BIJUPATTNAIK INSTITUTE OF INFORMATION TECHNOLOGY & MANAGEMENT STUDIES(BIITM),BHUBANESWAR

Plot No.F/4,Chandaka Industrial Estate ,Infocity ,Patia Bhubenswar-24

Aproved By AICTE,Govt of India I Affiliated to BPUT ,Odisha I NAAC Accredited I ISO 9001: 2015

SUMMER INTERNSHIP PROJECT 2025

REPORT TITLE

Cost Benefit Analysis of a proposed manufactring unit with refrence to pavor & pre cast wall

SUBMITTED BY

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MBA Batch : 2024-2026

University Regn No :2406258133

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BIJU PATNAIK INSTITUTE OF INFORMATION TECHNOLOGY
& MANAGEMENT STUDIES (BIITM), BHUBANESWAR
Plot No. F/4, Chandaka Industrial Estate, Infocity, Patia, Bhubaneswar-24
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CERTIFICATE OF FACULTY/INTERNAL GUIDE

This is to certify that Mr Pinku Das, bearing university registration no 2406258133 of 2024-26 batch, has completed his/her summer internship at Expllence Consultancy PVT.LTD (organization name) from 16/07/2025 to 26/07/2025 under the supervision of Mr Somakanta Jethi (corporate guide) and has submitted this project report under my guidance in partial fulfilment of the requirements for award of the degree of Master of Business Administration at Biju Patnaik Institute of Information Technology and Management Studies, Bhubaneswar. To the best of my knowledge and belief, this project report has been prepared by the student and has not been submitted to any other institute or university for the award of any degree or diploma.

Date:

Place: Bhubaneswar

Dr. Chinmaya Kumar Rout

Asst.Prof.(Finance)

EXPLLENCE

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Date: 26/07/2025

TO WHOM IT MAY CONCERN

INTERNSHIP COMPLETION CERTIFICATE

This is to certify that **PINKU DAS** , son of **Mr. Niranjan Das,** has successfully completed his internship at **EXPLLENCE CONSULTANCY PRIVATE LIMITED** from **16/06/2025** to **26/07/2025**.

During the internship period, he was assigned to the **"Department of Finance & Accounts"** and was involved in "Business Qualitative and Quantitative Analysis" of an project.

PINKU DAS has demonstrated a keen interest in learning, showed dedication towards work, and maintained a professional attitude throughout the internship duration. He also exhibited good communication skills and worked well both independently and as part of a team.

We wish him all the best in his future academic and professional endeavors.

Sincerely,

EXPLLENCE CONSULTANCY PVT LTD

Somakanta Jethi Director

Somakanta Jethi
Director
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DECLARATION

I, Mr Pinku Das Bearing university registration no 2406258133 (2024-26 batch), hereby declare that the project report titled Cost Benefit Analysis of a proposed manufactring unit with refrence to pavor & pre cast wall is based on my internship at Expllence Consultancy pvt.ltd (organization name), during the period 16/06/2025 to 26/07/2025 and is an original work done by me under the supervision of Mr Somakanta Jethi (Corporate Guide) and Dr Chinmaya Kumar Rout (Internal Guide). This report is being submitted to Biju Patnaik Institute of Information Technology and Management Studies, Bhubaneswar, affiliated to Biju Patnaik University of Technology, Odisha, in partial fulfilment of the requirements for the award of the degree of Master of Business Administration. This project report has not been submitted to any other institute/university for the award of any degree or diploma.

Date:

Place: Bhubaneswar Signature:

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1.Introduction

Business research is the foundation of effective decision-making in any industry, as it provides structured insights into market opportunities, competition, customer needs, and growth potential. In the context of India's fast-growing construction and infrastructure sector, the demand for cost-effective, durable, and sustainable building materials has significantly increased. Among these, paver blocks and precast concrete walls have emerged as strong alternatives to traditional construction methods, driven by the need for speed, efficiency, and long-term performance.

This business research, conducted by Expllence Consultancy Pvt. Ltd., focuses on analyzing the Paver Block and Precast Wall industry, with a partic

ular emphasis on the regional market in Odisha, where rapid urbanization, infrastructure expansion, and housing development are creating robust demand. The study aims to explore the industry dynamics, including market size, competitive structure, customer preferences, barriers to entry, emerging trends, and technological innovations.

Furthermore, the research investigates the role of manufacturing enterprises, suppliers, contractors, and end-users within the ecosystem. It evaluates how local producers are competing with established national players, how government policies and environmental regulations are shaping the industry, and how businesses can leverage innovation in design, sustainability practices, and modern manufacturing technology to gain competitive advantage.

The purpose of this research is twofold:

1. To provide a comprehensive understanding of the paver block and precast wall sector from a business and financial perspective.
2. To generate actionable insights that will help both new entrants and existing players make informed strategic choices regarding investment, production capacity, product differentiation, and market expansion.

By applying structured business research tools such as Porter's Five Forces, SWOT Analysis, Product Life Cycle (PLC), and Financial Projections, this study not only highlights the current opportunities but also anticipates future trends that will define the industry in the coming decade.

Expllence Consultancy Pvt. Ltd., with its expertise in financial advisory and project consultancy, positions this research as a roadmap for entrepreneurs, investors, and policymakers who seek to understand the growth potential of the paver block and precast wall industry in Odisha and beyond.

1.2 Objective of Study

The primary objective of this business research is to provide a comprehensive understanding of the Paver Block and Precast Wall Manufacturing Industry, enabling investors, entrepreneurs, and stakeholders to make informed decisions. The study is designed to achieve the following specific objectives:

Industry Understanding

- To analyze the current state and structure of the paver block and precast wall industry in India and specifically in Odisha.
- To examine the market size, growth trends, and demand potential across different segments such as residential, commercial, industrial, and government infrastructure projects.
- To identify key players, their market share, and competitive strategies within the industry.

Market Analysis

- To study customer segments including contractors, builders, real estate developers, government agencies, and retail buyers.
- To identify customer needs, preferences, and buying behavior, which influence product features, pricing, and quality expectations.
- To analyze competitors' product offerings, pricing models, and differentiation strategies, enabling better positioning for new entrants.

Technological & Operational Insights

- To understand the manufacturing process for paver blocks and precast walls, including manual, semi-automatic, and fully automatic methods.
- To assess technological innovations like eco-friendly materials, recycled aggregates, modular precast systems, and automation.
- To evaluate operational efficiencies, cost reduction opportunities, and quality control measures.

