JETIR.ORG ISSN: 2349-5162 | ESTD Year : 2014 | Monthly Issue
JOURNAL OF EMERGING TECHNOLOGIES AND INNOVATIVE RESEARCH (JETIR)
An International Scholarly Open Access, Peer-reviewed, Refereed Journal

Performance Evaluation Of Township Projects by Using Relative Importance Index Technique

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Abstract – Development projects are widely used by policymakers at both national and international levels to deliver essential social services, particularly in India and other developing countries. This study aimed to examine how monitoring and evaluation influence the successful implementation of such initiatives within the framework of project management consultancy. Data were collected from primary and secondary sources using structured questionnaires, and the results were presented through graphs, charts, and tables. The findings revealed that 95% of respondents believed monitoring and evaluation significantly contribute to project success, while 5% held a different view. The study concludes that effective project management, being complex and skill-oriented, plays a vital role in improving overall project performance. Furthermore, the findings emphasize that systematic monitoring mechanisms enable timely identification of risks and implementation gaps, thereby improving decision-making and resource utilization. Strengthening evaluation frameworks within project management consultancy can therefore enhance accountability, transparency, and the long-term sustainability of development initiatives.

Keywords: Project Management, Monitoring and Evaluation, Innovation, Implementation.

I.INTRODUCTION

The construction industry plays a fundamental role in economic development and urban expansion by delivering infrastructure, housing, and commercial facilities. In the contemporary global context, the sector faces increasing pressure arising from globalization, sustainability requirements, technological advancement, and heightened client expectations. Consequently, quality has become a decisive indicator of project success. In construction, quality extends beyond compliance with technical specifications; it encompasses functionality, durability, safety, aesthetics, environmental responsibility, and the satisfaction of both explicit and implicit stakeholder expectations. However, the dynamic nature of construction projects—characterized by complex designs, fluctuating site conditions, resource constraints, and diverse stakeholder involvement—makes the consistent achievement of quality a significant challenge. Deficiencies in quality frequently result in rework, safety hazards, cost escalation, schedule delays, and reputational damage, often becoming fully apparent only after project completion. This underscores the necessity for systematic quality planning, monitoring, and control throughout the project lifecycle.

In the Indian context, rapid urbanization and infrastructure growth have intensified the demand for large-scale construction and township developments. Despite this expansion, inadequate quality management practices continue to undermine project performance, leading to disputes, inefficiencies, and compromised safety standards. The adoption of structured quality management systems is therefore essential to enhance transparency, sustainability, and competitiveness within the sector. Monitoring and evaluation (M&E) constitute integral components of effective project management. Monitoring involves the continuous collection and analysis of data to track progress against predefined objectives, ensuring timely identification of deviations and corrective action. Evaluation, in contrast, systematically assesses project outcomes and impacts in terms of effectiveness, efficiency, relevance, sustainability, and overall value. While monitoring supports day-to-day performance management, evaluation provides strategic insights and lessons for future decision-making. Despite their recognized importance, both processes are often inadequately implemented due to limited resources, insufficient documentation, or weak institutional frameworks. Ex-post evaluations, although relatively objective, frequently depend on incomplete records or retrospective accounts, which may affect accuracy and reliability. Research suggests that flexible and adaptive project frameworks, supported by regular performance measurement and stakeholder communication, are more successful than rigid, blueprint-driven approaches. Clear performance indicators, transparent reporting mechanisms, and structured feedback systems are critical for improving accountability and long-term sustainability. In this regard, systematic monitoring and rigorous evaluation

practices are indispensable for enhancing the performance of township and infrastructure projects, particularly when applying quantitative assessment tools such as the Relative Importance Index (RII) technique to measure critical success factors.

