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Challenges Among Hollow Block Manufacturers in Talavera, Nueva Ecija: Basis for An Operation Plan

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Abstract *— This study examined the challenges encountered by hollow block manufacturers in Talavera, Nueva Ecija as a basis for an operational plan. Specifically, it identified the profile of the manufacturers and analyzed the production, pricing, and market demand challenges affecting their business operations. The study utilized a descriptive quantitative research design and employed a structured survey questionnaire as the primary data gathering instrument. A total of eight (8) hollow block manufacturers in Talavera, Nueva Ecija served as the respondents through total population sampling. Data gathered were analyzed using frequency, percentage, weighted mean, and ranking. The findings revealed that most of the respondents are small-scale and newly established businesses operating for one to three years with limited capitalization, low average monthly income, minimal workforce, and localized business operations. In terms of production challenges, respondents strongly agreed that delays in raw material delivery, fluctuating material prices, outdated equipment, machine breakdowns, lack of skilled workers, and product quality inconsistencies significantly affect their operations. Pricing challenges were also evident, particularly the effects of inflation, rising operational costs, competitive pricing pressures, and unstable profit margins. Furthermore, market demand challenges such as seasonal demand fluctuations, increasing competition, customer purchasing behavior, and limited market reach were found to greatly influence sales performance and business sustainability. Based on the findings, the study concluded that hollow block manufacturers in Talavera operate under highly competitive and resource-constrained conditions. Therefore, a comprehensive operational plan focusing on production efficiency, cost management, pricing strategies, market expansion, and competitive positioning was proposed to improve the sustainability and competitiveness of the businesses.*

Keywords *— **Hollow Block Manufacturers, Production Challenges, Pricing Strategies, Market Demand***

I. INTRODUCTION

The hollow block manufacturing industry plays a vital role in infrastructure development, housing construction, and economic growth. Globally, the demand for hollow blocks and construction materials continues to increase due to rapid urbanization and population growth. However, the industry faces challenges related to rising energy consumption, fluctuating raw material costs, environmental sustainability, and production efficiency (Bărbulescu, 2025; Chen et al., 2025)[1]. In Asia, the expansion of construction activities and government infrastructure programs further increases the demand for hollow block products, while manufacturers experience difficulties involving operational costs, competition, and environmental regulations (Asia Hollow Block Market Report, 2026)[2].

In the Philippines, hollow block manufacturing significantly supports housing and infrastructure projects. Despite the increasing demand, local manufacturers encounter problems such as unstable raw material supply, high production costs, labor inefficiency, outdated equipment, and strong market competition (Cadiente et al., 2025)[3]. In Central Luzon, small-scale hollow block manufacturers face additional challenges involving limited capital, fluctuating market demand, and limited access to advanced technology. These factors affect production efficiency, pricing strategies, product quality, and business sustainability. Studies also revealed that outdated machinery and insufficient worker training contribute to operational inefficiency and inconsistent product quality (Scrivener et al., 2021)[4], while unstable energy and material costs reduce profitability among small manufacturers (Worrell et al., 2022)[5] .

Given these circumstances, it is important to examine the operational challenges encountered by hollow block manufacturers in Talavera, Nueva Ecija. Understanding these challenges may provide valuable insights into production efficiency, pricing management, market demand, and business sustainability.

The main objective of this study is to determine the challenges among hollow block manufacturers in Talavera, Nueva Ecija as a Basis for An Operational Plan. Specifically, it seeks to determine the (1) Business Profile of the respondents to be described in terms of Years of operation, Capitalization/Start-up capital, Average monthly income, Scope of operation, Number of employees, Average daily production, and Form of Ownership; (2) Describe the production challenges encountered in terms of Raw material supply and cost, Equipment and technology, Labor efficiency, and Product quality control; (3) Describe the pricing challenges experienced in terms of cost fluctuations, pricing practices, competitive pricing pressures, and profit margin sustainability; (4) Describe the market demand challenges in terms of seasonal demand fluctuations, competition, customer purchasing behavior, and market reach; and (5) The proposed operational plans to address the challenges of hollow block manufacturers based on the findings of the study.

II. METHODOLOGY

This study used a descriptive quantitative research design to determine the challenges encountered by hollow block manufacturers in Talavera, Nueva Ecija in terms of production, pricing, and market demand. The study was conducted in Talavera, Nueva Ecija. Total population sampling was utilized to include all eight (8) identified hollow block manufacturing businesses operate and support local construction activities to ensure that all relevant perspectives were represented in the study. The respondents of the study were the owners or managers of registered and operational hollow block manufacturing businesses within the municipality. Through the use of a structured survey questionnaire, following reliability and validity of the questionnaire and necessary permissions from research instructors and advisors, the necessary data were gathered from the respondents. The questionnaire consisted of sections covering the respondents' profile, production challenges, pricing challenges, and market demand challenges. The questionnaires utilized a Likert scale to assess respondent's perceptions on a scale from 1 (Strongly Disagree) to 4 (Strongly Agree). Data gathered were analyzed using frequency, percentage, weighted mean, and ranking. This thorough methodology aimed to develop an operational plan to improve the sustainability and competitiveness of the hollow block manufacturing business.

