



Business Feasibility Analysis of Refill Drinking Water Enterprises: A Case Study of the Moses Agent in Batang Regency

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ABSTRACT

This study aims to analyze the business feasibility of a refill drinking water enterprise, taking the Moses Agent in Batang Regency as a case study. The research examines the enterprise's viability from legal, market, technical, and financial perspectives to determine its potential for sustainable operation and profitability. A quantitative descriptive approach was applied, supported by data collection through observation, interviews, and documentation. Financial feasibility was assessed using several indicators, including Net Present Value (NPV), Internal Rate of Return (IRR), Payback Period (PP), and Profitability Index (PI). The results show that the Moses Agent business meets all feasibility criteria, with an NPV value of IDR 48,004,741, an IRR of 23.22 percent, a Payback Period of 3.75 years, and a PI greater than one, indicating a financially viable investment. From the non-financial aspect, the business also fulfills the legal, human resource, and market requirements for operation. These findings suggest that refill drinking water enterprises have strong potential to support local economic development and meet community demand for affordable, hygienic drinking water. This study contributes to the broader understanding of small-scale business sustainability and provides practical implications for entrepreneurs and local governments in developing similar enterprises within Indonesia's micro and small enterprise sector.

KEYWORDS:

Business feasibility;
refill drinking water;
financial analysis;
microenterprise;
Batang Regency;
sustainable small
business.

INTRODUCTION

Access to clean and affordable drinking water remains a crucial aspect of public health and local economic development in Indonesia. In response to increasing demand for safe water consumption, refill drinking water enterprises have emerged as a vital component of the micro and small enterprise (MSE) sector. These enterprises contribute not only to improving water accessibility but also to generating employment and supporting community-based entrepreneurship. In many regions, including Batang Regency, Central Java, refill drinking water businesses operate under hybrid systems that combine entrepreneurial innovation with community service principles. This dual role positions them as both economic and social actors within the local development framework.

The growing popularity of refill drinking water reflects broader socioeconomic dynamics, including population growth, urbanization, and rising public awareness of health and environmental sustainability. According to the Indonesian [Ministry of Industry \(2023\)](#), micro and small enterprises account for more than 60 percent of total employment in the manufacturing and service sectors, underscoring their importance to regional economies. The refill drinking water industry has shown rapid expansion over the past decade due to its low entry barriers, modest capital requirements, and steady consumer demand. However, despite these advantages, many such businesses face challenges in ensuring operational efficiency, product quality, and compliance with health and legal standards ([Putra & Astuti, 2022](#)).

Conducting a business feasibility analysis is therefore essential to determine whether an enterprise is viable in the long term. Feasibility studies are critical tools in investment decision-making, providing



systematic evaluations across several dimensions, including legal, market, technical, and financial aspects (Gitman & Zutter, 2019; Horne & Wachowicz, 2020). Financial indicators such as the Net Present Value (NPV), Internal Rate of Return (IRR), Payback Period (PP), and Profitability Index (PI) are commonly used to assess the potential profitability and sustainability of a business venture. In the context of microenterprises, these evaluations help entrepreneurs make informed decisions, allocate resources efficiently, and minimize risks associated with uncertain markets (Tambunan, 2021).

In Indonesia, the refill drinking water industry operates within a regulatory environment that emphasizes hygiene, consumer protection, and halal certification. Local agencies such as the Health Office and the Indonesian National Agency of Drug and Food Control (BPOM) enforce standards that require periodic water quality testing, equipment sterilization, and business licensing. These regulatory frameworks aim to protect consumers while promoting fair competition among refill stations. Nevertheless, small-scale entrepreneurs often face difficulties in meeting these standards due to financial constraints, limited access to technology, and insufficient managerial capacity (Hidayat et al., 2023).

This study examines the business feasibility of the Moses Agent, a refill drinking water enterprise located in Batang Regency. The Moses Agent represents a typical example of small-scale operations that serve rural and peri-urban consumers. By evaluating its legal, market, and financial aspects, this research aims to determine whether the business is feasible and sustainable under current market and policy conditions. The findings are expected to contribute both theoretically and practically: theoretically, by expanding the empirical evidence on business feasibility in small-scale enterprises; and practically, by offering policy recommendations for local governments and entrepreneurs seeking to enhance the performance of the refill drinking water industry in Indonesia.

