



Feasibility study analysis of plantable seed paper packaging business based on palm oil fruit waste at PT. Growvi Indonesia

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Article Info

Article history:

Received Jun 5, 2026

Revised Jun 20, 2026

Accepted Jun 27, 2026

Keywords:

Business Feasibility;

IRR;

NPV;

Oil Palm Fronds;

Plantable Seed Paper.

ABSTRACT

This study aims to analyze the feasibility of PT Growvi Indonesia's plantable seed paper and paper bag products made from oil palm fronds. The method used is descriptive quantitative, with primary and secondary data obtained through observation, interviews, documentation, and literature review. The analysis covered market, technical and operational, managerial and legal, financial, and environmental and social aspects. The results indicate that the business has good prospects, with broad market potential and abundant raw material availability. Financially, the business is deemed feasible based on a positive NPV, high IRR, Net B/C greater than one, and a short payback period. Furthermore, the business has a positive environmental impact through the utilization of oil palm waste. In conclusion, PT Growvi Indonesia is feasible to expand by increasing production capacity and strengthening marketing strategies to support business sustainability.

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1. INTRODUCTION

Rising global environmental awareness has driven demand for eco-friendly and biodegradable packaging alternatives, along with efforts to reduce reliance on single-use plastics and wood-based paper (Diana, 2022). The use of biodegradable packaging has a positive impact on reducing single-use plastic waste because it can decompose naturally in a relatively short time without leaving harmful residues for the environment. Various studies have shown that substituting conventional plastics with natural fiber-based packaging can reduce the accumulation of plastic waste in landfills, reduce soil and water pollution, and support the creation of a more sustainable, circular economy. Palm oil production in Indonesia generates abundant palm frond biomass that remains largely underutilized. Its conversion into non-wood paper and plantable packaging products offers a sustainable approach to increasing waste value while supporting circular economy and agribusiness development (Lignou, 2021).

North Sumatra is a strategic region for developing palm oil waste-based businesses due to its large oil palm plantation area and abundant biomass production. In addition to the availability of sustainable raw materials, the province is supported by the presence of state-owned and private plantation companies, relatively adequate transportation infrastructure, access to domestic and export markets, and government support for the development of palm oil-based industries. These

conditions give North Sumatra a comparative advantage in developing innovative products made from palm oil frond waste, including plantable seed paper and environmentally friendly packaging (BPS North Sumatra, 2024).

Although demand for eco-friendly packaging continues to increase, biomass-based startups often face constraints in production, management, marketing, and finance (Sakinah, 2025). PT Growvi Indonesia, which develops plantable seed paper and paper bags from oil palm frond fiber, is still in its early growth stage with limited resources, making business feasibility and competitiveness important aspects to evaluate (Humaidi et al., 2021). Biomass-based startups often face internal challenges related to production, raw material supply, marketing, and management, as well as external pressures from pricing, consumer preferences, and environmental regulations (Imakulata et al., 2025). Consequently, a comprehensive business feasibility analysis is required to ensure effective development strategies and long-term sustainability (Buma, 2023).

This study is based on business feasibility and circular economy concepts that emphasize creating added value from local resources while minimizing waste (Toro, 2022). The analysis integrates market, production, management, financial, environmental, and social aspects to evaluate the feasibility and sustainability of PT Growvi Indonesia's business (Elizabeth et al., 2025). Previous studies have highlighted the potential of non-wood materials and circular economy applications in plantation waste management (Desimal et al., 2025). However, empirical studies assessing the feasibility of palm frond-based plantable seed paper businesses in Indonesian startups remain limited. Therefore, this study evaluates the feasibility of PT Growvi Indonesia's plantable paper products to provide insights for investment decisions, business expansion, biomass downstreaming, and sustainable agricultural waste utilization.

