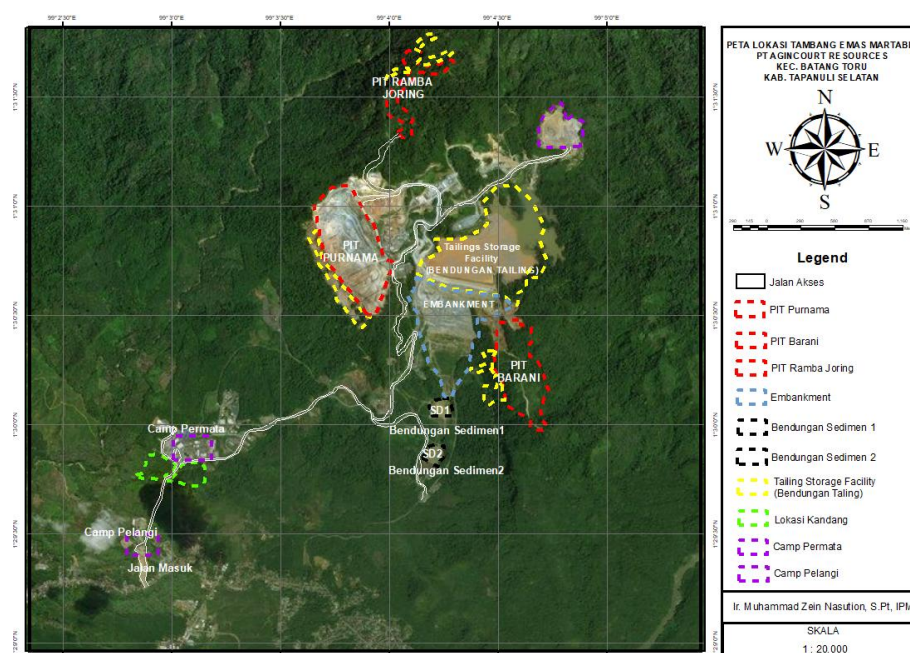


Figure 1. Map of the Martabe site showing the locations of research and martabe gold mine.

Matrik IFE (Internal Factor Evaluation)

The IFE Matrik Internal factor analysis was conducted to identify the strengths and weaknesses found in the development of beef cattle in Batang Toru District (Table 1).

Matrik EFE (External Factor Evaluation)

The EFE matrix is used as an evaluation of the opportunities and threats in the marketing strategy of beef cattle in Batang Toru District (Table 2).

Table 1. IFE . Matrix

Factor Internal		Weight	Rank	Score
Strength	Land carrying capacity	0,109	3	0,327
	Geographical location	0,068	2	0,136
	There is a beef cattle base area	0,088	2	0,176
	Cattle reared with other farms (IFS)	0,073	2	0,145
	The high motivation of farmers to raise cattle	0,129	3	0,386
	The existence of a farmer-cattle breeding group	0,070	2	0,139
	Sub Total			1,311
Weaknes	Limited working capital	0,102	3	0,305
	Not the main job	0,042	3	0,127
	Low knowledge and skills of farmers	0,129	3	0,386
	The use of production factors is not optimal	0,073	2	0,145
	Low technology adoption	0,067	3	0,200
	The marketing system is not optimal	0,052	3	0,155
	Sub Total			1,318
Total	1,000		2,629	

Table 2. EFE . Matrix

Factor Eksternal		Weight	Rank	Score
Opportunity	Market demand	0,070	4	0,279
	Regional autonomy	0,086	2	0,173
	The development of science and technology	0,077	3	0,232
	The functioning of POS artificial insemination and animal health centers in 2 sub-districts	0,102	3	0,305
	Stable product price	0,050	3	0,150
	Government support	0,135	4	0,539
	Sub Total			1,677
Threat	Foreign/imported products	0,021	3	0,064
	Land conversion	0,085	3	0,255
	Competition between regions in producing cattle	0,027	2	0,055
	Reproductive disorders and livestock health	0,124	3	0,373
	Stability of seed availability/stability artificial insemination services	0,108	3	0,323
	The high slaughter of productive female cattle	0,115	3	0,345
	Sub Total			1,414
Total	1,000		3,091	

The total score for Internal factors is 2.62 and the total score for External factors is 3.09. A high total External score indicates that beef cattle farming strategies are well designed to meet opportunities and defend against threats. This shows that the marketing business of beef cattle in Batang Toru District is in a growth and stable position (2.00-2.99) in responding to strengths and opportunities as well as minimizing External

weaknesses and threats. According to Rangkuti (2008), the effort made is in the total score of IFE and EFE between 2.00 to 2.99 indicating that the position of growth and stability is stable.