II. PROBLEM STATEMENT

Although the Indian construction industry has experienced substantial expansion in recent years, a significant number of projects still encounter schedule delays, budget overruns, contractual disputes, and deficiencies in quality. These challenges are often attributed to ambiguous standards, ineffective implementation of quality control measures, and limitations in project management practices, resulting in client dissatisfaction and disparities between intended objectives and actual project outcomes. Strengthening quality management frameworks is therefore essential to improve efficiency and reliability in project delivery. Township development projects are particularly vulnerable to issues such as financial constraints, labor shortages, inadequate quality supervision, and weak stakeholder coordination. In response, this study aims to identify critical key performance indicators (KPIs), promote structured and effective management strategies, and encourage proactive planning approaches to enhance overall project performance and ensure higher levels of stakeholder satisfaction.

III. OBJECTIVE

The primary objective of this study is to evaluate the performance of township construction projects by identifying and analyzing critical key performance indicators (KPIs) that influence quality, cost, time, and stakeholder satisfaction. The study further aims to assess the effectiveness of existing quality management and project control practices, and to propose structured, proactive strategies that enhance overall project delivery and long-term sustainability within the Indian construction sector.

IV.METHODOLOGY

This study adopts a mixed-method research design integrating both quantitative and qualitative approaches to assess the performance of township construction projects. The quantitative component employs the Relative Importance Index (RII) technique to rank critical performance factors, while the Analytical Hierarchy Process (AHP) is applied to assign multi-criteria weights and prioritize decision variables. To strengthen the validity of findings, qualitative methods including expert interviews and case-based analysis are incorporated. Structured questionnaires were distributed to key stakeholders involved in township projects, such as project managers, site engineers, contractors, and consultants, to collect primary data. The methodology outlines the data collection framework, measurement instruments, and analytical procedures used to evaluate project performance through RII and AHP techniques. The research further includes two applied case studies—Kohinoor Abhimaan Phase II in Shirgaon, Pune, and Godrej Park Greens along with associated developments in Mamurdi, Pune—to compare outcomes between projects implemented with active external Project Management Consultancy (PMC) involvement and those executed without formal PMC support. This comparative approach enables a systematic assessment of management effectiveness and its influence on project performance indicators

A. Methodology Framework

The research methodology was implemented through a structured, sequential process to ensure systematic data collection and analysis.

Step I: Identification of Performance Factors

An extensive review of academic literature, industry reports, Project Management Consultancy (PMC) documents, and relevant government publications was undertaken to identify critical performance indicators applicable to township construction projects. Based on this review, key factors were categorized into six principal dimensions: cost management, time efficiency, quality assurance, safety performance, sustainability practices, and client satisfaction. These categories formed the conceptual framework for performance evaluation.

Step II: Questionnaire Development

A structured questionnaire was designed to capture expert opinions regarding the relative significance of the identified performance factors. The instrument was developed using a Likert scale format to facilitate quantitative analysis through the Relative Importance Index (RII) and Analytical Hierarchy Process (AHP). The draft questionnaire was reviewed by industry professionals and academic experts to ensure clarity, relevance, and content validity before distribution to selected respondents involved in township projects.

Step III: Data Collection

Primary data were collected from a sample of 40 professionals actively engaged in township construction projects across Maharashtra. The respondents included project managers, engineers, contractors, and consultants associated with both PMC-supported and non-PMC projects, thereby enabling a comparative assessment of performance outcomes under different management structures. In addition to the structured questionnaire survey, qualitative data were gathered through semi-structured interviews with selected project engineers and consultants. These interviews provided contextual insights, clarified survey responses, and enriched the quantitative findings with practical perspectives from field-level implementation.

Step IV: Data Analysis Using the Relative Importance Index (RII)

The Relative Importance Index (RII) technique was applied to prioritize and rank the identified performance factors influencing township project outcomes. The computed RII values were arranged in descending order to determine the relative significance of each performance factor and to identify those exerting the greatest influence on township project performance.

Step V: Comparative Analysis of PMC and Non-PMC Projects

For comparative evaluation, the selected projects were classified into two categories: projects managed with formal Project Management Consultancy (PMC) involvement and projects executed without PMC support. A systematic comparison was conducted to examine variations in key performance dimensions, including cost control, schedule adherence, safety compliance, and quality management. Statistical analysis and graphical representations were generated using MS Excel and SPSS software to interpret performance differentials and identify management-related gaps.