Financial Feasibility & Investment Potential

- To estimate capital investment, operating costs, and projected returns for setting up a paver block and precast wall unit.
- To analyze funding options, government incentives, and financial risk factors.
- To provide a roadmap for profitability and sustainable growth.

Regulatory & Policy Assessment

- To examine government regulations, quality certifications, and environmental norms applicable to manufacturing and construction use.
- To analyze state and central government schemes that support MSMEs and construction material manufacturers.

Emerging Trends & Future Outlook

- To identify emerging trends in construction and infrastructure, including sustainable building practices, smart city initiatives, and modular construction solutions.
- To project industry growth over the next 5–10 years, highlighting opportunities and challenges for new and existing players.

Strategic Recommendations

- To provide actionable insights for entrepreneurs, investors, and policymakers regarding production capacity, market entry, product differentiation, and expansion strategies.
- To suggest marketing, operational, and technological strategies that can enhance competitive advantage in the paver block and precast wall industry.

1.3 Scope of Study

The present business research on Paver Block and Precast Wall Manufacturing Industry conducted by *Expllence Consultancy Pvt. Ltd.* is designed to evaluate the growth potential, competitive environment, and business opportunities in the construction materials sector. The scope of this study covers the following dimensions:

Industry Coverage

- Analysis of the construction and infrastructure sector with a focus on paver blocks and precast walls as substitutes for conventional building materials.
- Examination of national, regional, and local markets, with special emphasis on Odisha, where rapid real estate, road development, and urban infrastructure projects drive demand.

Market Analysis

- Estimation of market size, growth rate, and demand potential for paver blocks and precast walls in different segments such as residential, commercial, and government projects.
- Identification of current players, their relative market shares, and competitive practices.
- Study of customer segments including contractors, builders, developers, government agencies, and retail buyers.

Competitive Environment

- Evaluation of the nature of competition (local manufacturers vs. branded/national players).
- Comparative analysis of product features, pricing strategies, and quality standards adopted by competitors.
- Assessment of entry barriers, exit challenges, and substitution threats.

Technological and Operational Aspects

- Review of the manufacturing processes for paver blocks and precast walls, including manual, semi-automatic, and fully automatic systems.
- Study of emerging technologies such as eco-friendly pavers, fly ash utilization, and modular precast solutions.
- Exploration of opportunities for cost reduction, standardization, and quality improvement.

Financial and Investment Feasibility

- Analysis of capital requirements, operating costs, and expected returns from setting up and running the unit.
- Study of funding options including bank loans, government subsidies, and private investment.
- Risk-return assessment for entrepreneurs and investors.

Regulatory and Policy Framework

- Examination of government policies, environmental norms, and quality certifications (e.g., ISI standards, ISO certifications) applicable to the industry.
- Review of state-level incentives and schemes for promoting MSMEs in Odisha.

Emerging Trends and Future Outlook

- Assessment of growth drivers such as smart cities, affordable housing schemes, and highway expansion.
- Impact of sustainability practices like recycled aggregates and green construction norms.
- Projections for industry growth in the next 5–10 years.

Scope Boundaries

- The study primarily focuses on paver block and precast wall units and does not deeply cover other cement-based products like tiles, hollow blocks, or ready-mix concrete.
- The research is regional with a focus on Odisha, but trends from national and global markets are also referenced for comparative insights.
- The analysis is strategic and financial in nature, not limited to purely technical design or engineering details.

1.4 Limitation of Study

Despite careful planning and execution, this research on the Paver Block and Precast Wall industry has certain limitations that should be acknowledged:

Limited Secondary Data Availability

- The sector is largely unorganized in India, especially in Odisha, and lacks comprehensive published data.
- Most available data comes from government reports, small case studies, or industry associations, which may not fully capture the actual market scenario.

Geographical Constraints

- The study is mainly focused on Bhubaneswar and nearby regions.
- Results may not be completely generalizable to other states or regions where construction practices, demand, and regulations vary.

Sample Size and Representation

- Customer and competitor feedback were collected from a limited number of dealers, contractors, and construction companies.
- This may not fully represent the opinions of the broader population of stakeholders in the industry.

Dynamic Market Conditions

- The construction and real estate industry is highly influenced by government policies, infrastructure projects, raw material prices, and seasonal variations.
- Rapid changes in these factors may reduce the long-term relevance of the study's findings.

Reliance on Assumptions

- Financial projections, break-even analysis, and demand forecasts are based on certain assumptions regarding sales, cost structure, and market growth.
- Any deviation in real-world conditions may lead to different outcomes.

Technology and Process Limitations

- The study does not deeply cover advanced automation or large-scale mechanization, as the focus is on small to medium-scale manual and semi-mechanized units.
- Findings may not apply to highly mechanized plants.

Time Constraint

- The research was conducted within a limited time frame, restricting in-depth longitudinal study of market trends and customer behavior.

Unaccounted External Factors

- External issues like environmental policies, climate impacts, global raw material price fluctuations, and unforeseen events (e.g., pandemics, political changes) were not deeply studied but can significantly affect the industry.

2. Literature Review

The literature review provides a comprehensive understanding of existing research, market studies, and industry reports on paver blocks and precast wall systems. It helps establish the theoretical and practical foundation for the present business research.

Paver Block Industry

- Definition and Use: Paver blocks are precast concrete units used in pavement construction for roads, pathways, and landscaping. They are preferred for their durability, low maintenance, and aesthetic appeal.
- Global and Indian Market Trends:
  - Studies indicate growing demand for eco-friendly and recycled-material pavers globally.
  - In India, the urban development, road infrastructure projects, and housing initiatives have driven paver block adoption (Source: Ministry of Housing & Urban Affairs, 2022).
- Material Composition and Innovation:
  - Research by Kumar et al. (2021) highlights the use of fly ash, slag, and recycled aggregates in paver block production, improving strength and sustainability.
- Challenges in the Industry:
  - Literature points to quality control, raw material costs, and skilled labor shortages as major challenges for manufacturers.
- Market Potential:
  - According to a report by ResearchAndMarkets (2023), the Indian paver block market is expected to grow at a CAGR of 6–7%, driven by urbanization and infrastructure projects.