Matrik IE(Internal - External)

Matriks IE didasarkan pada dua dimensi kunci, yaitu total skor matriks IFE pada sumbu x dan total skor matriks EFE pada sumbu y. Matriks IE (Gambar 1) dapat mengidentifikasi 10 sel strategi dan dapat dikelompokkan menjadi strategi utama, yaitu growth strategy, stability strategy dan retrenchment strategy. Menurut Rangkuti (2008), bahwa total skor berbobot untuk IFE maupun EFE adalah:

- Strong : 3,00 – 4,00
- Average : 2,00 – 2,99
- Weak : 1,00 – 1,99

Matriks SWOT Formulation

(Strengths, Weaknesses, Opportunities, Threats)

Swot Analysis is an analysis used to conduct regional agribusiness auditing by using 2 assessment factors, namely internal and external agribusiness. SWOT analysis is used to determine alternative strategies for cattle development which is a continuation of the IFE and EFE analysis. The formulation of alternative strategies is done by combining two internal factors (strengths and weaknesses) with external factors (opportunities and threats), so as to produce;

(a) the S-O strategy uses strengths to take advantage of opportunities, (b) the W-O strategy overcomes weaknesses to take advantage of opportunities, (c) the S-T strategy uses strengths and avoids threats and (d) W-T strategies overcomes weaknesses and avoids threats.

The SWOT matrix is used to formulate alternative marketing strategies for beef cattle in Batang Toru District by combining internal and external factors, the results of the IFE and EFE matrix input stages which can be seen in Figure 2.

Recapitulation of the results of the calculation of strengths, weaknesses, opportunities and threats

Based on the results of the calculations that have been carried out, the final value of the internal factors, namely strengths and weaknesses, and external factors, namely opportunities and threats, is obtained, as shown in Table 3.

Table 3. Recapitulation of IFE and EFE

No	Description	Score
1	Internal Factors	
	Strengths	1,311
	Weaknesses	1,318
2	External Factors	
	Opportunity	1,677
	Threat	1,414