Step VI: Validation and Expert Review

The initial analytical results were presented to experienced industry professionals, including senior project managers and consultants, for validation. Structured feedback sessions were conducted to review the interpretations, verify practical relevance, and enhance the reliability of the conclusions. This step ensured that the findings were aligned with real-world project conditions and industry practices.

Step VII: Recommendations and Conclusions

Based on the RII rankings and the comparative assessment of PMC and non-PMC projects, targeted recommendations were developed to strengthen project performance through structured integration of Project Management Consultancy services. The study concludes by proposing a systematic framework aimed at continuous improvement in township construction management, emphasizing quality enhancement, risk mitigation, stakeholder coordination, and sustainable project delivery. Figure 1 illustrates the structured research methodology adopted in the study, divided into two sequential phases comprising preliminary investigation, data collection, analysis, and interpretation. The flowchart highlights the integration of literature review, case study analysis, industry survey, and systematic evaluation leading to conclusions and actionable recommendations.

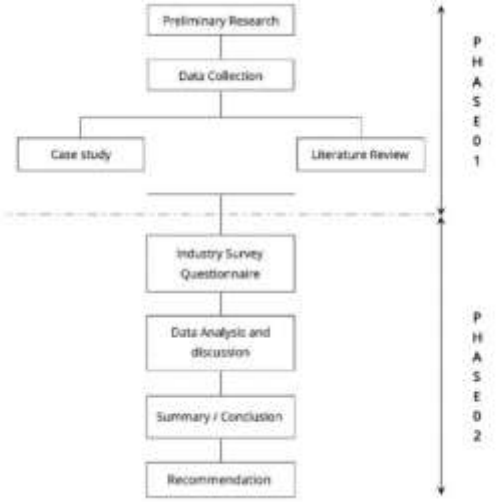

Figure 1 Methodology Flowchart

V. CASE STUDY

This case study examines quality management practices and the involvement of Project Management Consultancy (PMC) in a large-scale township development comprising residential units, internal infrastructure, and utility services. It evaluates how structured quality systems, professional PMC oversight, and quantitative assessment methods influence project performance in terms of cost, time, quality, and operational efficiency.

The study focuses on assessing quality assurance and control measures across the entire project lifecycle, emphasizing the PMC's role in stakeholder coordination, risk management, and regulatory compliance. Using structured questionnaires and the Relative Importance Index (RII) method, key performance factors and quality-related challenges are ranked to identify critical areas requiring managerial improvement.

A. Case Study : Magarpatta City

a. Project Overview

Magarpatta City is a large-scale integrated township located in Hadapsar, developed across nearly 430 acres as a mixed-use urban community. Designed as a self-contained township, it combines residential zones, commercial spaces, educational institutions, and recreational amenities within a unified master plan. The project was launched in 2000 by Magarpatta Township Development and Construction Company Limited, formed by more than 120 local landowning families. Executed in multiple phases, the township currently accommodates over 40,000 residents and around 50,000 working professionals, with major IT firms operating from its business hub, Cybercity Magarpatta.

b. Project Location and Connectivity

The township is situated in Pune (PIN: 411028), at coordinates 18.5147° N and 73.9321° E. It is approximately 8 km from Pune Railway Station and about 12 km from Pune

International Airport. The project is well connected via the National Highway 65 (Solapur Highway) and Magarpatta Road.

