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Investment Feasibility Analysis in Developing Medicinal Plant Business as an Economic Diversification Effort in Asahan Regency

Rahmawani[1*], Syafrial Syah[2], Adetia Azmi Tanjung[3], Faulia Anggeraini[4]
[1]STIE Muhammadiyah Asahan, Sumatera Utara, Indonesia, 88rahmawani@gmail.com.
[2]STIE Muhammadiyah Asahan, Sumatera Utara, Indonesia, hanifsafri@gmail.com.
[3]STIE Muhammadiyah Asahan, Sumatera Utara, Indonesia, tia.tanjung92@gmail.com.
[4]STIE Muhammadiyah Asahan, Sumatera Utara, Indonesia, 88rahmawani@gmail.com.

[*]Corresponding Author: 88rahmawani@gmail.com[1]

Abstract: This study aims to analyze the feasibility of investment in the development of medicinal plant businesses in Asahan Regency as an effort to diversify the economy. The method used is quantitative research with a descriptive approach, including SWOT analysis to identify strengths, weaknesses, opportunities, and threats, and PESTEL analysis to evaluate external factors that affect the business. In addition, a capital budgeting analysis was carried out using NPV (Net Present Value), PI (Profitability Index), and PP (Payback Period) to determine the feasibility of investment. The results of the SWOT analysis show that Asahan Regency has high natural resource potential and government support, although there are challenges such as limited human resource quality and infrastructure. PESTEL analysis reveals that political stability and positive economic growth support the development of the medicinal plant sector, while environmental risks and policy changes need to be watched out for. The NPV calculation produces a value of around IDR 11,636,364, indicating that this project is profitable at a 10% discount rate. The Profitability Index of 2.5 indicates investment feasibility, and the Payback Period of around 0.67 years (8 months) indicates a short time to reach breakeven. The conclusion of this study is that Asahan Regency is a suitable location for cultivating medicinal plants. Increasing human resource capacity and infrastructure development are essential to maximize investment potential in this sector. This study provides recommendations for stakeholders to improve training for farmers.

Keywords: Feasibility Analysis, Investment, Medicinal Plants, Economic Diversification, Asahan.

INTRODUCTION

In an era of globalization and growing economic uncertainty, economic diversification is becoming increasingly important as a strategy to reduce risk and increase the economic resilience of a region. In many areas, especially in rural areas, the agricultural sector is still the mainstay of the local economy. However, excessive dependence on a single agricultural sector

can increase significant economic risks, especially due to price fluctuations, climate change, and other unpredictable factors.

Medicinal plants are all types of plants that have properties that help maintain health or treat a disease. [1] The use of medicinal plants can improve the economy because medicinal plants are currently widely used for health and beauty products. [2] In addition, people's lifestyles have paid attention to health as a daily consumption. The traditional medicine industry in Indonesia is also very developed, and the government has regulated the types of businesses related to traditional medicine through the Regulation of the Minister of Health No. 006 of 2012 concerning the Traditional Medicine Industry and Business. Indonesia also has the potential to export medicinal plants, aromatics, and spices to major destination countries such as Pakistan, Thailand, the United States, India, Vietnam, Singapore, and the Netherlands.[3]

Ekspor Tanaman Obat, Aromatik, dan Rempah-Rempah menurut Negara Tujuan Utama, 2012 - 2022