Precast Wall Industry

- Definition and Application: Precast walls are factory-made concrete panels used for building construction, boundary walls, and industrial facilities. They reduce construction time, labor cost, and material wastage.
- Global Perspective:
  - Literature highlights that modular precast systems are increasingly adopted in Europe and Asia for speed, durability, and green construction compliance.
- Indian Scenario:

    - Studies show rising adoption in commercial, residential, and government infrastructure projects in India due to cost-effectiveness and faster execution.
    - Precast walls are aligned with smart city projects and affordable housing schemes in states like Odisha.
- Technological Trends:
    - Use of reinforced concrete, modular paneling, and automated production lines is widely reported.
    - Innovations like lightweight panels and high-strength composites enhance structural performance.

Comparative Studies

- Literature comparing traditional construction vs precast/paver solutions indicates:
    - Time Efficiency: Precast walls and paver blocks reduce project timelines by 30–40%.
    - Cost Benefits: Lower labor and material wastage.
    - Quality & Durability: Consistent production quality ensures long-term performance.
- Research (Sharma & Singh, 2020) highlights that firms adopting automated manufacturing achieve higher output and lower unit cost.

Regulatory and Sustainability Insights

- Studies emphasize adherence to BIS (Bureau of Indian Standards), IS codes, ISO certifications, and environmental regulations.
- Sustainable construction practices such as use of fly ash, recycled aggregates, and eco-friendly production are gaining attention in scholarly and industry literature.
- Government policies supporting MSMEs, affordable housing, and smart cities are highlighted as growth enablers.

Gaps in Literature

- Most existing studies focus on technical specifications, durability tests, and material composition.
- Limited research is available on regional market potential, competitive analysis, pricing, and customer behavior in Odisha.
- There is a lack of integrated studies combining financial feasibility, market trends, and strategic investment analysis — which this research addresses.

Summary

The literature review reveals that the paver block and precast wall industry is technically mature, growing, and increasingly sustainable. Global and national studies highlight trends in automation, modular design, and eco-friendly materials, but regional market insights and business feasibility studies remain limited. The present research by *Expllence Consultancy Pvt. Ltd.* fills this gap by analyzing the Odisha market, competitive landscape, customer preferences, and financial viability, offering practical guidance for investors and entrepreneurs.

3.Competitor & Customer Anlysis

Understanding the competitive landscape and customer behavior is critical for any business entering or operating in the paver block and precast wall sector. This analysis provides insights into market positioning, strengths and weaknesses of competitors, customer needs, and potential growth opportunities.

Competitor Analysis

A) Types of Competitors

1. Local/Regional Manufacturers
    - Small-scale units producing paver blocks and precast walls for local construction projects.
    - Strengths: Low cost, faster delivery, strong local network.
    - Weaknesses: Limited production capacity, inconsistent quality, lack of technology adoption.
2. National/Branded Players
    - Companies with established brand names in construction materials (e.g., Ultratech, Ambuja, local precast specialists).
    - Strengths: High-quality products, large production scale, technical expertise.
    - Weaknesses: Higher pricing, less personalized service for small contractors.
3. Contractors/Construction Suppliers
    - Some contractors produce their own paver blocks/precast walls for specific projects.
    - Strengths: Customized to project needs, immediate supply.
    - Weaknesses: Limited production standards, scalability issues.

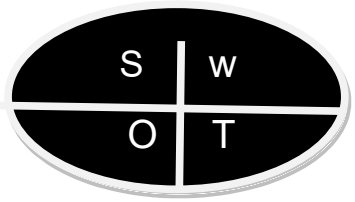
B) Competitive Parameters

Parameter	Local Manufacturers	National Players	ExpllenceConsultancy Perspective
Product Quality	Medium, variable	High, standardized	Can advise on improving quality to meet standards
Pricing	Low	High	Recommend competitive pricing & cost optimization
Technology	Manual/semi-automatic	Automated, modern	Technology adoption guidance & ROI analysis
Market Reach	Local	Regional/National	Market mapping and expansion strategy
Customer Service	Personalized	Moderate	Enhance customer relationship management

C) Insights from Competitor Analysis

- Local competitors dominate low-cost segment but often compromise on quality.
- National players compete on brand, quality, and large orders.
- Opportunity for Expllence Consultancy: Advising MSMEs and regional players to enhance quality, adopt modern technology, optimize costs, and expand market reach.

SWOT Analysis



Strengths:

- Access to affordable land and labor in Odisha
- Low-cost production using manual and semi-automatic processes
- High product demand due to infrastructure growth in the region
- Established supply chain for raw materials (cement, sand, aggregates)
- Ability to offer product customization for various market segments

Weaknesses:

- Seasonal fluctuations in construction activity affecting demand

- Manual operations limit production scalability
- Dependence on local market—expansion beyond region needs investment
- Potential for inconsistency in product quality without automation

Opportunities:

- Increasing government investments in infrastructure (PMAY, Smart Cities)
- Potential to partner with construction companies, real estate developers
- Expansion into allied products like kerbstones, hollow blocks, manholes
- Scope for product branding and entry into retail/home improvement segment

Threats:

- Rising cost of cement and raw materials due to inflation
- Competition from established players with automated production units
- Regulatory changes impacting small manufacturing units
- Environmental restrictions on sand mining and cement usage Low production cost, skilled labor, local demand
- Weaknesses: Seasonal demand variation
- Opportunities: Government infrastructure schemes
- Threats: Raw material price fluctuations

Customer Analysis

A) Customer Segmentation

1. Contractors & Builders
    - Buy in bulk for residential, commercial, and government projects.
    - Key factors: Price, durability, availability, delivery speed.
2. Government Departments / PSUs
    - Require compliance with standards and bulk supply for roads, public buildings, and housing schemes.
    - Key factors: Quality certification, timely delivery, legal compliance.
3. Real Estate Developers
    - Focus on aesthetics, durability, and innovative designs for housing complexes.
    - Key factors: Design flexibility, precast wall panels, modular solutions.
4. Retail Buyers / Small Businesses
    - Purchase small quantities for landscaping, driveways, or local projects.

- Key factors: Cost-effectiveness, availability, local supplier reliability.

B) Customer Needs and Expectations

- Quality & Durability: Customers expect paver blocks and precast walls to meet ISI/BIS standards.
- Cost Efficiency: Competitive pricing, especially for bulk orders.
- Timely Delivery: On-time supply is critical for construction timelines.
- Customization: Precast walls and pavers tailored to project design and specifications.
- Sustainability: Growing demand for eco-friendly and recycled materials.