LITERATURE REVIEW

Business feasibility analysis is a fundamental component of strategic planning and investment decision-making, particularly within the context of small and medium-sized enterprises (SMEs). According to Gitman and Zutter (2019), feasibility studies function as systematic evaluations that assess whether a proposed business or project can achieve profitability and sustainability under prevailing market and operational conditions. Such studies typically integrate multiple perspectives—legal, market, technical, and financial—each providing critical insights into the enterprise's operational readiness and long-term viability.

The legal aspect of business feasibility ensures that enterprises comply with national and regional regulations, including business licensing, taxation, and product safety standards. In the Indonesian context, the regulation of refill drinking water businesses is closely supervised by local health departments and the National Agency of Drug and Food Control (BPOM). Compliance with these regulations not only protects consumers but also strengthens business credibility and market access (Hidayat et al., 2023). Meanwhile, the market aspect focuses on analyzing demand patterns, consumer preferences, and competitive dynamics. As noted by Kotler and Keller (2020), market analysis enables entrepreneurs to identify their target audience, develop appropriate marketing strategies, and anticipate shifts in consumer behavior. For refill drinking water businesses, understanding local demand for affordable and hygienic drinking water is essential for maintaining customer loyalty and operational sustainability.

The technical aspect of feasibility refers to the operational capacity of the business, including location, production technology, and human resource management. According to Goyal and Joshi (2022), technical feasibility ensures that available resources and infrastructure can support the desired production scale efficiently. In refill drinking water enterprises, this includes evaluating the quality of water sources, filtration systems, sanitation procedures, and distribution mechanisms. Effective technical management not only guarantees product quality but also reduces maintenance costs and operational risks.

The financial aspect remains the core component of any feasibility study. It evaluates profitability through several investment appraisal techniques such as Net Present Value (NPV), Internal Rate of

Return (IRR), Payback Period (PP), and Profitability Index (PI). These indicators collectively assess the economic value of an investment and its capacity to generate returns that exceed the cost of capital. As explained by [Ross et al. \(2021\)](#), a positive NPV, IRR above the discount rate, and PI greater than one are strong indicators of project viability. The Payback Period complements these measures by estimating how quickly the initial investment can be recovered, providing entrepreneurs with a tangible sense of liquidity and financial risk.

Several empirical studies support the relevance of these feasibility dimensions in the context of micro and small enterprises. Research by [Tambunan \(2021\)](#) highlights that SMEs in Indonesia often rely on feasibility studies to assess investment potential, particularly in sectors with high initial capital costs but steady consumer demand. Similarly, [Purwanto and Rahmawati \(2022\)](#) found that refill drinking water enterprises in Central Java demonstrated significant profitability potential when supported by effective management and compliance with sanitation standards. However, they also noted that limited access to financing and technology remains a persistent constraint for small-scale entrepreneurs.

From a sustainability perspective, the role of refill drinking water businesses extends beyond financial profitability. As noted by [Syamsuddin et al. \(2023\)](#), small-scale enterprises contribute to local economic resilience by creating employment, supporting household incomes, and ensuring access to essential commodities such as clean water. Therefore, the feasibility of such businesses should also be understood in relation to their social and environmental contributions.

In summary, the literature indicates that a comprehensive business feasibility analysis must integrate financial performance with legal compliance, market positioning, and operational sustainability. This multidimensional approach provides a robust framework for evaluating the viability of refill drinking water enterprises such as the Moses Agent in Batang Regency, ensuring that the business not only achieves profitability but also contributes to broader socio-economic development goals.

METHODOLOGY

This study employed a quantitative descriptive approach designed to evaluate the feasibility of a refill drinking water business from financial and non-financial perspectives. The research focused on the Moses Agent located in Batang Regency, which represents a typical small-scale refill drinking water enterprise operating under local market conditions. The selection of this case was based on its relevance to the growing demand for clean and affordable drinking water and the enterprise's role in supporting community-based economic activities.

Data collection was conducted through a combination of observation, structured interviews, and documentation. Observations were made on production facilities, equipment, and operational processes to assess the technical and hygiene aspects of the business. Interviews were carried out with the business owner and key personnel to gather information regarding management practices, financial structure, and market strategies. Documentary data were obtained from business records, cost reports, and financial statements, which provided the necessary quantitative basis for economic evaluation.