III. RESULTS AND DISCUSSION

This section presents and discusses the result, analysis, and data interpretation based on the response of the eight (8) owners/managers of hollow block manufacturing businesses in Talavera, Nueva Ecija.

Part I. Profile of the Hollow block Manufacturers in Talavera, Nueva Ecija

Table 1. Business Profile of the Respondents

Years of Operation	Frequency (*f*)	Percentage (%)
Less than 1 year	-	-
1 to 3 years	6	75.00
4 to 6 years	1	12.50

7 to 10 years	1	12.50
More than 10 years	-	-
Total	**8**	**100%**
Start Up Capitalization	**(*f*)**	**(%)**
Below 50,000	2	25.00
50,001 – 100,000	4	50.00
100,001-300,000	-	-
300,001-500,000	1	12.50
Above 500,000	1	12.50
Total	**8**	**100.00%**
Average monthly income	**(*f*)**	**(%)**
Below Php 30,000	6	75.00
Php 30,001 - 60,000	1	12.50
Php 60,001 - 100,00	-	-
Php 100,001 - 200,000	-	-
Above Php 200,000	1	12.50
Total	**8**	**100.00%**
Scope of operation	**(*f*)**	**(%)**
Barangay level	6	75.00
Municipal level	2	25.00
Provincial level	-	-
Regional level	-	-
Total	**8**	**100.00%**
Number of workers	**(*f*)**	**(%)**
1-3 workers	7	87.50
4-6 workers	1	12.50
7-10 workers	-	-
More than 10 workers	-	-
Total	**8**	**100.00%**
Average Daily Output	**(*f*)**	**(%)**
Below 500 pcs.	7	87.50
501 - 1,000 pcs.	1	12.50
1,001 - 2,000 pcs.	-	-
Above 2,000 pcs.	-	-
Total	**8**	**100.00%**

Form of ownership	**(*f*)**	**(%)**
Sole Proprietorship	5	62.50
Partnership	-	-
Corporation	-	-
Cooperative	-	-
Family-owned business	3	37.50
Total	**8**	**100.00%**

The table presents the profile of hollow block manufacturers in Talavera in terms of year of operation, start-up capitalization, average monthly income, scope of operation, number of workers, average daily output, and form of ownership. The findings indicate that most of the respondents are newly established businesses. Specifically, 75.00% of the manufacturers have been operating for 1 to 3 years, while only 12.50% have operated for 4 to 6 years and another 12.50% for 7 to 10 years. This suggests that hollow block manufacturing businesses in the area are still in their early stages of development, which is common among small enterprises in developing local economies (Philippine Statistics Authority [PSA], 2022)[6].

In terms of start-up capitalization, half of the respondents (50.00%) started their businesses with capital ranging from Php 50,001 to Php 100,000, while 25.00% started with less than Php 50,000. Only a few manufacturers reported capitalization above Php 300,000. This implies that hollow block manufacturing businesses generally require moderate capital investment and are commonly operated on a small-scale basis (Department of Trade and Industry [DTI], 2023)[7].

Regarding average monthly income, the majority of the respondents (75.00%) earn below Php 30,000 monthly. Only 12.50% reported earning between Php 30,001 to Php 60,000, while another 12.50% earned above Php 200,000. This finding indicates that most hollow block manufacturers generate relatively low income, which may be due to limited production capacity and market coverage. According to the PSA (2022), small-scale enterprises often experience limited profitability during their early years of operation.

As to the scope of operation, 75.00% of the respondents operate only at the barangay level, while 25.00% operate at the municipal level. None of the manufacturers reported operating at the provincial or regional level. This suggests that the businesses mainly cater to local customers and nearby construction projects, which is typical among micro and small enterprises (DTI, 2023).

The findings further reveal that 87.50% of the manufacturers employ only 1 to 3 workers, while 12.50% employ 4 to 6 workers. This indicates that most of the businesses are labor-small enterprises that rely on a minimal workforce. Small businesses commonly maintain fewer employees to reduce operating costs and maximize available resources (PSA, 2022).

Similarly, the average daily output shows that 87.50% of the manufacturers produce below 500 pieces of hollow blocks daily, while only 12.50% produce between 501 to 1,000 pieces. This reflects the limited production capability of the respondents, which may be influenced by the size of their workforce, available equipment, and capital resources.