C) Buying Behavior & Decision Influences

- Decision Makers: Contractors, project managers, builders, and government officials.
- Influencers: Architects, engineers, auditors, and peer recommendations.
- Consumers: Construction teams, site engineers, and end-users indirectly.
- Reference Groups: Industry associations, trade bodies, and competitor benchmarks influence choices.

Key Insights

- There is a gap in quality-focused, cost-effective suppliers, which Expllence Consultancy can leverage.
- Customers increasingly value technology-enabled production, sustainability, and customized solutions.
- Competitor analysis suggests opportunities in strategic consulting for MSMEs, pricing strategy, production optimization, and market expansion.

4.Research Methodology

The Research Methodology defines the approach, tools, and techniques used to collect, analyze, and interpret data for the study on Paver Block and Precast Wall Manufacturing Industry. This section ensures that the research is systematic, reliable, and valid**,** providing accurate insights for decision-making.

1. Research Design

- The study follows a descriptive-cum-analytical research design, aiming to describe the current industry scenario, identify trends, and analyze market dynamics.

- It combines both qualitative and quantitative approaches to provide a comprehensive understanding of the sector.
- Focus is on the regional market (Odisha) while also considering national trends for benchmarking.

Data Collection Methods

A) Primary Data

Collected directly from industry stakeholders to obtain first-hand information:

- Surveys & Questionnaires:
  - Distributed to contractors, builders, suppliers, and retail buyers.
  - Questions cover product usage, preferences, quality expectations, pricing, and service satisfaction.
- Interviews:
  - Conducted with business owners, plant managers, and industry experts to gather insights on operational challenges, market demand, and emerging trends.
- Observation:
  - On-site visits to paver block and precast wall manufacturing units to study production methods, material usage, and quality control.

B) Secondary Data

Collected from published sources to complement primary research:

- Industry reports, market surveys, and statistical data from government agencies (MSME, Ministry of Housing & Urban Affairs).
- Academic journals, trade magazines, and online portals on construction materials and manufacturing technologies.
- Competitor websites, annual reports, and case studies.

Sampling Technique

- Target Population:
  - Paver block and precast wall manufacturers, contractors, construction firms, retailers, and government agencies in Odisha.
- Sampling Method:
  - Purposive Sampling for selecting industry experts and key decision-makers.

    - Random Sampling for smaller contractors and retail buyers to ensure unbiased data.
- Sample Size:
    - Approximately 50–100 respondents covering manufacturers, buyers, and consultants for meaningful analysis.

Data Analysis Tools

- Quantitative Analysis:
    - Statistical tools (Excel,) to analyze production capacity, demand trends, pricing patterns, and market growth.
- Qualitative Analysis:
    - SWOT Analysis to identify strengths, weaknesses, opportunities, and threats.
    - Porter's Five Forces for assessing industry competition and market attractiveness.
- Comparative Analysis:
    - Benchmarking Expllence Consultancy recommendations against competitors in terms of technology adoption, quality, and cost-effectiveness.

Scope & Limitations of Methodology

- Scope:
    - Provides insights into production, market demand, pricing, competitor strategies, regulatory requirements, and emerging trends.
- Limitations:
    - Data may be limited to Odisha region, with national and international data used mainly for reference.
    - Responses from industry stakeholders may contain subjective opinions, requiring careful cross-verification.
    - Market estimates are approximate due to variability in demand and regional fluctuations.

Summary:
The methodology ensures a balanced approach, combining real-world observations, stakeholder opinions, and published industry data. It provides a reliable framework for evaluating market potential, competitive positioning, production feasibility, and strategic opportunities in the paver block and precast wall sector.

5. Actual work done and analysis

5.1 Assumption Break Even Period

The Break-Even Period (BEP) is the time required for a business to recover its initial investment and cover all operational costs through its generated revenues. Calculating the break-even period is crucial for planning, risk management, and financial decision-making in a new or ongoing business.

Assess Financial Viability

- Determines how long it will take for the business to start generating profits.
- Helps evaluate whether the investment in the paver block and precast wall unit is feasible and sustainable.
- Provides a clear timeline for recovery of fixed and variable costs.

Aid in Investment Decisions

- Investors and entrepreneurs can use BEP to assess the risk of capital investment.
- A shorter break-even period indicates a quicker return on investment (ROI), making the project more attractive.
- Helps in comparing different business options or expansion projects.

Pricing Strategy and Production Planning

- Helps determine minimum sales volume and pricing required to cover costs.
- Guides decisions regarding production capacity, workforce deployment, and raw material procurement.
- Ensures that sales targets align with financial goals to achieve profitability within a desired period.

Risk Assessment

- By understanding the break-even period, businesses can anticipate the period of financial risk.
- Helps in planning cash flows, loan repayments, and operational budgets during the initial months of operation.
- Allows proactive strategies to mitigate losses if sales are lower than expected.

Performance Monitoring

- BEP provides a benchmark for monitoring progress against planned sales and revenue targets.
- Management can track whether the business is moving towards profitability according to the planned schedule.
- Enables early identification of issues in pricing, production, or marketing strategies that could delay profitability.

Strategic Decision-Making

- Helps in evaluating expansion or scaling opportunities once the initial break-even is achieved.
- Informs decisions regarding technology adoption, cost reduction measures, and marketing investments.
- Provides a foundation for long-term financial planning and sustainability..

5.2 Assumption Working Capital

Working capital represents the short-term financial health and operational efficiency of a business. It is calculated as:

Working Capital=Current Assets−Current Liabilities

For a Paver Block and Precast Wall manufacturing unit, calculating working capital is essential for smooth daily operations and financial planning.

Ensures Liquidity

- Helps determine whether the business has sufficient short-term assets to meet its short-term liabilities.
- Ensures that suppliers are paid on time, salaries are disbursed, and operational expenses are covered.
- Prevents cash flow crises that could disrupt production or delay deliveries.

Operational Efficiency

- Allows management to assess how efficiently resources like raw materials, inventory, and receivables are being utilized.
- Helps in inventory planning, ensuring the right quantity of cement, sand, aggregates, and precast molds are available without overstocking.

- Optimizes production schedules by aligning cash availability with procurement needs.

Financial Planning

- Working capital calculation aids in short-term financial planning, including forecasting cash inflows and outflows.
- Assists in planning for seasonal fluctuations in demand, especially in the construction sector.
- Helps decide whether short-term financing or credit is required for smooth operations.