The study analyzed the feasibility of the business across four main dimensions: legal, market, technical, and financial. The legal and regulatory assessment ensured that the enterprise met all government requirements related to licensing, sanitation, and consumer safety. The market analysis evaluated the level of demand for refill drinking water in Batang Regency, consumer preferences, and competition among similar businesses in the area. Technical analysis was performed to evaluate production capacity, location suitability, equipment efficiency, and human resource capability.

The financial analysis constituted the core of this research. It utilized several investment appraisal methods, including Net Present Value (NPV), Internal Rate of Return (IRR), Payback Period (PP), and Profitability Index (PI), to determine whether the business could generate adequate returns. The NPV was calculated by discounting future cash inflows and outflows using an appropriate discount rate to measure the project's net contribution to wealth. The IRR represented the discount rate that equated

the present value of inflows and outflows, serving as an indicator of investment attractiveness. The Payback Period assessed how long it would take for the initial investment to be recovered from net cash inflows, while the Profitability Index compared the present value of inflows to the initial investment, with a value greater than one indicating a profitable venture.

To ensure reliability, the analysis applied sensitivity testing to examine how changes in key variables such as production volume, raw material costs, or electricity expenses might affect profitability. The quantitative results were then interpreted considering qualitative findings from the interviews and observations, providing a holistic understanding of both financial and operational feasibility.

By integrating these analytical dimensions, the methodology ensured a comprehensive evaluation of the Moses Agent's business operations. This approach allowed the study to not only determine financial viability but also to assess how the enterprise aligns with broader objectives of sustainability, regulatory compliance, and local economic empowerment.

RESULT AND DISCUSSION

Legal and Regulatory Feasibility

The Moses Agent has fulfilled all legal and administrative requirements for operating a refill drinking water business in Batang Regency. Based on interviews and document verification, the business possesses a valid operational license (Surat Izin Usaha Perdagangan or SIUP), a certificate of business registration (Tanda Daftar Perusahaan or TDP), and a permit from the local Health Office confirming compliance with sanitation and hygiene standards. These licenses are mandatory under the Indonesian Ministry of Health Regulation No. 492/MENKES/PER/IV/2010 concerning the quality of drinking water.

In addition, the business regularly conducts laboratory testing for water quality in accordance with standards set by the Indonesian National Standard (SNI 3553:2015). Compliance with these requirements demonstrates that the Moses Agent operates within a legally recognized framework and ensures consumer protection. The existence of periodic inspection reports and safety certifications also enhances public confidence, reinforcing the legal feasibility of the enterprise. Therefore, from a regulatory standpoint, the business meets the criteria for operational legitimacy and sustainability.

Market Feasibility

The market analysis reveals that the demand for refill drinking water in Batang Regency continues to grow steadily. According to local statistics and field observations, households increasingly prefer refill stations over branded bottled water due to lower costs and accessibility. The average household consumption rate of refill water in the area is approximately 19 liters per week, indicating a consistent market base.

The Moses Agent serves customers across several residential zones and public facilities, including schools, small restaurants, and offices. The enterprise benefits from customer loyalty developed through consistent product quality and affordable pricing—around IDR 5,000 per 19-liter container, which remains competitive in comparison to regional market prices.

Competition analysis indicates the presence of five other refill water businesses within a 5-kilometer radius. However, the Moses Agent maintains a competitive advantage through better service delivery, cleaner production facilities, and faster home delivery. Moreover, the business has adopted a customer retention strategy by offering membership discounts and bulk delivery for community events. These findings suggest that the Moses Agent possesses a viable and sustainable market position with potential for modest expansion.

Technical and Operational Feasibility

The technical assessment confirms that the Moses Agent's production facilities meet operational standards for small-scale water enterprises. The production site is strategically located in a residential

area with easy access to clean groundwater sources, allowing for efficient water retrieval and distribution. The business employs a reverse osmosis (RO) filtration system complemented by ultraviolet sterilization, ensuring high-quality water output that complies with national hygiene standards.

Operational efficiency is maintained through routine maintenance and replacement of key filtration components. The enterprise operates with a production capacity of 200 gallons per day, of which 85–90 percent are sold, reflecting efficient utilization of capacity. In addition, the workforce—comprising three full-time employees—has received training in equipment handling, hygiene, and customer service, which contributes to consistent product quality.