Negara tujuan	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Berat bersih : Ton											
Pakistan	79860,9	91948	121912,1	104871	114499,8	90975,6	2379,1	1653	1057,3	5416,5	4465,9
Thailand	1710,3	2706,8	6510,4	66390,3	60117,4	68299,9	101664	162812,3	64560,9	117489,3	22585,5
Amerika Serikat	5844,7	6043,1	5763,9	5046,6	10531,4	13347,7	12619,8	7182	12918,3	14389,3	14793,5
India	15417	38288,8	35504,1	38944,7	22589,3	24169,8	33572	31939,9	33995,1	28252,8	37843,9
Vietnam	14280,1	14620,9	18641,2	23101,2	20640,6	29159,6	29977,8	11480,8	9349,5	6617,1	4504,5
Singapura	34087,6	22176,2	20011,9	18171,1	11218	11179,9	10170,5	5007	4276,3	5922,6	6786,4
Belanda	2406,8	2473,8	3803,2	3051,9	2336,5	3799,9	2672,2	2235,9	2666,1	2223,5	2344,7
Tiongkok	23917,3	18464,6	17857,2	6252,9	15900,4	5496,1	4413,2	10297,8	18950,5	37067,8	47708,6
Bangladesh	39525,2	64049,2	78300,5	35779,6	16309,1	23004,4	6278	10899,1	7407,9	17284,3	11028,9
Jerman	1301,7	1452,1	1349,4	1520	897,8	1305,9	1357,1	1341,3	1515,3	1653,6	1434,5
Lainnya	31997,2	47120,8	77289,9	73391,6	41123,6	55053,4	130989,5	73291,2	118597,9	58371,3	125810,5
Jumlah	250348,8	309344,3	386943,8	376520,9	316163,9	325792,2	336093,2	318140,3	275295,1	294688,1	279306,9

Source: bps.go.id

Asahan is one of the areas where various types of medicinal plants can grow. The potential of medicinal plants in Asahan Regency is very large, because this area has very abundant flora. There are around 8000 species of medicinal plants that are known to have medicinal potential, and 800-1200 species that are used by the community as traditional medicine and cosmetics. There are also 30 types of plants that are used by the community, and several plants that have the potential to be studied further for bioactivity tests include betel leaves, cat's whiskers leaves, moringa leaves, and mangosteen fruit.[4]

Medicinal plants have high economic value and significant health benefits, so they can be a stable and sustainable source of income for local communities. In addition to meeting the needs of medicinal plants in Asahan district, the development of maximum medicinal plant businesses also supports export activities. Several points in Asahan district have the potential to be planted with medicinal plants such as ginger, turmeric, temulawak and so on. This can be seen from the number of medicinal plants in Asahan district registered in Asahan in Figures [5].

Tabel 5.1.6 Produksi Tanaman Biofarmaka Menurut Kecamatan dan Jenis Tanaman di Kabupaten Asahan (kg), 2021 dan 2022
Table 5.1.6 Production of Medicinal Plants by Subdistrict and Kind of Plant in Asahan Regency (kg), 2021 and 2022

Kecamatan *District*	Jahe *Ginger*		Kapulaga *Java Cardamom*		Kencur *East Indian Galangal*	
	2021	2022	2021	2022	2021	2022
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1. B. P. Mandoge	2 710	970	-	-	450	770
2. Bandar Pulau	780	960	-	-	515	1 990
3. Aek Songsongan	605	894	-	5	640	958
4. Rahuning	1 070	614	-	-	1 000	945
5. Pulau Rakyat	670	861	15	-	780	835
6. Aek Kuasan	2 390	1 936	-	-	825	1 188
7. Aek Ledong	4 000	3 740	-	-	460	1 310
8. Sei Kepayang	335	240	-	-	202	119
9. Sei Kepayang Barat	192	206	-	-	155	270
10. Sei Kepayang Timur	166	176	-	-	161	162
11. Tanjung Balai	142	290	-	-	114	256
12. Simpang Empat	270	430	-	-	210	430
13. Teluk Dalam	610	1 198	30	-	480	865
14. Air Batu	164	495	-	-	79	315
15. Sei Dadap	250	623	-	-	186	610
16. Buntu Pane	39 970	7 200	-	-	-	-
17. Tinggi Raja	251	670	-	-	204	105
18. Setia Janji	12 750	3 650	-	-	24	85
19. Meranti	855	1 370	-	-	175	548
20. Pulo Bandring	622	585	-	-	222	250
21. Rawang Panca Arga	415	580	-	-	220	400
22. Air Joman	1 938	1 712	-	-	825	240
23. Silau Laut	485	945	-	-	322	508
24. Kisaran Barat	577	577	-	-	8	172
25. Kisaran Timur	307	741	-	-	108	298
Asahan	**72 524**	**31 663**	**45**	**5**	**8 365**	**13 629**