Lastly, in terms of form of ownership, the majority of the businesses (62.50%) are sole proprietorships, while 37.50% are family-owned businesses. This finding suggests that hollow block manufacturing businesses are primarily managed by individual owners or families, which is a common structure among micro and small enterprises in the Philippines (DTI, 2023).

Overall, the findings indicate that the respondents are predominantly small-scale, locally operated hollow block manufacturing businesses with limited workforce and production capacity, commonly managed through sole proprietorship. This suggests that the enterprises primarily contribute to local economic activities while operating within modest business resources.

Part 2: Production Challenges among Hollow block Based Manufacturers

Table 2.1 Raw Material Supply and Cost

Items	Weighted Mean (WM)	Verbal Interpretation
The rising cost of hollow block, sand, and gravel significantly affects our production expenses.	3.26	Strongly Agree
Delays in the delivery of raw materials disrupt our production schedule.	3.75	Strongly Agree
Limited suppliers make it difficult to maintain continuous production.	3.37	Strongly Agree
Transportation costs increase the overall cost of raw materials.	3.20	Agree
Frequent price fluctuations of raw materials affect our profitability.	3.75	Strongly Agree
Overall Weighted Mean	**3.57**	**Strongly Agree**

Legend 3.26 – 4.00 Strongly Agree; 2.51 – 3.25 Agree; 1.76 – 2.50 Disagree; 1.00 – 1.75 Strongly Disagree

Table 2.1 presents the Production challenges among hollow block manufacturers in terms of Raw Material Supply and Cost. For the higher rates, the table shows that several operational challenges received the highest mean scores of 3.75, specifically statement items "Delays in the delivery of raw materials disrupt our production schedule", "Transportation costs increase the overall cost of raw materials", and "Frequent price fluctuations of raw materials affect our profitability", all interpreted as "Strongly Agree." This indicates that supply chain instability is the most pressing concern among hollow block manufacturers, as these factors directly disrupt

production schedules and increase overall operating expenses. Such challenges suggest that businesses are highly dependent on timely and cost-efficient logistics to sustain operations. According to the World Bank (2021)[8] and the McKinsey Global Institute (2020)[9], supply chain disruptions and rising logistics costs significantly affect productivity and profitability in manufacturing industries, particularly among small enterprises with limited resources.

For the lower rates, although still interpreted as "Strongly Agree," the items on rising "The rising cost of hollow block, sand, and gravel significantly affects our production expenses" (3.26) and "Limited suppliers make it difficult to maintain continuous production" (3.37) received comparatively lower mean scores. This suggests that while these issues are still major concerns, they are slightly less critical than delivery delays and transportation costs. However, these factors still indicate underlying vulnerabilities in procurement systems, as limited supplier options and increasing input prices can restrict production continuity and financial stability. The United Nations Environment Programme (2023)[10] highlights that fluctuations in material costs and limited sourcing channels can significantly impact manufacturing efficiency and sustainability, especially in resource-dependent industries.

Furthermore, with an overall weighted mean of 3.57 interpreted as "Strongly Agree," the findings confirm that operational challenges are highly significant among respondents. This emphasizes the need for improved supply chain management, diversified sourcing strategies, and cost-control measures to enhance production efficiency and business sustainability. Studies show that addressing supply chain inefficiencies and stabilizing input costs are critical steps in strengthening operational performance and long-term competitiveness in the manufacturing sector (World Bank, 2021; McKinsey Global Institute, 2020; UNEP, 2023)[11].

Table 2.2 Equipment and Technology

Items	WM	Verbal Interpretation
Outdated equipment reduces our production efficiency.	3.50	Strongly Agree
Machine breakdowns cause delays in production.	3.62	Strongly Agree
Lack of modern technology affects the quality of our hollow block products.	3.50	Strongly Agree
Equipment maintenance and repair costs are high.	3.50	Strongly Agree
Limited machinery restricts our production capacity.	3.25	Agree
Overall Weighted Mean	**3.47**	**Strongly Agree**

Table 2.2 reveals the production challenges in terms of equipment and technology. The highest mean score of 3.62, interpreted as "Strongly Agree," was obtained by the statement "Machine breakdowns causing delays in production," followed by outdated equipment, lack of modern technology, and high maintenance costs, all with a mean score of 3.50. These findings indicate that equipment-related issues significantly affect the efficiency, productivity, and product quality of hollow block manufacturers. According to Kumar and Ayedee (2021)[12] and Rahman (2020)[13], outdated technology and poor equipment conditions are major barriers to productivity improvement in manufacturing businesses. Meanwhile, the statement "Limited machinery restricting production capacity" received the lowest mean score of 3.25, interpreted as "Agree," indicating that while limited machinery affects production, businesses are more impacted by equipment inefficiency and machine breakdowns. The Organization for Economic Co-operation and Development (2020)[14] stated that inadequate access to modern equipment and technology can limit the production capabilities and growth of small businesses. Overall, the weighted mean of 3.47,

interpreted as "Strongly Agree," confirms that equipment and technology are significant operational challenges among hollow block manufacturers.