Its strategic location near central Pune and key industrial corridors provided logistical efficiency and facilitated smooth coordination among contractors, consultants, and suppliers during different phases of construction.

c. Appointment of Project Management Consultant

A structured Project Management Consultancy (PMC) framework was established to oversee planning, design coordination, quality assurance, scheduling, and risk management. The PMC played a central role in aligning stakeholder interests, ensuring regulatory compliance, monitoring construction quality, and maintaining control over time and cost parameters throughout the project lifecycle. The following professional agencies were appointed to ensure integrated planning, design coordination, and technical supervision of the project:

2. *Synergy Property Development Services Pvt. Ltd.* – Responsible for overall project coordination, scheduling control, and systematic progress monitoring and reporting.

ii. Architect Hafeez Contractor – Appointed as the lead architectural consultant for master planning, design development, and interdisciplinary coordination.

iii. JW Consultants LLP – Engaged as the structural engineering consultant to ensure structural integrity and compliance with design standards.

iv. Spectral Services Consultants – Assigned as the services consultant, overseeing MEP systems and sustainability-related design considerations.

d. Project Management Consultant (PMC)

The Project Management Consultant (PMC) played a comprehensive role throughout the project lifecycle, overseeing planning, coordination, execution, and control. During the design phase, the PMC ensured alignment between architectural, structural, and services drawings, prepared master schedules, and reviewed designs to prevent site-level conflicts.

In procurement and execution stages, the PMC managed tendering processes, evaluated contractors, and monitored on-site activities through structured reporting systems. Quality assurance was maintained through inspections and stage approvals, while cost control was achieved using value engineering and regular financial monitoring to keep the project within approved budget limits.

e. Project Management Framework Adopted

The project implemented a hybrid management framework integrating conventional contract administration practices with modern project management tools to enhance control and efficiency. Advanced scheduling and progress monitoring were carried out using Primavera P6, while MS Project supported cost–time integration and resource planning. Field-level issues were systematically managed through structured RFI (Request for Information) and NCR (Non-Compliance Report) mechanisms to ensure timely resolution and documentation. Regular coordination meetings among consultants, contractors, and client representatives were conducted to maintain clear communication and alignment of objectives. This integrated framework enabled smooth coordination across all project phases, including design, procurement, execution, and final handover.

Figure 2 Magarpatta City

f. Conclusion

The Magarpatta City project illustrates the critical contribution of a Project Management Consultant (PMC) in successfully delivering large-scale, multi-phase urban developments. The PMC functioned as a strategic interface among the client, design teams, contractors, and regulatory authorities, ensuring schedule adherence, cost efficiency, and compliance with defined quality standards.

This case demonstrates that a structured and integrated project management framework can effectively convert a complex township development into a model example of planned urban execution within the Indian construction sector.

g. Comparative Analysis of PMC vs Non-PMC Projects

Project Management Consultancy (PMC) plays a significant role in improving the efficiency of construction projects. In traditional construction practices where PMC is not involved, project management responsibilities are usually handled by the client or contractor. This often leads to challenges such as poor coordination, schedule delays, and cost overruns. The comparison between PMC and Non-PMC projects helps to understand the impact of professional project management on

project performance in terms of cost, time, quality, and coordination.

Table 1 PMC vs Non-PMC Project Comparison

Parameter	PMC Projects	Non-PMC Projects
Project Planning	Detailed planning and scheduling using professional tools	Planning often basic and less structured
Time Management	Better schedule control and monitoring	Higher chances of project delays
Cost Control	Systematic cost monitoring and budgeting	Cost overruns occur more frequently
Quality Management	Strong quality checks and standards	Quality control depends on contractor practices
Coordination	Effective communication among stakeholders	Communication gaps between client, contractor, and consultants
Risk Management	Risks identified and mitigated early	Risks addressed only after issues arise
Documentation	Proper documentation and reporting maintained	Documentation often incomplete
Decision Making	Professional technical decisions based on analysis	Decisions often delayed or influenced by multiple stakeholders
Project Monitoring	Continuous monitoring through PMC team	Monitoring done irregularly

VI. COMPARATIVE PERFORMANCE ANALYSIS

a. Time Performance

Projects managed with PMC demonstrate better adherence to project schedules. PMC teams implement detailed planning, resource allocation, and monitoring systems which reduce delays. In contrast, Non-PMC projects frequently experience delays due to lack of structured planning and weak coordination between stakeholders.

b . Cost Performance

PMC projects generally maintain better cost control through proper budgeting, cost tracking, and financial monitoring. Non-PMC projects often suffer from cost overruns because of poor planning, variation orders, and inefficient resource management.

c. Quality Performance

Quality management is more systematic in PMC projects due to defined inspection procedures, quality control plans, and technical supervision. In Non-PMC projects, quality standards may vary depending on contractor practices, which sometimes results in defects and rework.

d. Coordination and Communication

PMC acts as a central coordinating authority between clients, contractors, and consultants. This improves communication and reduces conflicts during project execution. Non-PMC projects often face coordination issues, resulting in misunderstandings and project inefficiencies.