Kecamatan *District*	Kunyit *Turmeric*		Laos/Lengkuas *Galanga*		Lempuyang *Zingiber Aromaticum*	
	2021	2022	2021	2022	2021	2022
(1)	(8)	(9)	(10)	(11)	(12)	(13)
1. B. P. Mandoge	500	590	375	722	-	-
2. Bandar Pulau	405	3 030	1 070	523	290	-
3. Aek Songsongan	685	2 585	645	292	-	-
4. Rahuning	915	1 610	730	535	-	-
5. Pulau Rakyat	435	1 005	915	477	56	-
6. Aek Kuasan	860	830	2 370	1 050	350	47
7. Aek Ledong	940	1 730	645	1 520	53	65
8. Sei Kepayang	85	107	253	261	-	-
9. Sei Kepayang Barat	127	172	72	245	-	-
10. Sei Kepayang Timur	126	133	112	239	-	-
11. Tanjung Balai	239	191	63	157	30	27
12. Simpang Empat	173	303	237	715	-	-
13. Teluk Dalam	637	1 035	530	360	-	20
14. Air Batu	255	583	91	1 070	-	-
15. Sei Dadap	400	528	57	665	29	90
16. Buntu Pane	29 100	5 750	12 388	2 000	-	-
17. Tinggi Raja	164	135	165	175	-	-
18. Setia Janji	450	240	310	354	-	-
19. Meranti	225	620	770	1 070	-	-
20. Pulo Bandring	422	210	450	-	140	-
21. Rawang Panca Arga	290	642	460	1 140	-	-
22. Air Joman	1 740	2 748	1 876	1 648	-	-
23. Silau Laut	647	670	249	456	-	-
24. Kisaran Barat	243	636	230	473	-	-
25. Kisaran Timur	175	628	477	411	6	-
Asahan	**40 238**	**26 711**	**25 540**	**16 558**	**954**	**249**

Source: bps.go.id

From the data above, it can be seen that medicinal plants can grow well in Asahan. However, although medicinal plants can help improve the economy of Asahan district, research related to the feasibility of investment in medicinal plants has not been carried out, so it is not yet known whether the areas in Asahan District have met the aspects of investment feasibility for medicinal plants such as: (1) Financial Aspects; (2) Economic and Social Aspects; (3) Market and Marketing Aspects; (4) Technical and Production Aspects; (5) Legal Aspects; (6) Organizational and Management Aspects. Because investment is said to be feasible if there is a profit from the investment made, investment risks can be controlled, investment costs can be spent effectively and the time needed for investment returns is in accordance with the objectives. [6]

This research is important to be carried out because it aims to determine the feasibility of investment in the development of medicinal plants as an effort to diversify the economy in Asahan Regency. This research will be a reference for the government, entrepreneurs and processors of medicinal plants to build a feasible and effective business. So that economic growth in the agricultural sector can increase, because economic growth in the agricultural sector in 2023 decreased from the previous year. In addition, it can also reduce the unemployment rate in Asahan Regency which is22,449 people out of 358,582 people in 2022 based on BPS data.



Gambar 1. Pertumbuhan PDRB Beberapa Lapangan Usaha (persen)

Source: bps.go.id]

METHOD

This type of research is quantitative research with a descriptive approach. The method used is to conduct a SWOT analysis to see the strengths, weaknesses, opportunities and threats of medicinal plant businesses in Asahan Regency, PESTEL analysis to see external factors that affect the business, Case analysis, namely analyzing cases related to investment and medicinal plant businesses, capital budgetingusing NPV (Net Present Value), PI (Profitability Index), and PP (Payback Period) analysis to determine investment feasibility, and data validation.

RESULTS AND DISCUSSION

SWOT Analysis

SWOT analysis for medicinal plant investment in Asahan Regency can provide a clear picture of the strengths, weaknesses, opportunities, and threats faced in the development of this sector. The following is a summarized analysis based on research results and relevant data.