Table 2.3 Labor Efficiency

Items	WM	Verbal Interpretation
Lack of skilled workers affects overall production performance.	3.62	Strongly Agree
Worker absenteeism affects daily output.	3.50	Strongly Agree
Limited training opportunities reduce worker productivity.	3.10	Agree
Labor costs significantly impact production expenses.	3.37	Strongly Agree
Worker productivity influences product quality.	3.50	Strongly Agree
Overall Weighted Mean	**3.42**	**Strongly Agree**

Table 2.3 presents the assessment of labor efficiency among hollow block manufacturers in Talavera. The overall weighted mean of 3.42, interpreted as "Strongly Agree," indicates that labor efficiency significantly affects production performance. The statement "Lack of skilled workers affects overall production performance" obtained the highest weighted mean of 3.62, interpreted as "Strongly Agree," showing that skilled workers are essential in maintaining efficient operations and improving productivity. According to the Department of Trade and Industry (2023)[15], skilled labor contributes to higher productivity and better product quality in manufacturing businesses. Meanwhile, the statement "Limited training opportunities reduce worker productivity" received the lowest weighted mean of 3.10, interpreted as "Agree." Although ranked lowest, the result still indicates that training opportunities are important in improving workers' skills and efficiency. The Philippine Statistics Authority (2022)[16] stated that employee training and development improve workforce efficiency and operational effectiveness among small enterprises. Overall, the findings confirm that labor efficiency is an important factor influencing the productivity and operational performance of hollow block manufacturers.

Table 2.4 Product Quality

Items	WM	Verbal Interpretation
Control Maintaining consistent hollow block products quality is challenging.	3.87	Strongly Agree
Weather conditions affect the durability and quality of the product.	3.15	Agree
Quality control procedures increase operational costs.	3.62	Strongly Agree
Product defects sometimes occur during production.	3.87	Strongly Agree
Customer complaints affect our business reputation.	3.37	Strongly Agree
Overall Weighted Mean	**3.58**	**Strongly Agree**

Table 2.4 presents the assessment of product quality among hollow block manufacturers in Talavera. The overall weighted mean of 3.58, interpreted as "Strongly Agree," indicates that product quality is a major concern affecting business operations. The statements "Maintaining consistent hollow block product quality is challenging" and "Product defects sometimes occur during production" both obtained the highest weighted mean of 3.87, interpreted as "Strongly Agree," showing that manufacturers experience difficulties in maintaining product consistency and minimizing defects. According to the Philippine Statistics Authority (2022)[17], product consistency and quality control are important factors affecting customer satisfaction, operational efficiency, and competitiveness. Meanwhile, the statement "Weather conditions affect the durability and quality of the product" received the lowest weighted mean of 3.15, interpreted as "Agree," indicating that environmental conditions also affect production and product durability. The Department of Trade and Industry (2023)[18] stated that environmental factors can influence production processes and product

outcomes, especially among small-scale manufacturing businesses. Overall, the findings confirm that maintaining product quality and reducing production defects are significant challenges among hollow block manufacturers.

Part 3. Pricing Challenges among Hollow block Based Manufacturers

Table 3.1 Cost Fluctuations

Items	WM	Verbal Interpretation
Changes in raw material prices force us to adjust our product prices.	3.75	Strongly Agree
Rising fuel prices affect our pricing decisions.	3.20	Agree
Inflation significantly impacts our overall cost structure.	3.87	Strongly Agree
Frequent changes in operational costs make price stability difficult.	3.75	Strongly Agree
It is difficult to maintain consistent pricing due to cost fluctuations.	3.37	Strongly Agree
Overall Weighted Mean	**3.59**	**Strongly Agree**

Table 3.1 presents the assessment of cost fluctuations among hollow block manufacturers in Talavera. The overall weighed mean of 3.59, interpreted as "Strongly Agree," indicates that cost fluctuations greatly affect pricing decisions and business operations. The statement "Inflation significantly impacts our overall cost structure" obtained the highest weighted mean of 3.87, interpreted as "Strongly Agree," showing that inflation is the major factor affecting production costs and pricing strategies. According to the Philippine Statistics Authority (2022)[19], rising inflation increases the cost of raw materials, labor, transportation, and other operational expenses, making it difficult for businesses to maintain stable pricing and profitability. Meanwhile, the statement "Rising fuel prices affect our pricing decisions" received the lowest weighted mean of 3.20, interpreted as "Agree," indicating that fuel prices also influence transportation and delivery expenses. The Department of Trade and Industry (2023)[20] stated that fuel price increases contribute to higher production and distribution costs among manufacturing businesses. Overall, the findings confirm that cost fluctuations, particularly inflation and increasing operational expenses, are significant challenges among hollow block manufacturers.