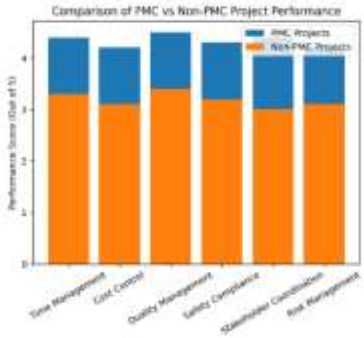

Figure 3. PMC vs Non-PMC project performance

A. Advantages of PMC Projects

- Improved project planning and scheduling
- Better cost control and financial management
- Higher quality standards and monitoring
- Effective risk identification and mitigation
- Strong coordination among stakeholders

B. Limitations of Non-PMC Projects

- Lack of systematic project monitoring
- Higher risk of delays and cost overruns
- Poor communication among project participants

- Inconsistent quality management

VII.CONCLUSION

The findings indicate that Project Management Consultancy (PMC) plays a decisive role in the successful delivery of township projects, with 95% of respondents acknowledging that effective monitoring and evaluation directly contribute to project success. Although PMC enhances performance and accountability, it is inherently complex and requires multidisciplinary expertise and structured coordination. A results-oriented PMC framework is therefore essential to achieve improved project outcomes in large-scale developments. Consultants add value by ensuring objective assessment, professional integrity, and transparent reporting. Clearly defined Terms of Reference (ToR) establish evaluation objectives, roles, scope, timelines, and resource allocation, thereby guiding systematic review processes. Effective evaluations address stakeholder concerns, generate evidence-based conclusions, and support accountability and continuous improvement. Recommendations derived from such assessments should be practical, prioritized, and implementable, with clearly assigned responsibilities and alignment to ethical and professional standards. The present research provides meaningful insights into the performance assessment of township projects; however, further investigation is warranted to strengthen and broaden its contributions. Future studies may expand the sample size and include respondents from different regions of India to capture variations in regulatory frameworks, market dynamics, and construction practices. Longitudinal research covering the complete project lifecycle would also offer deeper understanding of post-completion outcomes such as operational efficiency, maintenance effectiveness, sustainability performance, and resident satisfaction, which are not fully reflected in cross-sectional analyses. From a methodological perspective, the integration of advanced analytical techniques such as Structural Equation Modeling (SEM), Analytic Hierarchy Process (AHP), TOPSIS, or machine learning–based predictive models could provide stronger insights into causal relationships among performance variables. Comparative application of similar evaluation frameworks to other development types—including high-rise residential, commercial, industrial, or infrastructure projects—would enhance the generalizability of findings and highlight sector-specific challenges. Further research may also examine the influence of regulatory systems, urban governance structures, and administrative procedures on large-scale project outcomes. Incorporating financial and economic risk modeling could improve understanding of cost variability, market uncertainty, and long-term investment sustainability. Finally, developing benchmarking frameworks for Project Management Consultancy (PMC) firms—focusing on capability maturity, innovation adoption, and service quality—would strengthen selection criteria and industry credibility. Integrating sustainability assessment systems such as Indian Green Building Council (IGBC), GRIHA, and LEED into performance evaluation models could further promote environmentally responsible township development.

The comparative analysis indicates that projects managed with the involvement of Project Management Consultancy demonstrate significantly better performance in terms of time management, cost control, and quality assurance. PMC provides structured planning, continuous monitoring, and professional expertise that contribute to successful project completion. Therefore, adopting PMC services is highly beneficial for large and complex construction projects such as township developments.

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