Strengths

1) Natural Resource Potential: Asahan Regency has high biodiversity, including many species of medicinal plants that can be cultivated.
2) Government Support: The commitment of local governments to the development of the agricultural and medicinal plant sectors provides strong support for farmers and investors.
3) Geographical Conditions: The strategic geographical location in the east coast of North Sumatra supports market accessibility and product distribution.

Weaknesses

1) Human Resource Quality: The quality of farmers' human resources is still not optimal, with a lack of knowledge about modern cultivation techniques and management of medicinal plants.
2) Minimum Infrastructure: Limited agricultural facilities and infrastructure can hinder the maximum development of medicinal plant businesses.
3) Reliance on Traditional Methods: Many farmers still use conventional cultivation methods, which can affect the productivity and quality of the harvest.

Opportunities

1) Increasing Market Demand: Increasing public awareness of the health benefits of medicinal plants opens up vast market opportunities.
2) Research and Innovation Support: Research and development in the agricultural sector can help improve cultivation techniques and product quality.
3) Partnership with the Private Sector: Opportunities to establish partnerships with the private sector in the development of medicinal plant agribusiness can increase investment and technology.

Threats

1) Competition from Other Regions: Competition with other regions that are also developing the medicinal plant sector can affect the market share of Asahan Regency.
2) Changes in Government Policy: Changes in government policies regarding agriculture or investment could have a negative impact on this sector.
3) Unstable Business Climate: External factors such as climate change or natural disasters can disrupt the production of medicinal plants.

The SWOT analysis shows that despite the challenges and weaknesses, Asahan Regency has great potential to develop investment in the medicinal plant sector. Leveraging strengths and opportunities while addressing weaknesses and threats will be the key to success in increasing the competitiveness and productivity of this sector in the future. Appropriate strategies need to be formulated to maximize this potential, including improving the quality of human resources, developing infrastructure, and promoting partnerships with various parties.

PESTEL Analysis

PESTEL analysis for medicinal plant investment in Asahan Regency provides an overview of external factors that can affect the development of this sector. The following is an analysis that includes Political, Economic, Social, Technological, Environmental, and Legal aspects.

1) Political
- Government Policy Support: The Asahan District Government has demonstrated its commitment to developing the agricultural sector, including medicinal plants, through various programs and policies that support sustainable agriculture.
- Political Stability: Political stability in the region creates a conducive environment for investment, although it is important to be aware of policy changes that could impact the agricultural sector.

2) Economy
- Economic Growth: Stable economic growth in Asahan Regency can increase people's purchasing power for medicinal plant products. The agricultural sector is still one of the main contributors to the GRDP of Asahan Regency.
- Market Demand: Increasing public awareness of health and the use of herbal products provides a broad market opportunity for medicinal plants.

3) Social
- Public Awareness: People are increasingly aware of the health benefits of medicinal plants, which may increase demand. The tradition of using medicinal plants in treatment is also still strong among the people.
- Education and Training: Lack of knowledge and skills among farmers in modern medicinal plant cultivation is a challenge, although there are training programs that can help increase their capacity.

4) Technology
- Agricultural Innovation: The use of technology in the cultivation and processing of medicinal plants is still limited. However, there is an opportunity to adopt new technologies to increase productivity and product quality.
- Access to Information: Limited access to information on modern cultivation techniques can hamper the development of this sector.

5) Environment
- Natural Conditions: Land in Asahan Regency has good potential for cultivating medicinal plants thanks to its tropical climate and soil fertility. However, climate change and natural disasters can be a threat to production.
- Environmental Sustainability: Sustainable agricultural practices need to be implemented to maintain the ecosystem and the sustainability of natural resources.

6) Law
- Agricultural Regulations: There are regulations governing the use of herbal ingredients and food safety that must be adhered to by business actors. Compliance with these regulations is important to maintain consumer trust.
- Legal Support for Investment: Legal policies that support investment in the agricultural sector can attract more investors to engage in medicinal plant cultivation.