Risk Management

- Identifies potential financial bottlenecks that could hinder operations.
- A positive working capital ensures that the business can absorb unexpected costs, such as sudden price increases in raw materials.
- Minimizes the risk of payment defaults or production delays.

Decision-Making for Expansion

- Understanding working capital requirements is crucial before scaling up production or entering new markets.
- Helps assess whether the business can finance larger orders or invest in new machinery without compromising liquidity.

Maintaining Supplier and Customer Confidence

- Adequate working capital ensures that suppliers are paid promptly, maintaining good relationships.
- Ensures the ability to fulfill customer orders on time, enhancing credibility and trust in the market.

5.3 Assumption Cash Flow Statement

The purpose of calculating a Cash Flow Statement is to understand how cash moves in and out of a business over a specific period of time. Unlike the profit and loss account (which shows accounting profit), the cash flow statement shows the real liquidity position of a company.

Here are the main purposes:

Assessment of Liquidity

- It helps measure the company's ability to generate cash and meet short-term obligations such as salaries, raw material payments, and loan installments.

Understanding Sources and Uses of Cash

- Identifies from where cash is coming (operating activities, investing, or financing) and where it is going.
- Helps track whether operations themselves generate enough cash or if the company is relying on borrowing.

Financial Planning & Control

- Assists management in forecasting future cash requirements.
- Helps in budgeting cash inflows and outflows to avoid shortages or idle funds.

Evaluating Financial Performance

- Provides a more accurate picture of performance than net profit, since profits may not always translate into cash.
- Investors and creditors use it to assess financial health and repayment capacity.

Decision-Making Tool

- Supports decisions like expansion, investment, dividend policy, or taking additional loans.
- Helps decide whether surplus cash should be reinvested, distributed, or reserved.

Compliance and Reporting

- Required as part of financial statements under accounting standards (Ind AS, IFRS, US GAAP, etc.).
- Ensures transparency for stakeholders.

5.4 Assumption Depreciation

The **purpose of calculating depreciation** is to systematically allocate the cost of a fixed asset over its useful life. Since assets like machinery, vehicles, and buildings lose value due to wear and tear, usage, or obsolescence, depreciation ensures that this loss of value is reflected in the accounts.

Here are the key purposes:

True Financial Position

- Depreciation ensures assets are shown at their correct (reduced) value in the balance sheet.
- Prevents overstatement of profits and assets.

Matching Principle (Accounting)

- Expenses should be matched with revenues.
- Depreciation spreads the cost of an asset across the years it generates income, showing the real cost of using the asset.

Accurate Profit Measurement

- Without charging depreciation, profits appear inflated.
- Depreciation ensures profits reflect the true operating performance after considering asset usage.

Provision for Asset Replacement

- By charging depreciation, companies accumulate funds to replace or repair assets when they become obsolete or unusable.

Tax Benefits

- Depreciation is a non-cash expense but is deductible for tax purposes, reducing taxable income and hence lowering tax liability.

Compliance with Law and Standards

- Accounting standards (Ind AS/IAS/IFRS/US GAAP) and the Companies Act require depreciation to be recorded.
- Ensures fairness and uniformity in reporting.

Investment & Financing Decisions

- Investors, lenders, and management use depreciation figures to assess profitability, cash flows, and the need for future capital investment.

5.5 Assumtion of Profit & Loss Statement

Profitability Estimation

- Helps estimate whether the proposed business will be profitable under assumed sales, cost, and expense levels.
- Shows expected gross profit, operating profit, and net profit.

Feasibility Analysis

- Assists in deciding whether the project is financially viable.
- Helps compare profitability with industry benchmarks.

Financial Planning & Budgeting

- Provides a framework for planning revenue targets and controlling expenses.
- Acts as a roadmap for cost management and sales strategy.

Investment Decision-Making

- Useful for promoters, investors, and lenders to understand return on investment (ROI).
- Helps assess whether the project can service debt (loans, interest) from expected profits.

Working Capital & Cash Flow Linkage

- Profit estimates guide the calculation of working capital requirements.
- Ensures the business has enough liquidity to run operations smoothly.

Performance Benchmark

- Once operations start, actual P&L can be compared with the assumed P&L.
- Variances can be analyzed for better control and decision-making.

Compliance in DPRs & Loan Proposals

- Financial institutions require assumed P&L statements in Detailed Project Reports (DPRs).
- Demonstrates repayment capacity and sustainability of the project.

5.6 Assumption of BalanceSheet

To Show Financial Position

- Presents the assumed position of **assets, liabilities, and equity** at the end of a period.
- Reflects how much will be invested in fixed assets, working capital, and how it will be financed.

Assessment of Capital Structure

- Helps determine the mix of owner's funds (equity) and borrowed funds (debt).
- Shows how much external funding is required and repayment capability.

Support for Loan & Investor Proposals

- Financial institutions demand a projected balance sheet in DPRs.
- Assures lenders/investors that funds will be properly utilized and the company will maintain solvency.

Linkage with Other Financial Statements

- The assumed balance sheet is prepared in connection with projected Profit & Loss Account and Cash Flow Statement**.**
- Ensures financial consistency and reliability of assumptions.

Planning for Fixed Assets & Working Capital

- Reflects expected investments in machinery, sheds, molds, curing systems, vehicles, etc. (fixed assets).
- Shows required working capital for raw materials, wages, electricity, and day-to-day expenses.

Future Benchmark

- Once the project starts, the actual balance sheet can be compared with the assumed one.
- Any gap can be analyzed to improve financial control.

Compliance & Transparency

- Required as part of standard financial reporting in feasibility studies and project reports.
- Builds confidence among bankers, promoters, and stakeholders.

5.7 Manufacturing Process

Plant Infrastructure and Layout

Recommended Area: 3,000–4,000 sq.ft (expandable up to 10,000 sq.ft for future growth)

A well-planned layout ensures efficient production, smooth material flow, and safe operations. Below are the essential sections of the plant:

Raw Material Storage Zone (600–800 sq.ft)

- Used for storing cement, sand, stone chips, and additives.
- Cement must be stored in a covered shed to avoid moisture damage.
- Aggregates can be stored in partitioned open bins.
- Ensure easy access for loading/unloading using wheelbarrows or trolleys.

Casting Zone (Production Area) (700–1,000 sq.ft)

- Includes mixer installation**,** hydraulic press**,** and moulding area**.**
- Floor must be leveled and reinforced to bear machine load and vibration.
- Electrical points, ventilation, and water access are essential.
- Place mixer and press in a linear workflow for material efficiency.