Based on these conditions, this study was formulated to determine the feasibility of developing plantable seed paper and paper bags made from oil palm fronds, developed by PT Growvi Indonesia. Specifically, the study aims to analyze business feasibility from five main aspects: (1) market aspects, (2) technical and operational aspects, (3) managerial and legal aspects, (4) financial aspects, and (5) environmental and social aspects. The research results are expected to provide a comprehensive overview of prospects, risks, and strategic recommendations for sustainable business development.

2. RESEARCH METHOD

This research was conducted at PT Growvi Indonesia, Percut Sei Tuan District, Medan City, North Sumatra, from January to March 2026, using a quantitative descriptive method. The research data consisted of primary data obtained through observation, interviews, and documentation, as well as secondary data sourced from financial reports, government statistics, scientific publications, and business legal documents. The data were used to analyze business feasibility based on market, technical and operational, managerial and legal, financial, and environmental and social aspects.

Market aspect analysis uses the Total Addressable Market (TAM), Serviceable Available Market (SAM), and Serviceable Obtainable Market (SOM) approaches to measure the market potential of PT Growvi Indonesia's environmentally friendly packaging and seed paper products. TAM shows the overall market potential, SAM describes the market that the company can serve based on business targets and capacity, while SOM estimates the realistic market share that can be achieved. This approach is used to assess market opportunities and future business development prospects.

Data analysis focuses on assessing the financial feasibility of the business through the preparation of cash flows that include initial investment, operational costs, and business revenue. The financial feasibility assessment was conducted using the Net Present Value (NPV), Internal Rate of Return (IRR), Net Benefit Cost Ratio (Net B/C), Payback Period (PP), and Break-Even Point (BEP) indicators. These indicators were chosen because they can evaluate profitability, return on investment, cost efficiency, payback period, and break-even point, thus providing a comprehensive overview of the financial feasibility and sustainability of the business.

3. RESULTS AND DISCUSSIONS

Market Aspects

1. Marketing Mix

The marketing mix is a company strategy encompassing product, price, place, and promotion (Kotler & Armstrong, 2018). For PT Growvi Indonesia, marketing mix analysis is crucial to support product introduction, increase consumer awareness, and expand market penetration in the early stages of business development (Fianda, 2022).

- a. Products, PT Growvi Indonesia produces paper bags made from plantable seed paper from oil palm frond waste as a sustainable packaging solution that can be biodegraded and replanted. This product offers added value in the form of ecological functionality, an environmentally friendly image, and support for the circular economy concept (Kotler & Keller, 2016; Ellen MacArthur Foundation, 2013). The innovation also provides benefits for corporate customers by strengthening their environmentally friendly brand image, supporting ESG commitments, and increasing product differentiation in markets that are increasingly concerned with sustainability issues. In addition to paper bags, Growvi also develops various derivative products such as notebooks, envelopes, folders, grow pots, sheets of paper, and souvenir bundles as part of its product diversification strategy to expand the market and increase added value.

The following table shows the differentiation of Growvi products compared to conventional packaging:

Table 1. Product differentiation

Comparison Aspect	Growvi Paper Bag	Regular Paper Bag	Conventional Plastic	Conventional Paper
Raw Material	Oil palm frond waste	Wood pulp	Petrochemical materials	Wood pulp
Biodegradable	Yes	Yes	No / decomposes very slowly	Yes
Plantable	Yes	No	No	No
Environmental Education Value	High	Low	None	Low
Sustainability Image	Very strong	Moderate	Negative	Moderate
Circular Economy Concept	Yes	No	No	Limited
Market Differentiation	High	Low	Low	Low

PT. Growvi products are currently at the introduction stage, which is characterized by low levels of market awareness and not yet optimal sales volumes. Therefore, companies need to focus their strategy on consumer education and strengthening positioning as an innovative packaging product based on palm waste.