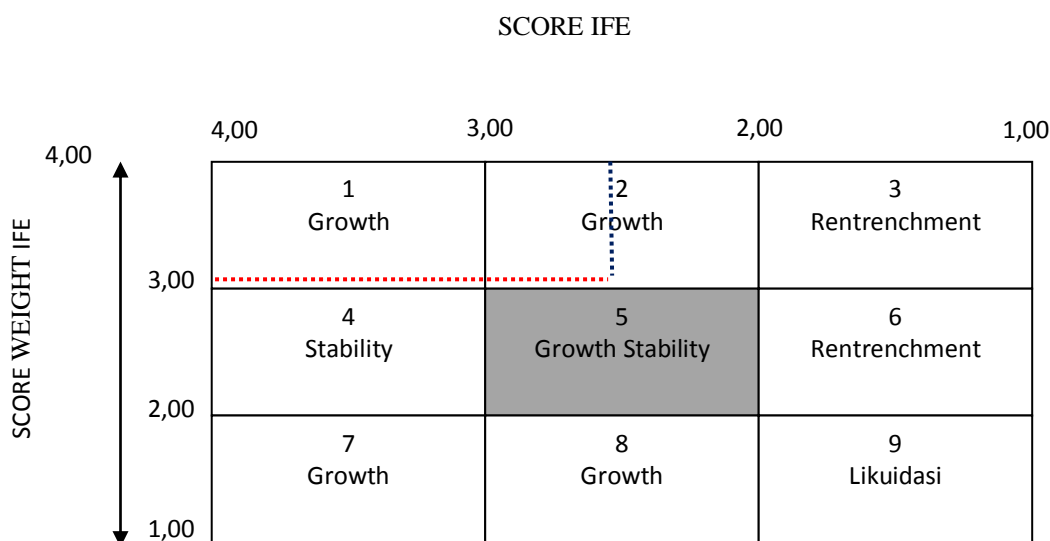


Figure 2. Matrix Diagrams

Factor Internal	Kekuatan (S) S1 = Land carrying capacity S2 = Geographical location S3 = There is a beef cattle base area S4 = Cattle reared with other farms (IFS) S5 = The high motivation of farmers to raise cattle S6 = The existence of a farmer-cattle breeding group	Weaknes (W) W1 = Limited working capital W2 = Not the main job W3 = Low knowledge and skills of farmers W4 = The use of production factors is not optimal W5 = Low technology adoption W6 = The marketing system is not optimal
Factor Eksternal	Opportunity (O) O1 = Market demand O2 = Regional autonomy O3 = The development of science and technology O4 = The functioning of POS artificial insemination and animal health centers in 2 sub-districts O5 = Stable product price O6 = Government support	Strategy S-O 1. Creating a beef cattle breeding center (S1, S2, S3, O1, O2) 2. Research and study as well as optimization of livestock business in the farming system (S4, O3) 3. Optimizing group function (S5, S6, O5, O6)
Factor Internal	Threat (T) T1 = Foreign/imported products T2 = Land conversion T3 = Competition between regions in producing cattle T4 = Reproductive disorders and livestock health T5 = Stability of seed availability/stability artificial insemination services T6 = The high slaughter of productive female cattle	Strategy W-O 1. Business capital investment (W1, W2, O1, O2) 2. Improve knowledge and skills of livestock farmers (W3, W4, W5, O3, O4, O5) 3. Improve the marketing system (S6, O6)
Factor Eksternal	Strategy S-T 1. Domestic market protection (S1, S2, S3, T1, T2) 2. Overcoming reproductive disorders and livestock health (S1, S2, S3, S4, T1, T2, T3) 3. Tighten supervision and sanction the slaughter of productive females (S5, S6, T6)	Strategy W-T 1. Developing financial institutions in rural areas (W1, W2, T1, T2, T3) 2. Improve business efficiency (W2, W4, T1, T2, T3) 3. Socialization and application of appropriate technology (W5, T3, T4).

Figure 3. Formulation of marketing strategy with SWOT matrix

QSPM strategy analysis

The decision-making stage is the stage to determine the priority list of the most prioritized alternative strategies to be implemented. The QSPM quantitative strategic planning matrix is a technique that can objectively determine the most priority strategic alternatives to be implemented. The priority of alternative strategies is determined by looking at the Total Attractiveness Score (TAS).

The results of the QSP matrix for cattle development in Batang Toru District obtained are as follows: 1. Improving government support programs through training activities / technical guidance on breeding, feed and health for farmers, procurement programs for cattle assistance every year and procurement of medicines through the APBD budget, increasing absorption of the cattle-buffalo business insurance program (AUTSK) 2. Add or establish POS IB in Batang Toru District and complete existing POS IB infrastructure. 3. Improving services for reproductive disorders and livestock health. 4. Increasing the number of IB services through the addition of IB officers in each sub-district and stability in the provision of seeds and IB services, 5. Improve supervision and education regarding the prohibition of slaughtering productive female cattle.

Responden	TAS 1	TAS 2	TAS 3	TAS 4	TAS 5	TAS 6	TAS 7	TAS 8	TAS 9	TAS 10	TAS 11	TAS 12
Respondent 1	0,14	0,09	0,10	0,07	0,10	0,07	0,06	0,08	0,11	0,05	0,03	0,04
Respondent 2	0,12	0,05	0,09	0,07	0,15	0,03	0,09	0,00	0,13	0,09	0,10	0,03
Respondent 3	0,09	0,06	0,09	0,08	0,12	0,09	0,07	0,06	0,13	0,06	0,03	0,04
Respondent 4	0,12	0,07	0,09	0,03	0,10	0,07	0,11	0,02	0,12	0,06	0,07	0,07
Respondent 5	0,04	0,05	0,04	0,09	0,15	0,06	0,15	0,03	0,12	0,09	0,07	0,05
Total Attraction Value	0,34	0,38	0,49	0,46	0,47	0,49	0,34	0,34	0,37	0,42	0,37	0,47
Strategy Priority Order			1		3	2						

IV. CONCLUSION

1. The results of the analysis of the internal and external environment of cattle development show that there are 12 internal factors and 12 external factors that influence, showing the development of beef cattle in Batang Toru District on the IE matrix is in a stable growth position based on the internal factor score of 2.629 and external factors 3,019.
2. Based on the SWOT analysis, the strategic priority resulting from the combination of strategies that has the highest value, namely the SO (strength-opportunity) strategy, the alternative strategies in question are (a) Strengthening government support, (b) Expanding the application of technology, and (c) Guaranteeing stable product prices
3. From the QSP matrix, the main strategy that can be implemented is . Improving government support programs through training activities / technical guidance on breeding, feed and health for farmers, procurement programs for cattle assistance every year and procurement of medicines through the APBD budget, increasing absorption of the cattle-buffalo business insurance program (AUTSK)

V. RECOMMENDATION

1. It is hoped that the role of the government which has the authority to develop cattle farms in the Batang Toru sub-district is to build livestock facilities and infrastructure.
2. This research is an initial study on efforts to develop cattle in Batang Toru district which is recommended to be integrated with post-gold mining.
3. Further research is urgently needed regarding heavy metal waste pollution at mining sites

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