Curing Yard (800–1,000 sq.ft)

- For curing paver blocks and precast wall panels to gain strength.
- Install water curing tanks and/or use spray systems for large products.
- Use RCC flooring or stone base to prevent water loss and soil erosion.
- Arrange products by curing date to track strength development.

Finished Goods Yard (600–800 sq.ft)

- RCC/tiled floor for stacking cured, ready-to-dispatch products.
- Covered area recommended to protect during rain.

- Provide access for small trolleys and loading vehicles.

Office Block & Utilities (200–300 sq.ft)

- Small office space for admin, billing, and coordination.
- Include restroom, storage for safety gear, and a first-aid kit.
- Overhead water tank and electric meter room placed nearby.

Workflow Summary:

Raw Material → Mixer → Casting → Curing → Finished Goods → Dispatch
Keep the layout **linear** to reduce time, labor, and product handling errors.

5.8 Machinery and Equipment

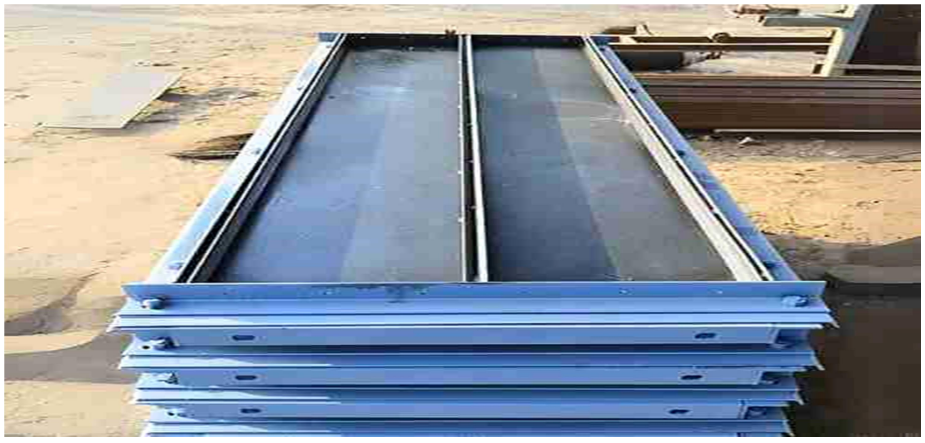
- **Vibrating Table (2 nos.)**

- **Concrete Mixer (1 nos.)**

- **Colour Mixer (1nos)**

- **Molds rubber/plastic for pavers; (**

- **Molds steel for precast**



5.9 Raw Materials

Cement (OPC 43/53 Grade)

- Type: Ordinary Portland Cement (OPC), Grade 43 or 53
- Role: Primary binder that provides strength and durability to concrete mix.

- Quality:
  - Grade 53 cement offers higher early strength compared to 43 grade, preferred for precast walls requiring faster curing.
  - Should be fresh, stored in a moisture-free environment to avoid lumps and deterioration.
- Quantity: Cement typically forms about 10–15% of the total concrete mix volume.
- Source**:** Available locally from brands like Ultratech, ACC, Ambuja, etc.

Sand (Fine and Coarse)

- Fine Sand:
  - Used as a filler to improve workability and finish of the concrete mix.
  - Should be clean, free of impurities like clay, silt, or organic matter.
  - Particle size less than 4.75 mm.
- Coarse Sand / Manufactured Sand (M-Sand):
  - Provides bulk and strength.
  - Sometimes coarse sand or crushed stone fines replace natural sand due to environmental regulations limiting river sand mining.
- Usage: Sand makes up about 30–40% of the concrete mix by volume.
- Source: Local river sand or crushed rock sand suppliers.

Stone Chips (Aggregates)

- Sizes: 10 mm and 20 mm graded aggregates used.
- Purpose: Provide compressive strength, durability, and volume to concrete.
- Quality Parameters:
  - Should be clean, hard, and free from dust, clay, or organic impurities.
  - Well-graded aggregates ensure proper packing and less voids.
- Use in Mix:
  - 10 mm chips are preferred for paver blocks to ensure a smooth finish.
  - 20 mm chips often used in precast walls for higher strength.
- Proportion: Typically aggregates form 40–60% of concrete volume.
- Source: Local quarries or crushed stone suppliers.

Colour Pigments (Oxide-Based)

- Purpose: To impart durable, UV-stable colours to paver blocks without compromising strength.
- Types: Iron oxide pigments in red, yellow, and grey tones are commonly used.
- Properties:
  - Chemically stable and non-toxic.

    - Mixed uniformly with cement before batching.
- Usage: Pigments typically added at 3–5% by weight of cement, adjusted for desired shade intensity.
- Benefits:
    - Long-lasting vibrant colours.
    - Resistant to weathering and fading.
- Source: Available from industrial pigment manufacturers or chemical suppliers.

Reinforcement Steel (for Precast Walls)

- Type: TMT (Thermo-Mechanically Treated) steel bars, commonly Fe415 or Fe500 grade.
- Role: Provides tensile strength to precast concrete walls, preventing cracks and structural failure.
- Specification:
    - Standard size: 8 mm to 12 mm diameter bars depending on design.
    - Placed vertically and horizontally inside the wall molds.
- Quantity: Steel reinforcement generally constitutes about 0.8% to 1.5% of the concrete volume in precast wall panels.
- Source**:** Local steel suppliers or branded manufacturers like Tata Steel, JSW Steel, SAIL.

5.10 about the GST

GST (**Goods and Services Tax**) is a single, indirect tax levied on the supply of goods and services across India. It has replaced multiple indirect taxes like VAT, Excise Duty, Service Tax, etc.

It is a destination-based tax (collected at the point of consumption, not origin).

Types of GST in India

GST is structured into four types depending on the nature of supply:

- CGST (Central GST): Collected by the Central Government on intra-state sales.
- SGST (State GST): Collected by the State Government on intra-state sales.
- IGST (Integrated GST): Collected by the Central Government on inter-state sales (between two states).
- UTGST (Union Territory GST): Collected on supply within Union Territories.

Example:

- If you sell Paver Blocks in Bhubaneswar (within Odisha) → CGST + SGST will apply.
- If you sell to Jharkhand or West Bengal → IGST will apply.