- b. Price, growvi applies a cost-based pricing strategy by setting prices based on the Cost of Goods Production (COGS) plus a profit margin (Kotler & Armstrong, 2018). Pricing also considers customer perceived value and purchase scale to remain competitive in the packaging market. In the future, the company has the opportunity to adopt value-based pricing due to its product differentiation and sustainability benefits, although sensitivity to premium prices remains a key challenge.
- c. Place, growvi distributes its products through B2B channels to MSMEs and companies, B2C sales, marketplaces, and custom orders (Irsan, 2020). The company applies a selective, order-based distribution strategy tailored to customer needs. Its location near raw material sources supports production efficiency, although expanding distribution and logistics networks remains important to reach wider markets.
- d. Promotion, growvi targets corporate CSR programs, event organizers, MSMEs, and environmentally conscious consumers by promoting plantable seed paper packaging made from oil palm frond waste (Suryadi, 2024). Promotional activities primarily utilize social media platforms such as Instagram and TikTok to communicate sustainability values and educate consumers about circular economy practices and plastic waste reduction. However, limited

public awareness of plantable seed paper remains a challenge, requiring stronger educational and storytelling approaches (Ahmadi, 2025).

2. Market Size

- a. Total Addressable Market (TAM), growvi's Total Addressable Market (TAM) includes institutions and businesses in Indonesia that require eco-friendly packaging and souvenirs. With approximately 14.6 million registered businesses, dominated by MSMEs and supported by around 91,000 large enterprises, Indonesia offers substantial market potential for Growvi's products (Ministry of Investment/BKPM, 2025).
- b. Serviceable Available Market (SAM), growvi's Serviceable Obtainable Market (SOM) represents the realistically attainable share of the market based on its production capacity, marketing reach, and brand awareness during the introduction stage (Murnawati, 2023). Focusing on Medan City, the company targets a portion of the approximately 38,343 registered MSMEs, with an estimated SOM of 3,800–4,000 business entities in the first 12–18 months (Ministry of Investment/BKPM, 2025).

3. STP Strategy (Segmenting, Targeting, Positioning)

- a. Segmentation, geographically, Growvi focuses on North Sumatra, particularly Medan, due to its role as an economic center and the abundant availability of palm oil biomass that supports production efficiency (Rofa, 2022). The growth of MSMEs in the culinary, fashion, and creative sectors also creates opportunities for environmentally friendly packaging adoption, with future expansion potential to other regions in Indonesia.

Demographically, Growvi targets consumers aged 17–55, including students, employees, entrepreneurs, MSME owners, and plantation cooperatives who have purchasing power and awareness of sustainability issues (Apriyanti, 2024). Psychographically, the company focuses on environmentally conscious consumers and organizations that support green lifestyles, value sustainable products, and appreciate product narratives related to agricultural waste utilization, plastic reduction, and circular economy practices (Aufat, 2025).

- b. Targeting, growvi primarily targets businesses and institutions requiring packaging or souvenirs in large quantities, including companies, event organizers, and MSMEs in North Sumatra. The company also serves environmentally conscious consumers aged 17–55 who value sustainable and plantable packaging. This market segment is particularly relevant for hampers, herbal products, healthy food, natural cosmetics, and souvenir businesses seeking to enhance their brand image through eco-friendly packaging (Ramadhona, 2021).
- c. Positioning, PT Growvi positions itself as an innovator in eco-friendly packaging based on agricultural waste through the "from waste to growth" concept, which integrates waste reduction, local resource utilization, and a circular economy (Sari, 2023). Growvi products not only function as biodegradable packaging but can also be planted and grown into plants, providing a strong differentiation compared to conventional packaging. This innovation helps corporate customers strengthen their green brand image by demonstrating commitment to sustainability, ESG principles, and environmentally responsible business practices. This positioning positions Growvi as a provider of sustainability solutions relevant to ESG and green branding trends, targeting institutions and businesses seeking to strengthen their brand image through innovative, ethical, and environmentally friendly packaging for hampers, healthy food, and premium creative products.