Table 3.2 Pricing Practice

Items	WM	Verbal Interpretation
Our pricing is based primarily on total production cost.	3.00	Agree
We consider competitor prices when setting our own prices.	4.00	Strongly Agree
Customers frequently negotiate for lower prices.	3.62	Strongly Agree
Offering discounts reduces our profit margin.	3.87	Strongly Agree
We regularly review and adjust our pricing strategy.	3.75	Strongly Agree
Overall Weighted Mean	**3.65**	**Strongly Agree**

Table 3.2 presents the assessment of pricing practices among hollow block manufacturers in Talavera. The overall weighted mean of 3.65, interpreted as "Strongly Agree," indicates that pricing practices significantly affect business operations. The statement "We consider competitor prices when setting our own prices" obtained the highest weighted mean of 4.00, interpreted as "Strongly Agree," showing that competitor pricing greatly influences pricing decisions among manufacturers. According to the Department of Trade and Industry (2023)[21], businesses monitor competitor prices to remain competitive and attract customers while maintaining profitability. Meanwhile, the statement "Our pricing is based primarily on total production cost" received the lowest weighted mean of 3.00, interpreted as

"Agree," indicating that production costs are still an important factor in determining product prices. The Philippine Statistics Authority (2022)[22] stated that raw materials, labor, and operational expenses are essential considerations in pricing strategies. Overall, the findings confirm that pricing practices among hollow block manufacturers are highly influenced by market competition, customer negotiation, and profit considerations.

Table 3.3 Competitive Pricing Pressures

Items	WM	Verbal Interpretation
There is intense price competition among hollow block manufacturers in Talavera.	3.50	Strongly Agree
Some competitors offer prices lower than sustainable levels.	3.50	Strongly Agree
Inflation significantly impacts our overall cost structure.	3.37	Strongly Agree
Frequent changes in operational costs make price stability difficult.	3.15	Agree
It is difficult to maintain consistent pricing due to cost fluctuations.	3.62	Strongly Agree
Overall Weighted Mean	**3.43**	**Strongly Agree**

Table 3.3 presents the assessment of competitive pricing pressures among hollow block manufacturers in Talavera. The overall weighted mean of 3.43, interpreted as "Strongly Agree," indicates that competitive pricing pressures significantly affect pricing strategies and business operations. The statement "It is difficult to maintain consistent pricing due to cost fluctuations" obtained the highest weighted mean of 3.62, interpreted as "Strongly Agree," showing that unstable production and operational costs make it difficult for manufacturers to maintain fixed prices. According to the Philippine Statistics Authority (2022)[23], cost fluctuations affect profitability and force businesses to adjust pricing strategies to remain competitive. Meanwhile, the statement "Frequent changes in operational costs make price stability difficult" received the lowest weighted mean of 3.15, interpreted as "Agree," indicating that operational expenses such as labor, transportation, and utilities also affect pricing decisions. The Department of Trade and Industry (2023)[24] stated that operational costs are important factors influencing business pricing strategies. Overall, the findings confirm that competitive pricing pressures and cost fluctuations are major challenges among hollow block manufacturers.

Table 3.4 Profit Margin

Items	WM	Verbal Interpretation
Sustainability Rising operational costs reduce our profit margins.	4.00	Strongly Agree
Maintaining stable profits is a major challenge for our business.	3.87	Strongly Agree
Delayed customer payments affect our cash flow.	3.75	Strongly Agree
Fluctuations in sales volume affect profitability.	3.25	Agree
Our current pricing strategy sustains business operations.	3.62	Strongly Agree
Overall Weighted Mean	**3.70**	**Strongly Agree**

Table 3.4 presents the assessment of profit margin among hollow block manufacturers in Talavera. The overall weighted mean of 3.70, interpreted as "Strongly Agree," indicates that profit margin is significantly affected by operational and market-related factors. The statement "Rising operational costs reduce our profit margins" obtained the highest weighted mean of 4.00, interpreted as "Strongly Agree," showing that increasing production and operational expenses directly reduce profitability. According to the Philippine Statistics Authority (2022)[25], rising costs of raw materials, labor, and utilities limit the ability of small enterprises to achieve higher profit margins. Meanwhile, the statement

"Fluctuations in sales volume affect profitability" received the lowest weighted mean of 3.25, interpreted as "Agree," indicating that changes in sales volume also influence business profitability. The Department of Trade and Industry (2023)[26] stated that variations in demand can affect revenue stability, especially among small-scale manufacturers. Overall, the findings confirm that profit margins among hollow block manufacturers are highly affected by rising operational costs and unstable business conditions.