GST Slab Rates in India (Common Categories)

Currently, India has five major GST slab rates:

- 0% (Nil rated): Essential food items, fresh fruits, milk, books, etc.
- 5%: Basic items like edible oil, tea, medicines, footwear (up to ₹1000), etc.
- 12%: Processed food, computers, dairy products, mobile phones, etc.
- 18%: Most goods and services (this is the standard rate). Includes cement products, industrial goods, hospitality, IT services, etc.
- 28%: Luxury items (cars, tobacco, aerated drinks, etc.).

GST Rate on Paver Blocks & Precast Walls

- Paver Blocks / Precast Concrete Products (HSN Code: 6810) → GST @ 18%
- Cement (Raw Material) → GST @ 28%
- Steel (if used in precast walls, reinforcement, etc.) → GST @ 18%
- Sand, Aggregates, Gravel → GST @ 5%

Since your finished products (pavers & walls) are taxed at 18%, you can claim Input Tax Credit (ITC) on raw material GST paid (cement, steel, sand, etc.), reducing overall tax burden.

Importance of GST for our Business

- Ensures compliance and eligibility to sell to government projects (many require GST invoices).
- Input Tax Credit (ITC) helps lower costs.
- Transparency in pricing for customers.
- Helps while applying for loans as GST filings show genuine sales.

Pavor and pre cast wall (1:1)

Financial Aspect

Particular	Qty	Unit	Rate	Price	Remarks
Land	**3000**		**30000**	**3,60,000.00**	**(Rent)**
Building					
Factory				**5,00,000.00**	
Storage Room					
Factory shed					
Curing Tank					
ETC.					
TOTAL				**8,60,000.00**	

Mechinary and Equipment

Particular	Qty	Unit	Rate	Price	Remarks
Concrete Mixture	1		70,000.00	70,000.00	
Vibrating Table	2		40,000.00	80,000.00	
Mould (7 x 1)	180		960.00	1,72,800.00	
Mould (60mm)	1600		80.00	1,28,000.00	
water Pump	1		10,000.00	10,000.00	
Pan Mixture	1		40,000.00	40,000.00	
TOTAL				**5,00,800.00**	

Raw Meatrials

Particular	Qty	Unit	Rate	Price	Remarks
Cement	10088.76	Bags	350.00	35,31,066.00	2,94,255.50
Sand	1081.1814	Tonn	300.00	3,24,354.42	27,029.54
Chips	1458.3696	Tonn	900.00	13,12,532.64	1,09,377.72
TMT Rebars	44616	KG	60.00	26,76,960.00	2,23,080.00
Dye	1029	KG	60.00	61,740.00	

					5,145.00
TOTAL				**79,06,653.06**	/Year
				6,58,887.76	/month

Human resources

Particular	**Qty**		**Rate**	**Price**	**Remarks**
Labour	9		15,000.00	1,35,000.00	
Superviser	1		18,000.00	18,000.00	
Sales & Accounts	2		22,000.00	44,000.00	
TOTAL				**1,97,000.00**	/Month
				23,64,000.00	/Year

Electricity

Particular	**Qty**	**Unit**	Rate/Day	**Price/day**	**Remarks**
Pan Mixture	3hp	13.42	4.5	60.39	
Concrete Mixture	7.5 hp	33.56	4.5	151.02	
water Pump	1.5 hp	6.71	4.5	30.20	
Vibrating Table	6 h.p.	8.9	4.5	40.05	
TOTAL		**62.59**		281.66	/day
				8,449.65	/Month
				1,01,395.80	/year

Transportation Cost

Particular	**Qty**		**Rate**	**Price**	**Remarks**
Transportion				1,52,680.32	12,723.36
TOTAL				**1,52,680.32**	12,723.36

Total Cost	97,18,529.18	/Year
	8,09,877.43	/Month

Break Even Point

	YEAR 1	YEAR 2	YEAR 3	YEAR 4
Operting capacity	70%	80%	90%	100%
Pavor Block	169915.2	194188.8	218462.4	242736
Pre Cast wall	19219.2	21964.8	24710.4	27456
Total Revenue	1,06,87,622.40	1,22,14,425.60	1,37,41,228.80	1,52,68,032.00
RAW MATERIALS				
Cement	24,71,746.20	28,24,852.80	31,77,959.40	35,31,066.00
Sand	2,27,048.09	2,59,483.54	2,91,918.98	3,24,354.42
Stone Chips	9,18,772.85	10,50,026.11	11,81,279.38	13,12,532.64
Tmt Rebars	18,73,872.00	21,41,568.00	24,09,264.00	26,76,960.00
Dye	43,218.00	49,392.00	55,566.00	61,740.00
Total	55,34,657.14	63,25,322.45	71,15,987.75	79,06,653.06
Labour	11,34,000.00	12,96,000.00	14,58,000.00	16,20,000.00
Electricity	70,977	81,117	91,256	1,01,396
Transportion	1,06,876.22	1,22,144.26	1,37,412.29	1,52,680.32
Variable Cost	68,46,510.43	78,24,583.34	88,02,656.26	97,80,729.18
Unit Price	36.20	36.20	36.20	36.20
selling price	572	572	572	572
Contribution	38,41,111.97	43,89,842.26	49,38,572.54	54,87,302.82
Contribution	535.80	535.80	535.80	535.80
Mechinary and Equipment	7,18,480.00	8,21,120.00	9,23,760.00	10,26,400.00
Superviser salary	2,16,000.00	2,16,000.00	2,16,000.00	2,16,000.00
Rent	3,60,000.00	3,60,000.00	3,60,000.00	3,60,000.00
Fixed Cost	12,94,480.00	13,97,120.00	14,99,760.00	16,02,400.00
Break even Sales	2,415.97	2,607.54	2,799.10	2,990.66
B.E.P(month)	1.277383923	1.20633482	1.151074407	1.106866077

6.Finding

Based on the research conducted on the Paver Block and Precast Wall Industry in Bhubaneswar, Odisha, the following key findings have emerged:

Rising Market Demand

- There is growing demand for paver blocks in urban development projects, housing complexes, landscaping, and road construction due to durability, aesthetics, and cost-effectiveness.
- Precast walls are increasingly preferred over traditional brick or stone walls because of faster installation, reduced labor costs, and long-term durability.

Government and Infrastructure Push

- Large infrastructure projects under schemes such as PMAY, Smart City Mission, and State Urban Development Programs are driving the adoption of precast products.
- Municipal bodies are promoting paver blocks for footpaths, parking areas, and beautification works.