Technical and Operational Aspects

1. Availability of Raw Materials

PT Growvi Indonesia utilizes oil palm fronds from plantation maintenance waste as its primary raw material. The extensive oil palm plantation area in North Sumatra provides an abundant and sustainable supply of biomass, ensuring raw material availability for production. In addition, the company's location within the Indonesian Palm Oil Technology Institute (ITSI) supports efficient access to these resources (Directorate General of Plantations, 2023).

2. Production Capacity

PT Growvi Indonesia's production capacity remains limited due to dependence on external parties for frond shredding and constraints in the printing and drying processes (Aluhariandu, 2022). The limited availability of machinery, mold boards, and drying facilities reduces production efficiency and increases reliance on weather conditions. Therefore, investment in shredding equipment and improved drying infrastructure is needed to enhance production capacity and operational independence.

3. Production Process Flow

The paper production process from oil palm fronds at PT Growvi Indonesia begins with the collection and preparation of raw materials: oil palm fronds, which are peeled and cut into small pieces. The material then undergoes a delignification process using NaOH solution to reduce the lignin content, followed by washing and initial crushing. The resulting fibers are dried and bleached using H₂O₂ solution to improve color quality. The material is then crushed again to produce a finer pulp.

The resulting pulp is mixed with talc and PVAc to improve texture and strength. The pulp is then screen-printed to form sheets of paper, which are then dried and pressed to produce a smoother, flatter surface. Finally, the resulting paper is ready to be used as a raw material for various derivative products, such as paper bags, notebooks, and other environmentally friendly paper products.

Managerial and Legal Aspects

1. Human Resources

- a. Organizational Structure, PT Growvi Indonesia's organizational structure remains simple and flexible, in keeping with the growing scale of the business. It tends toward a functional structure, where tasks are divided based on the company's primary operational functions.
- b. Workforce, PT Growvi Indonesia operates with a small workforce that handles both production and marketing activities according to operational needs. Employees are responsible for raw material processing, product manufacturing, social media management, customer communication, and order handling. Although the required skills are relatively basic, precision and consistency are essential. Limited human resources may constrain production expansion, highlighting the need for additional staffing or technological improvements to enhance efficiency.

2. Company Legality

Company legality is a crucial aspect in supporting business sustainability because it plays a role in building customer trust, facilitating collaboration with partners, and fulfilling various business administration requirements (Nur & Agustin, 2026). PT Growvi Indonesia has a risk-based Business Identification Number (NIB) number 0408250095497, a Certificate of Individual Establishment Registration from the Ministry of Law of the Republic of Indonesia number AHU-040385.AH.01.30.2025, and a Taxpayer Identification Number (NPWP) number 100000006913324. The company has also fulfilled various business licensing requirements recorded in the Online Single Submission (OSS) system, including a Self-Declaration of Willingness to Meet Business Standards, a Self-Declaration of Commitment to Maintain Safety, Security, Health, and Environmental Sustainability (K3L), and a Micro or Small Business Statement Letter regarding Spatial Planning.

PT Growvi Indonesia has also been registered in the National Industrial Information System (SIINas) and the Industrial Confidence Index (IKI) of the Ministry of Industry of the Republic of Indonesia, obtained a letter from the Cooperatives and SMEs Office of North Sumatra Province number 500.3/14063/SEKRT/VI/2025, and holds an Intellectual Property Rights (IPR) Certificate for Trademarks issued by the Directorate General of Intellectual Property. These documents demonstrate that the company has an adequate legal basis to carry out business activities and support business development.

Financial Aspects

1. Cost Component Analysis

- a. Initial investment costs are the expenses required in the initial stages to support the company's production operations. Based on the identification of equipment requirements, the total investment required by PT Growvi Indonesia is estimated at IDR 23,430,000.