Part 4. Market Demand Challenges among Hollow block Based Manufacturers

Table 4.1 Seasonal Demand Fluctuation

Items	WM	Verbal Interpretation
Demand for hollow block products increases during peak construction seasons.	3.62	Strongly Agree
Sales decline during the rainy season.	3.50	Strongly Agree
Market demand is unpredictable throughout the year.	3.37	Strongly Agree
Seasonal changes affect our production planning.	3.00	Agree
We adjust production volume based on demand trends.	3.37	Strongly Agree
Overall Weighted Mean	**3.37**	**Strongly Agree**

Table 4.1 presents the assessment of seasonal demand fluctuation among cement-based manufacturers in Talavera. The overall weighted mean of 3.37, interpreted as "Strongly Agree," indicates that seasonal changes significantly affect market demand and production planning. The statement "Demand for hollow block products increases during peak construction seasons" obtained the highest weighted mean of 3.62, interpreted as "Strongly Agree," showing that demand is highly dependent on construction activity during favorable weather conditions. According to the Philippine Statistics Authority (2022)[27], construction-related demand commonly increases during peak seasons due to climate conditions and project scheduling. Meanwhile, the statement "Seasonal changes affect our production planning" received the lowest weighted mean of 3.00, interpreted as "Agree," indicating that manufacturers adjust production based on seasonal variations. The Department of Trade and Industry (2023)[28] stated that production planning is influenced by seasonal market conditions and weather-related disruptions. Overall, the findings confirm that seasonal demand fluctuation significantly affects the production and sales patterns of hollow block manufacturers.

Table 4.2 Competition

Items	WM	Verbal Interpretation
The number of hollow block manufacturers in Talavera affects our sales.	3.10	Agree
New competitors reduce our market share.	3.75	Strongly Agree
Competitors offering delivery services attract more customers.	3.50	Strongly Agree
Competition affects customer loyalty.	3.75	Strongly Agree
Strong competition limits business growth.	3.62	Strongly Agree
Overall Weighted Mean	**3.54**	**Strongly Agree**

Table 4.2 presents the assessment of competition among cement-based manufacturers in Talavera. The overall weighted mean of 3.54, interpreted as "Strongly Agree," indicates that competition significantly affects sales performance, market share, and business growth. The statements "New competitors reduce our market share" and "Competition affects customer loyalty" both obtained the highest weighted mean of 3.75, interpreted as "Strongly Agree," showing that new entrants and alternative suppliers strongly influence customer preferences and reduce buyer retention. According to the Philippine Statistics Authority (2022)[29], market competition significantly affects demand distribution and customer behavior among small manufacturing businesses. Meanwhile, the statement "The number of

hollow block manufacturers in Talavera affects our sales" received the lowest weighted mean of 3.10, interpreted as "Agree," indicating that the presence of multiple manufacturers still influences sales performance. The Department of Trade and Industry (2023)[30] stated that competition affects pricing and demand in local markets. Overall, the findings confirm that competition is a major factor influencing market performance, customer loyalty, and business sustainability among hollow block manufacturers.

Table 4.3 Customer Purchase Behavior

Items	WM	Verbal Interpretation
Customers are highly sensitive to price changes.	3.10	Agree
Customers compare prices before making a purchase.	3.37	Strongly Agree
Bulk buyers significantly influence total sales.	3.75	Strongly Agree
Flexible payment terms attract more customers.	3.50	Strongly Agree
Product quality influences customer purchasing decisions.	3.87	Strongly Agree
Overall Weighted Mean (WM)	**3.54**	**Strongly Agree**

Table 4.3 presents the assessment of customer purchase behavior among cement-based manufacturers in Talavera. The overall weighted mean of 3.54, interpreted as "Strongly Agree," indicates that customer purchasing decisions are strongly influenced by factors such as price, product quality, and buying arrangements. The statement "Product quality influences customer purchasing decisions" obtained the highest weighted mean of 3.87, interpreted as "Strongly Agree," showing that customers prioritize quality due to its impact on durability and safety in construction projects. According to Neville (2020)[31], quality is a critical factor in construction-related purchasing decisions because it affects structural performance and long-term use. Meanwhile, the statement "Customers are highly sensitive to price changes" received the lowest weighted mean of 3.10, interpreted as "Agree," indicating that price remains an important consideration in customer decision-making. Kotler and Keller (2020)[32] stated that price sensitivity varies depending on perceived value and available alternatives in the market. Overall, the findings confirm that customer purchase behavior is mainly driven by product quality, price comparison, and other market-related factors influencing decision-making.