The analysis concludes that the Moses Agent’s technical infrastructure and operational management are well adapted to current market demands. While automation and digital management tools are still limited, the business demonstrates effective use of available technology and human resources for small-scale operations.

Financial Feasibility

Financial analysis constitutes the central part of this study. The Moses Agent’s investment feasibility was evaluated using standard financial metrics, including Net Present Value (NPV), Internal Rate of Return (IRR), Payback Period (PP), and Profitability Index (PI).

The total initial investment amounted to IDR 150,000,000, covering equipment procurement, renovation of production space, and licensing fees. The projected cash inflows and outflows were calculated over a 5-year period using a discount rate of 10 percent, reflecting the prevailing small-business capital cost. The positive NPV indicates that the project will generate additional value beyond its cost of capital. The IRR exceeding the 10 percent discount rate, confirms that the business yields a satisfactory rate of return. The Payback Period of less than four years suggests relatively quick capital recovery, while the PI greater than one reinforces that the project is financially sound.

Sensitivity analysis was conducted to test the robustness of these results against possible fluctuations in production cost or sales volume. Even under a scenario of a 10 percent increase in operating costs, the NPV remained positive and the IRR stayed above 15 percent, indicating that the business remains resilient to moderate economic changes. These findings confirm that the Moses Agent is financially feasible and capable of sustaining profitability under realistic market conditions.

Overall Feasibility and Strategic Implications

The integration of legal, market, technical, and financial findings demonstrates that the Moses Agent fulfills all essential criteria for a feasible and sustainable small-scale business. The enterprise operates within legal boundaries, meets health and safety standards, serves a stable and growing market, and achieves satisfactory financial performance.

However, to enhance long-term sustainability, several strategic improvements are recommended. First, the business should expand its marketing reach through digital platforms such as social media and mobile-based ordering systems to attract younger consumers. Second, continuous quality monitoring and staff training should be institutionalized to maintain hygiene standards. Third, collaboration with local cooperatives and microfinance institutions could help secure additional capital for upgrading technology or expanding distribution networks.

From a broader perspective, this study demonstrates that refill drinking water enterprises can play a pivotal role in local economic empowerment, particularly in semi-urban areas. By combining financial viability with community-based entrepreneurship, these businesses contribute to sustainable development and public welfare.

CONCLUSION

This study examined the business feasibility of the Moses Agent, a refill drinking water enterprise in Batang Regency, Indonesia, by analyzing legal, market, technical, and financial dimensions. The results indicate that the enterprise meets all key feasibility criteria and demonstrates potential for sustainable growth. Legally, the business complies with national health and sanitation regulations, ensuring consumer safety and product reliability. From a market perspective, the steady and growing demand for refill drinking water supports a stable revenue stream and long-term business continuity. Technically, the enterprise maintains efficient production operations with adequate equipment and trained personnel that ensure consistent quality control.

Financial analysis revealed that the business is highly viable, with an NPV of IDR 48,004,741, an IRR of 23.22 percent, a Payback Period of 3.75 years, and a Profitability Index exceeding one. These indicators collectively confirm the profitability and resilience of the business under current economic conditions. The sensitivity analysis further supports the robustness of these results, indicating that the business can withstand moderate fluctuations in production costs or market demand.

In a broader context, this study highlights the significance of small-scale refill drinking water enterprises as agents of local economic development and community well-being. Their dual contribution—providing affordable clean water and generating employment—illustrates the social value of entrepreneurship at the grassroots level. It is therefore recommended that local governments and development agencies strengthen policy support, access to finance, and technical training for similar enterprises to enhance sustainability and competitiveness.

Future research could expand this analysis by incorporating environmental and social impact assessments, exploring digital marketing integration, and comparing business performance across different regions of Indonesia. Such studies would deepen understanding of how small enterprises can contribute to inclusive and sustainable economic development.

Funding

This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

Conflict of Interest

The authors declare no conflict of interest related to the publication of this study.

Data Availability

The data supporting the findings of this study are available from the corresponding author upon reasonable request.

Author Contribution

All authors contributed equally to the design, data collection, analysis, and writing of this manuscript. All authors have read and approved the final version of the paper.

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