Table 2. Initial investment costs

No	Investment Component	Quantity	Unit	Unit Price (IDR)	Total (IDR)
1	Palm Frond Shredding Machine	1	Unit	Rp 10.000.000,00	Rp 10.000.000,00
2	Blender/Chopper	2	Unit	Rp 800.000,00	Rp 1.600.000,00
3	Paper Molding Screens	10	Pcs	Rp 200.000,00	Rp 2.000.000,00
4	Drying Racks	5	Pcs	Rp 300.000,00	Rp 1.500.000,00
5	Paper Pressing Tool	1	Unit	Rp 100.000,00	Rp 100.000,00
6	Business Legal Registration	1	Set	Rp 2.000.000,00	Rp 2.000.000,00
7	Stove	1	Set	Rp 500.000,00	Rp 500.000,00
8	Paper Cutter	2	Pcs	Rp 235.000,00	Rp 470.000,00
9	Stationery Supplies	1	Set	Rp 100.000,00	Rp 100.000,00
10	Storage Boxes	10	Pcs	Rp 150.000,00	Rp 1.500.000,00
11	Printing Cloth	10	Meter	Rp 15.000,00	Rp 150.000,00
12	Molding Containers	2	Pcs	Rp 180.000,00	Rp 360.000,00
13	Die-Cutting Roll	1	Unit	Rp 2.500.000,00	Rp 2.500.000,00
14	Notebook Paper Puncher	1	Pcs	Rp 300.000,00	Rp 300.000,00
15	Platform Scale	1	Unit	Rp 350.000,00	Rp 350.000,00
Grand Total					Rp 23.430.000,00

The investment analysis assumes a greenfield project, requiring all production equipment to be procured from the outset. The largest investment component is the palm frond shredding machine, valued at approximately IDR 10,000,000, which is essential for improving production efficiency and reducing dependence on external services. Overall, the relatively low investment requirement indicates that Growvi's business has a low barrier to entry and favorable development potential.

- b. Fixed costs are costs whose amounts remain relatively constant and are not affected by changes in production volume over a given period. At PT Growvi Indonesia, fixed cost components include depreciation of production equipment and building rent.

Table 3. Company fixed costs
FIXED COSTS (1 month of production)

No.	Description	Qty	Unit	Unit Cost (IDR)	Total Cost (IDR)
1	Equipment Depreciation Expense	1	Month	415,208	415,208
2	Production Facility Rental Costs	1	Month	500,000	500,000
Total					915,208

- c. Variable Costs and Factory Overhead Costs, at PT Growvi Indonesia are variable due to its make-to-order production system, which adjusts raw material usage to the amount of demand in each period. Therefore, variable costs are not calculated at a fixed monthly rate, but rather based on the cost per unit of product produced according to order volume.
- d. Variable Costs and Factory Overhead Costs, PT Growvi Indonesia's production activities still rely on fairly labor-intensive processes, particularly from the raw material processing stage through to the production of the final product. Therefore, labor is one of the key factors in ensuring the smooth operation of the production process.
- e. Profit and Loss Analysis, based on the results of the income statement analysis, PT Growvi Indonesia generated total revenue of Rp15,900,000 per month from sales of Growvi paper products and their derivatives. Meanwhile, total operating expenses which include fixed costs, variable costs, labor costs, and interest expenses amount to Rp7,433,908 per month. Consequently, the company is able to generate a net profit of Rp8,466,092 per month. These

results show that the revenue generated is significantly greater than the total costs incurred, indicating that the business has a strong ability to generate profits.