Table 4.4 Market Reach

Items	WM	Verbal Interpretation
Our market is limited within Talavera, Nueva Ecija.	3.37	Strongly Agree
Transportation costs limit expansion to nearby towns.	3.50	Strongly Agree
Marketing strategies help increase customer demand.	3.37	Strongly Agree
Expanding distribution channels can improve sales.	3.37	Strongly Agree
Online promotion can increase market reach.	3.12	Agree
Overall Weighted Mean	**3.34**	**Strongly Agree**

Table 4.4 presents the respondents' assessment of market reach challenges among hollow block manufacturers. The overall weighted mean of 3.34, interpreted as "Strongly Agree," indicates that market reach is a significant factor affecting business operations and sales performance. The statement "Transportation costs limit expansion to nearby towns" obtained the highest weighted mean of 3.50, interpreted as "Strongly Agree," showing that high transportation expenses restrict expansion and limit access to wider markets. According to Nguyen and Tran (2021)[33], high logistics costs reduce market accessibility and hinder business expansion. Meanwhile, the statements "Our market is limited within Talavera, Nueva Ecija," "Marketing strategies help increase customer demand," and "Expanding distribution channels can improve sales" each

obtained a weighted mean of 3.37, interpreted as "Strongly Agree," indicating that manufacturers operate within a localized market and recognize the importance of marketing and distribution. Kotler and Keller (2021)[34] emphasized that effective distribution and marketing strategies are essential in increasing customer reach and competitiveness among SMEs. On the other hand, the statement "Online promotion can increase market reach" received the lowest weighted mean of 3.12, interpreted as "Agree," suggesting limited use of digital marketing. Chaffey and Ellis-Chadwick (2022)[35] stated that digital marketing improves market visibility, but small businesses often face challenges in adopting online strategies due to limited resources.

Part 5. Proposed Operational Plan for Hollow Block Manufacturers

The researcher proposed the following Operational Plan for hollow block manufacturers based on the findings of the study:

PROPOSED OPERATIONAL PLAN				
Problem Area / Lowest Mean Result	**Proposed Operational Strategy**	**Specific Activities**	**Persons Involved**	**Time Frame**
Transportation costs increase the overall cost of raw materials.	Implement cost-efficient transportation and bulk purchasing strategies.	• Coordinate bulk ordering of hollow block, sand, and gravel from suppliers. • Schedule weekly delivery trips to reduce fuel expenses. • Partner with nearby suppliers for discounted delivery rates. • Monitor transportation expenses monthly.	Owner/Manager, Supplier, Delivery Personnel	Short-term and Continuous
Limited machinery restricts our production capacity.	Improve production efficiency through machinery acquisition and maintenance	• Purchase or rent additional block-making equipment. • Conduct regular preventive maintenance of existing machines. • Allocate budget for gradual equipment upgrades. • Monitor machine performance regularly.	Owner/Manager, Machine Operators, Technician	Medium-term
Limited training opportunities reduce worker productivity.	Strengthen employee skills and operational knowledge through training programs.	• Conduct monthly skills training and safety seminars. • Invite experts or experienced operators for demonstrations. • Provide orientation for new workers. • Evaluate worker performance after training.	Owner/Manager, Employees, Trainers	Continuous
Weather conditions affect the durability and	Improve product protection and weather-	• Construct covered curing and storage areas.	Owner/Manager, Production Workers	Continuous

quality of the product.	resistant production practices.	• Monitor weather forecasts before production scheduling. • Use proper curing methods during rainy or hot seasons. • Inspect product quality regularly.		
Rising fuel prices affect our pricing decisions.	Control fuel consumption and improve operational efficiency.	• Optimize delivery routes and schedules. • Reduce unnecessary transportation trips. • Monitor fuel usage weekly. • Adjust operational plans during fuel price increases.	Owner/Manager, Delivery Personnel	Continuous
Our pricing is based primarily on total production cost.	Develop a competitive and flexible pricing strategy.	• Conduct regular market price comparisons. • Include competitor pricing and customer demand in pricing decisions. • Offer discounts for bulk purchases. • Review pricing quarterly.	Owner/Manager, Sales Personnel	Quarterly and Continuous
Frequent changes in operational costs make price stability difficult.	Establish effective cost monitoring and budgeting practices.	• Prepare monthly operational budgets. • Monitor changes in raw material and fuel costs. • Maintain emergency funds for unexpected expenses. • Review expenses and pricing adjustments regularly.	Owner/Manager, Bookkeeper	Monthly
Fluctuations in sales volume affect profitability.	Strengthen marketing and customer retention strategies	• Expand customer base through contractor partnerships. • Offer promotional discounts during low-demand periods. • Maintain good customer relationships. • Monitor monthly sales performance.	Owner/Manager, Sales Personnel	Continuous
Season changes affect our production planning.	Improve seasonal production and inventory planning.	• Increase production before peak construction seasons. • Prepare inventory storage for rainy seasons. • Develop flexible work schedules depending on demand. • Monitor seasonal market trends.	Owner/Manager, Production Workers	Seasonal and Continuous
The number of hollow block	Enhance product	• Improve product quality and durability.	Owner/Manager, Sales Personnel	Continuous