Unorganized Market Structure

- The industry in Odisha is largely fragmented and unorganized, with many small and medium players operating without standardization.
- This leads to price variation and inconsistent quality in the market.

Quality and Standardization Issues

- While demand is high, many local manufacturers compromise on mix design, curing, and testing to reduce costs.
- Customers (contractors, builders, households) are becoming more aware and showing preference for ISI-marked and certified products.

Cost and Profitability

- Manufacturing requires moderate capital investment and offers healthy margins, especially for precast compound walls due to high demand in real estate and boundary wall projects.
- Paver block margins are slightly lower due to heavy competition, but large-volume sales ensure steady profits.

Customer Preferences

- Contractors and real estate developers prefer precast walls for speed and uniformity.
- Individual households and small builders prefer paver blocks for driveways, gardens, and flooring.
- Aesthetic designs, durability, and price are the top three purchase decision factors.

Technology Adoption

- Most units in the region still operate with manual or semi-mechanized production, using vibrating tables and concrete mixers.
- Fully automated machines are rare due to high investment costs, but they offer scope for future efficiency and scalability.

Employment Generation

- The industry supports significant local employment, especially for unskilled and semi-skilled laborers in production, curing, and installation.

Sustainability Awareness

- Some units have started experimenting with fly ash, recycled aggregates, and eco-friendly curing methods.
- However, adoption is still low due to lack of awareness and initial setup costs.

Future Potential

- With increasing urbanization, government infrastructure push, and real estate growth, the market for both paver blocks and precast walls is expected to grow steadily over the next 5–10 years.
- There is strong potential for branding, quality certification, and organized distribution networks to capture market share.

7.Suggestion

Based on the findings and analysis of the Paver Block and Precast Wall industry, the following suggestions are proposed for improving business performance and ensuring sustainable growth:

Focus on Quality and Standardization

- Adopt ISI standards for strength, durability, and dimensions to gain customer trust.
- Conduct regular quality testing of raw materials and finished products to maintain consistency.

Branding and Market Positioning

- Build a strong brand identity highlighting durability, aesthetics, and cost-effectiveness.
- Differentiate products by offering custom designs, colors, and textures in paver blocks and standardized precast walls.

Expand Distribution Network

- Establish dealerships and stock points in nearby towns and districts to reach a wider market.
- Partner with contractors, real estate developers, and municipal bodies to secure bulk orders.

Technology Upgradation

- Gradually invest in semi-automatic or fully automatic machines to improve productivity and reduce dependence on manual labor.
- Use advanced curing techniques like steam curing or water recycling for faster production cycles.

Cost Optimization

- Optimize raw material usage by using fly ash, slag, or recycled aggregates without compromising quality.
- Adopt lean manufacturing practices to reduce wastage and production costs.

Training and Workforce Development

- Provide regular training to workers on mix design, curing methods, and handling of molds.
- Encourage skill development to reduce defects and increase efficiency.

Customer Awareness Programs

- Educate customers about the long-term cost savings of precast walls over traditional brick walls.

- Showcase successful projects using paver blocks and precast walls through catalogs, social media, and exhibitions.

Sustainability Measures

- Promote the use of eco-friendly raw materials like fly ash and recycled concrete.
- Install solar panels and use recycled curing water to reduce operational costs and environmental impact.

Financial and Business Planning

- Maintain a proper working capital cycle to ensure smooth operations.
- Use financial tools like break-even analysis and cost-volume-profit analysis to plan pricing and sales strategies.

Future Expansion Strategy

- Explore the potential of interlocking paver systems, hollow blocks, and precast structural elements as product diversification.
- Target tier-2 and rural markets where cost-effective and quick-construction solutions are in growing demand.

8.Conclusion

The proposed Paver Block and Precast Wall Manufacturing Unit in Bhubaneswar, Odisha presents a highly promising business opportunity, particularly in the context of the region's rapid urban expansion, increasing demand for affordable infrastructure, and government focus on durable, cost-effective construction materials.

High Market Potential

Odisha, especially Bhubaneswar and its adjoining regions like Khordha, Cuttack, and Puri, is witnessing a surge in public and private construction projects, including housing, roads, smart cities, boundary wall installations, and commercial infrastructure. Paver blocks and precast walls are widely used due to their:

- Durability and low maintenance
- Quick installation

- Aesthetic appeal
- Cost-effectiveness compared to traditional methods

This ensures consistent demand from:

- Contractors
- Real estate developers
- Government departments (e.g., PWD, Smart City Mission)
- Individual plot and boundary wall owners

Readily Available Raw Materials

The raw materials required—stone chips, sand, cement, and water—are easily available locally in Odisha at competitive rates. This reduces transportation cost and dependency on external suppliers, helping maintain steady production and profit margins.

Moderate Capital Investment & Fast Payback

The project does not require very high capital investment. A small to medium-scale unit (manual/semi-automatic) can be launched with:

- Capital investment: 5-10 lakhs (approx.)
- Break-even point: Within 2 months, depending on marketing effectiveness and volume of orders.
- Operating costs (labor, electricity, material) are also manageable due to local sourcing and semi-skilled labor availability.

With average monthly sales of ₹3–5 lakhs and a net profit margin of 20–25%, this business can generate stable cash flow and profitability from the first year itself.

Scalability & Diversification

Once the base unit is operational, there is significant scope for:

- Product diversification: Interlocking tiles, drain covers, kerb stones, decorative blocks.
- Technological upgradation: Transition to fully automatic machines for higher output.
- Geographic expansion: Serving neighboring districts or even exporting to other states.

Government Support

The Odisha government and central schemes (MSME, PMEGP, Mudra Loans) offer:

- Subsidies
- Collateral-free loans
- Skill development programs
- Marketing support through expos and B2B platformsThis support can reduce financial burden and improve project viability.

Final Assessment

conclusion, the proposed unit offers a sustainable, profitable, and scalable business model. With the right planning, quality control, and marketing strategy, the unit can generate employment, contribute to regional development, and yield a viable return on investment (ROI) within the first year of operations, making it a smart investment in Odisha's construction sector The proposed Paver Block and Precast Wall Manufacturing Unit in Bhubaneswar, Odisha presents a highly promising business opportunity, particularly in the context of the region's rapid urban expansion, increasing demand for affordable infrastructure, and government focus on durable, cost-effective construction materials.