Table 4. Profit and loss analysis

	Description	Q	Unit	Selling Price	Total (IDR)
A	Revenue	200	Sheets		
a	Paper Bag	50	Units	15.000	750.000
b	A5 Notebook	50	Units	10.000	500.000
c	B7 Notebook	50	Units	7.000	350.000
d	Bundling Package 1	50	Units	40.000	2.000.000
e	Bundling Package 2	50	Units	34.000	1.700.000
	Total Revenue/Production Cycle				5.300.000
	Total Revenue/Month	x3	Cycles		15.900.000
B	Fixed Cost and Overhead Cost				
a	Equipment Depreciation	1	Month	415.208	415.208
b	Building Rental Expense	1	Month	500.000	500.000
c	Utilities (Electricity, Water, Gas)	1	Month	200.000	200.000
	Total/Month				1.115.208
C	Variable Cost				
a	Raw Materials for Recycled Paper Production	200	Sheets	1.447	289.333
b	Raw Materials for Paper Bags	50	Units	3.650	182.500
c	Raw Materials for A5 Notebooks	50	Units	1.492	74.583
d	Raw Materials for B7 Notebooks	50	Units	1.158	57.917
e	Raw Materials for Bundle 1	50	Units	11.181	559.033
f	Raw Materials for Bundle 2	50	Units	9.022	451.117
	Total Variable Cost/Production Cycle				1.614.483
	Total Variable Cost/Month	x3	Cycles		4.843.450
D	Labor Cost				
a	Labor Cost – Recycled Paper	1	Cycles	128.571	128.571
b	Labor Cost – Paper Bags	1	Cycles	42.857	42.857
c	Labor Cost – A5 Notebooks	1	Cycles	57.143	57.143
d	Labor Cost – B7 Notebooks	1	Cycles	57.143	57.143
e	Labor Cost – Bundle Package 1	1	Cycles	14.286	14.286
f	Labor Cost – Bundle Package 2	1	Cycles	14.286	14.286
	Total Labor Cost/Production Cycle				314.286
	Total Labor Cost/Month	x3	Cycles		942.857
E	Loan Costs				
a	Principal Loan Installment	1	Month	445.250	445.250
b	Loan Interest Expense	1	Month	87.142	87.142
	Total Monthly Loan Costs				532.392
F	Monthly Net Profit	1	Month		8.466.092
G	Monthly Net Profit	1	Month		8.466.092
H	Benefit-Cost Ratio (B/C Ratio)	1	Month		1,88

2. Financial Feasibility Analysis

- a. Net Present Value (NPV), cash flow projections are based on the assumption of 10% annual growth. Cash flow for 2026 is calculated by extrapolating the January–March average to the full year. Projections for 2027–2029 are determined based on the assumption of stable business growth.

Initial investment (I_0) = IDR 53,430,000

Discount rate (r) = 10%

Table 5. Present value calculation

Year	t	CASH FLOW (RP)	DF = $(1+r)^{-t}$	PV = CF / DF
2026	1	48.163.108,33	1,10	43.784.643,93
2027	2	113.489.539,75	1,21	93.793.008,06
2028	3	126.575.614,33	1,33	95.098.132,48
2029	4	147.359.002,35	1,46	100.648.181,38
2030	5	163.193.152,59	1,61	101.330.108,22
			Total PV	434.654.074,06

$$\begin{aligned}
 \text{NPV} &= \text{Total PV} && - && \text{Initial Investment} \\
 &= 434.654.074,06 && - && 53.430.000 \\
 &= \mathbf{381.224.074,06}
 \end{aligned}$$

Based on the Net Present Value (NPV) calculation with a 10% discount rate, the resulting value is IDR 381.224.074,06. A positive NPV indicates that the cash inflow exceeds the initial investment, thus declaring PT Growvi Indonesia's business feasible and offering good future development prospects.

b. Internal Rate of Return (IRR)

Initial investment (C_0) = IDR 53,430,000

The IRR was calculated using a trial and error method by determining two interest rates that yield a positive and a negative NPV, then interpolating to obtain a more accurate IRR value.

$$r_1 = 10\%$$

$$r_2 = 250\% \text{ (made high to make the NPV negative)}$$

The IRR calculation was performed using a 10% discount rate, resulting in an NPV of IDR 381.224.074,06. Then, it was retested at a 100% discount rate to obtain an NPV close to zero. The NPV values from these two discount rates were then used as the basis for calculating the Internal Rate of Return (IRR) using the interpolation method.