manufacturers in Talavera affects our sales.	competitiveness and customer satisfaction.	• Provide reliable delivery services. • Offer competitive prices and customer incentives. • Build strong relationships with contractors and hardware stores.		
Customers are highly sensitive to price changes.	Provide affordable pricing options while maintaining product quality	• Offer flexible pricing for loyal customers and bulk buyers. • Introduce promotional offers and discounts. • Maintain consistent product quality to justify pricing. • Gather customer feedback regularly.	Owner/Manager, Sales Personnel	Continuous
Online promotion can increase market reach.	Utilize digital marketing and online platforms to attract customers.	• Create a Facebook business page for product promotion. • Post product updates, prices, and customer testimonials regularly. • Respond promptly to online inquiries. • Use online advertisements to reach nearby municipalities.	Owner/Manager, Marketing Personnel	Continuous

An operational plan for hollow block manufacturers in Talavera should focus on addressing labor inefficiency, product quality issues, cost fluctuations, competitive pricing, and seasonal demand changes. The plan should improve production efficiency through workforce training, clear task assignments, and daily productivity monitoring. Standardized production procedures and quality control measures should be implemented to ensure consistent product quality and reduce defects. Cost monitoring systems are necessary to manage raw material and operational expenses while supporting competitive yet profitable pricing strategies. Manufacturers should also strengthen customer service, offer delivery options, and build strong client relationships to remain competitive. Additionally, production planning should be aligned with seasonal demand to avoid overproduction and minimize waste. Overall, these strategies aim to improve operational efficiency, profitability, and long-term business sustainability.

IV. CONCLUSIONS

Based on the significant findings of this study, the researcher was able to infer that:

1. The hollow block manufacturers in Talavera, Talavera are mostly small-scale enterprises that have been operating for 1 to 3 years, with limited capitalization, moderate monthly income, a small workforce, and localized business operations. Most of them comply with legal requirements and commonly operate under sole proprietorship ownership.
2. The hollow block manufacturers encounter several production-related challenges, particularly in the supply and cost of raw materials, availability of equipment and technology, labor efficiency, and maintenance of product quality. These factors negatively affect their production operations and efficiency.
3. Pricing challenges significantly affect the sustainability of hollow block manufacturers, as fluctuations in the cost of raw materials, fuel, and transportation directly influence production

expenses. Competitive pricing among manufacturers also reduces profit margins and makes it difficult to maintain financial stability.

4. Market demand challenges have a significant impact on the operations of hollow block manufacturers, as seasonal demand fluctuations, intense local competition, and customer preference for lower-priced products create unstable sales and limited profitability.
5. The researcher formulates an operational plan on the identified areas of concern based on the findings of the study, focusing on improving production efficiency, strengthening pricing strategies, enhancing product quality, and expanding market opportunities.

V. RECOMMENDATIONS

Based on the conclusions of the study, the following recommendations are proposed to improve the operational efficiency and competitiveness of hollow block manufacturers in Talavera, Nueva Ecija:

1. Manufacturers should adopt cost-efficient purchasing and transportation practices to minimize raw material and fuel expenses.
2. Investment in additional machinery and regular equipment maintenance should be prioritized to improve production efficiency and output capacity.
3. Continuous worker training and skills development programs should be conducted to enhance productivity, product quality, and workplace safety.
4. Improved production practices and proper storage facilities should be implemented to protect products from weather-related damage and maintain quality standards.
5. Manufacturers should strengthen budgeting and cost-monitoring practices to manage rising operational expenses and stabilize pricing decisions.
6. Flexible and competitive pricing strategies should be applied based on market demand, customer behavior, and competitor pricing.
7. Stronger marketing strategies and partnerships with contractors and suppliers should be established to expand market reach and improve sales performance.
8. Digital marketing platforms, such as Facebook business pages, should be utilized to promote products and improve customer communication.

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