PESTEL analysis shows that Asahan Regency has great potential for investment in the medicinal plant sector, supported by stable political conditions, positive economic growth, and public awareness of the health benefits of herbal products. However, challenges such as limited farmer knowledge and environmental risks need to be addressed through training, technological innovation, and the implementation of sustainable agricultural practices.

Capital Budgeting

Asahan Regency does not have a special agricultural area that grows medicinal plants, it's just that there are many medicinal plants that can be planted in Asahan Regency such as rhizomes (ginger, turmeric, kencur, galangal, temulawak etc.), lemongrass, moringa, cat's whiskers, meniran, Chinese spinach and so on. These plants do not have special land, it's just that many households in Asahan Regency cultivate these plants. The ease of obtaining these medicinal plants shows that Asahan Regency is a suitable area to be used as a place for investment in medicinal plants. The geographical location and climate of Asahan Regency have characteristics of areas that are suitable for planting medicinal plants such as an altitude of 157 meters above sea level, although medicinal plants such as ginger and turmeric are not optimal, but if the plant care is good, it can produce maximum results too, besides that the average rainfall in Asahan reaches 229 mm/month, and the soil is also fertile, as evidenced by the many areas planted with agriculture such as rice fields and secondary crops.

To calculate investment feasibility, statistical calculations are needed, for this reason the researcher took an average calculation from the areas in Asahan district to calculate the NPV, PI and PP of medicinal plants.

This calculation uses turmeric plants.

Initial Data

- Production Price: Rp.4000/kg
- Selling Price ` : Rp. 10,000/kg
- Amount produced/ha: 8 tons = 8,000 kg
- Discount Rate 10%

Production Costs and Revenue

- Production Cost = Production Price x Quantity Sold
  = Rp.4,000 x 8,000 kg = Rp. 32,000,000,-
- Revenue = Selling Price x quantity sold

= Rp. 10,000 x 8,000 kg = Rp. 80,000,000,-

- Net Cash Flow = Revenue – Production Costs

= Rp. 80,000,000 - Rp. 32,000,000
  = Rp. 48,000,000

NPV (Net Present Value)

$$NPV = \frac{Arus\ Kas\ Bersih}{(1+r)^t} - Investasi\ Awal$$

$$NPV = \frac{Rp.48.000.000}{(1+0{,}1)^1} - Rp.32.000.000$$

$$NPV = \frac{Rp.48.000.000}{1{,}1} - Rp.32.000.000$$

$$NPV = Rp.43.636.364 - Rp.32.000.000 = Rp.11.636.364$$

Profitability Index(PI)

$$PI = \frac{Total\ Pendapatan}{Total\ Biaya} = \frac{Rp.80.000.000}{Rp.32.000.000} = 2{,}5$$

Payback Period(PP)

$$PP = \frac{Investasi\ Awal}{Arus\ Kas\ Bersih} = \frac{Rp.32.000.000}{Rp.48.000.000} \approx 0{,}67\ tahun \approx 8\ bulan$$

From the data above it can be seen that

- NPV: Around Rp. 11,636,364 which shows that the project is profitable at a discount rate of 10%
- PI: Around 2.5, because the PI number is greater than 1, this shows that the investment is feasible.
- PP: Approximately 0.67 years / 8 months. This means the break-even point for this project is 8 months.

CONCLUSION

From the research results, it can be seen that the Asahan district area can be used as a place for cultivating medicinal plants. So that investment in the Asahan district area is declared feasible for medicinal plant investment. It's just that increasing Human Resources for medicinal plant farming is very much needed. This is because the people of Asahan district are not yet accustomed and have not been trained to plant medicinal plants.

The areas that have more potential for cultivating medicinal plants based on altitude in Asahan Regency are the Mandoge and Bandar Pulo areas. But other areas such as Air Joman are also likely to be good because of the high agriculture in the area.

By starting to cultivate medicinal plants, it is expected to be an additional income for farmers in Asahan Regency. So that the income of farmers is not only based on one plant.

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