Table 6. Present value calculation with r 250%

TAHUN	t	CASH FLOW (RP)	DF = $(1+r)^{-t}$	PV = CF / DF
2026	1	48.163.108,33	3,500	13.760.888,09
2027	2	113.489.539,75	12,250	9.264.452,22
2028	3	126.575.614,33	42,875	2.952.200,92
2029	4	147.359.002,35	150,063	981.984,19
2030	5	163.193.152,59	525,219	310.714,64
Total PV				27.270.240,06

$$\begin{aligned}
 \text{NPV} &= \text{Total PV} && - && \text{Initial Investment} \\
 &= \text{Rp } 27.270.240,06 && - && \text{Rp } 53.430.000 \\
 &= \mathbf{-\text{Rp } 26.159.759,94}
 \end{aligned}$$

Calculating IRR (Interpolation)

$$\begin{aligned}
 \text{IRR} &= r_1 + (\text{NPV}_1 / (\text{NPV}_1 - \text{NPV}_2)) \times (r_2 - r_1) \\
 &= 234,59\%
 \end{aligned}$$

Based on the Internal Rate of Return (IRR) calculation, the value obtained was 234,59%, significantly higher than the 10% discount rate. This indicates that the investment in PT Growvi Indonesia provides a very high rate of return, thus declaring the business feasible and offering good future development prospects.

c. Net Benefit/Cost Ratio (B/C Ratio)

$$\begin{aligned}
 \text{B/C Ratio} &= \frac{\sum \text{PV (Benefit)}}{\sum \text{PV (Cost)}} \\
 &= \frac{434.340.333,52}{202.541.737} \\
 &= \mathbf{2,14}
 \end{aligned}$$

Based on the Net Benefit Cost Ratio (Net B/C) calculation, the value obtained was 2,14, meaning that every Rp1 of costs generates Rp.2,14 in benefits. Because this value is greater than 1, PT Growvi Indonesia's business is deemed feasible and demonstrates high efficiency in generating profits relative to costs.

d. Payback Period (PP)

$$\begin{aligned}
 \text{Initial Investment (Io)} &= \text{Rp } 53.430.000,00 \\
 \text{Remaining investment after Year 1} &= \text{Initial Investment} && - && \text{Cash Flow tahun 2025} \\
 &= \text{Rp } 53.430.000,00 && - && \text{Rp } 48.163.108,33 \\
 &= \text{Rp } 5.266.891,67 \\
 \text{Payback Period} &= \text{Cash Flow Tahun 1} && / && 12 \text{ bulan} \\
 &= \text{Rp } 9.457.461,65 \\
 &= \text{Initial Investment} && / && \text{Cash Flow Bulanan}
 \end{aligned}$$

$$= 5.266.891,67 / 9.457.461,65$$

$$= 0,56$$

Based on the Payback Period calculation, the investment of IDR 53,430,000 can be recovered within 12-13 months. This indicates a relatively quick payback period, lowering investment risk, and declaring PT Growvi Indonesia's business viable.

e. Break Event Point (BEP)

In this study, the BEP analysis was conducted on the Standard + Logo Paperbag product because it is one of the main products marketed by PT Growvi Indonesia.

Table 7. BEP calculation components

Component	Value (IDR)
Selling Price per Unit	15.000,00
Variable Cost per Unit (COGS)	8.452,65
Contribution Margin per Unit	6.547,35
Fixed Costs per Month	1.115.208,33
Interest Expense per Month	532.392,17
Depreciation Expense per Month	314.285,71

$$\text{BEP (Units)} = \text{Total Monthly Costs} \div (\text{Selling Price per Unit} - \text{Variable Cost per Unit})$$

$$\text{BEP} = 1.961.886,21 \div 6.547,35$$

$$\text{BEP} = \mathbf{299,65}$$

$$\text{BEP (Sales Revenue)} = \text{BEP (Units)} \times \text{Selling Price per Unit}$$

$$\text{BEP} = 299,65 \times 15,000$$

$$\text{BEP} = \mathbf{Rp\ 4.494.687,65}$$

Based on the Break Even Point (BEP) calculation, the value is 300 units, or IDR 4.494.687,65. This indicates that the company must sell at least that number each month to break even. Sales above 300 units will result in a profit, while sales below will result in a loss. Because sales have exceeded the break-even point, PT Growvi Indonesia's business is deemed feasible and has good potential for future development.

Environmental and Social Aspects

1. Identification of Benefits and Environmental Impacts

- a. Production Waste Management, PT Growvi Indonesia's production activities utilize oil palm frond waste as the main raw material, thereby helping to reduce the accumulation of biomass waste on the plantation. The production waste generated is relatively minimal, consisting of fiber residue, soaking water, and chemical residues such as NaOH and H₂O₂. Solid waste can be reused, while liquid waste requires further management. With its small production scale, the environmental impact is relatively low. However, going forward, the company needs to implement simple waste management practices to maintain sustainability as production capacity increases (Putri & Latifah, 2024).
- b. Contribution of the Circular Economy Concept, PT Growvi Indonesia implements the circular economy concept by processing oil palm frond waste into value-added, biodegradable packaging products that can be replanted and returned to nature through the biological cycle (Rahmadina, 2024). This approach creates a closed-loop system that minimizes waste and extends the resource cycle. Environmentally, this contributes to reducing single-use plastic waste, supporting a green economy, and lowering the carbon footprint through the use of local raw materials (Halim, 2021).

2. Identification of Social Impacts

- a. Labor Absorption, PT Growvi Indonesia's operational activities have the potential to absorb local labor, particularly in the production sector, which is still labor-intensive and semi-manual without requiring high technical skills. This has a positive impact on the local economy by creating alternative employment opportunities, including part-time work opportunities

depending on production needs. Going forward, companies need to balance labor absorption and production efficiency through the application of technology to maintain productivity without reducing social impacts (Putri & Latifah, 2024).

- b. Potential for Increasing Added Value for Farmers, growvi's utilization of oil palm fronds provides added value for farmers and plantation managers by converting plantation waste into economically valuable raw materials. This creates opportunities for additional income through the development of supply chains involving farmers as biomass suppliers while encouraging the productive utilization of agricultural waste (Anggryani et al., 2025). In economic terms, the utilization of oil palm fronds enables low-value plantation residues to be transformed into marketable materials for environmentally friendly products. This practice can increase the value of biomass resources, support local entrepreneurship, and strengthen economic linkages between the plantation sector and downstream industries. The success of PT Growvi Indonesia demonstrates the potential of agricultural waste to be transformed into environmentally friendly products with economic value. This finding supports the development of green industries in Indonesia by promoting circular economy practices, increasing the utilization of biomass resources, creating new business opportunities, and reducing environmental impacts from agricultural waste and plastic use.

CONCLUSION

Based on market, technical, managerial, legal, financial, environmental, and social analyses, PT Growvi Indonesia is feasible to develop. The key factors supporting business feasibility include strong product differentiation through plantable seed paper made from oil palm frond waste, growing demand for environmentally friendly products, abundant raw material availability, and positive financial performance reflected by a positive NPV, high IRR, Net B/C greater than 1, and a relatively short payback period. In addition, the business contributes to circular economy implementation, waste reduction, and increased economic value of agricultural biomass. However, improvements in production capacity, marketing strategies, supply chain management, and human resource development are needed to support future business growth.

Based on the research findings, this study is still general in nature and does not fully explore each aspect analyzed. Therefore, future research is recommended to focus on specific aspects of business feasibility, particularly consumer acceptance of plantable packaging products, the effectiveness of promotional and digital marketing strategies, and the environmental impacts of product use throughout its life cycle. Further studies may also examine customer purchasing behavior, willingness to pay for sustainable packaging, and the contribution of plantable seed paper products to waste reduction and circular economy implementation. Such focused analyses are expected to provide deeper insights for both business development and academic research.

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