

Review and Assessment of Project “Beautification and Green Landscape Development at River Corridors”: A Case Study

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Abstract: This paper presents a review and assessment of the project planning, implementation, construction practices, quality management, and overall performance of a selected civil engineering project. The study focuses on the practical aspects of project execution, planning and suitability of the project. Information obtained from project documents, field observations, photographs, site records, and practical experience was reviewed to identify major achievements, after-effects and overall impact on the environmental aspects while preserving the open spaces by maintaining suitable open spaces for all age group of people. The study also identifies practical lessons that can contribute to improved management of similar public infrastructure and construction projects in Nepal.

Keywords: Riverside Project, Landscapes, Open Spaces, Project Review, Project Planning, Quality Control, Construction Management, Construction Practices, Public Infrastructure, Nepal.

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I. INTRODUCTION

As Kathmandu gives an opportunity to portray its natural beauty along with the construction of urban infrastructures. In considering, public infrastructural development projects, construction projects involve the coordinated management of technical, financial, human, material, and institutional resources. The successful completion of a project depends not only on the quality of engineering design but also on effective planning, procurement, construction supervision, quality control,

resource management, and coordination among stakeholders. This project is one of the completed projects under my supervision. It describes my professional experience as a Site Engineer during a one-year project titled “Riverside Beautification Work at River Corridor of Kathmandu Metropolitan City”. I was employed by Kathmandu Metropolitan City Office (Client side) and was responsible for overseeing the successful execution of civil works and project compliance throughout the beautification process as per anticipated goal.

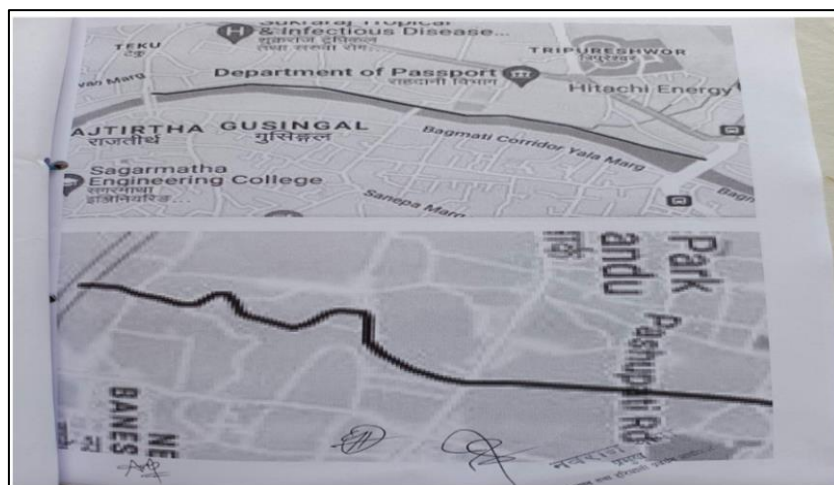


Fig 1 Location of the Study/Project Area

A. Project Background

➤ General Description

The selected project has following details:

Table 1 Basic Project Information

1.	Name of Project	River and Road beautification Work
2.	Location	Dhobikhola, Bagmati and Bishnumati river corridor
3.	Name of Employer	Parks and Greenery Promotion Project, KMC.
4.	Contract No	02-09-080-81-NCBW-PGPP-KMC
5.	Date of Work order	13 th June, 2024 A.D.
6.	Intended Completion Date	13 th June, 2025 A.D.
7.	Actual Completion Date	3 rd June, 2025 A.D.
8.	Agreement Amount	NPR. 1,74,23,298.76/-
9.	Final Work done Amount	NPR. 1,68,74,980.37/-
10.	Major components	Plantation, riverside landscape maintenance, green open space development

➤ Project Objectives

- To create green open space and children-friendly spaces.
- To create cycling lanes and walkable route for senior citizens and open gym spaces
- To install landscaping features, ensuring structural protection of river embankments
- To promote sustainable urban design near river corridors to beautify areas.

➤ Scope of Work

- This study focuses on careful observation of public infrastructure suitability and effectiveness
- Methods of construction and procurement while implementing projects was studied
- Construction integral elements like safety, planning, project control, cost control were also studied.
- After-effect of the implemented projects and environmental impacts were also studied.

II. LITERATURE REVIEW

Green infrastructure refers to a network of natural and semi-natural spaces designed to manage water, improve air quality, and enhance urban biodiversity. Green infrastructure has emerged as a key solution to create sustainable urban environment (Magdy, IEREK conference, 2025). Construction project performance is influenced by several interrelated factors, including cost, time, quality, safety, resources, procurement, stakeholder coordination, and environmental considerations. Effective project planning provides the foundation for successful implementation by defining project objectives, scope, resources, activities, responsibilities, and expected outputs. Construction quality is

similarly dependent on appropriate specifications, material testing, workmanship, inspection, and supervision.

➤ Factors Affecting Project Performance

While studying details of the projects from design phase to implementation till completion phase, several factors that influence performance of the project was observed:

- Prefeasibility study of the suitability of the project
- Project planning and scheduling
- Construction quality management
- Procurement and contract management
- Construction safety
- Environmental management
- Factors affecting project performance

III. METHODOLOGY

➤ Study Approach

A case-study approach was adopted to review the selected project. Both qualitative and quantitative information were considered where available.

- Project documents
- Approved drawings
- Bill of quantities
- Specifications
- Site observations
- Construction photographs
- Measurement records
- Progress records
- Material-testing records
- Discussions with project personnel
- Personal observations during project implementation

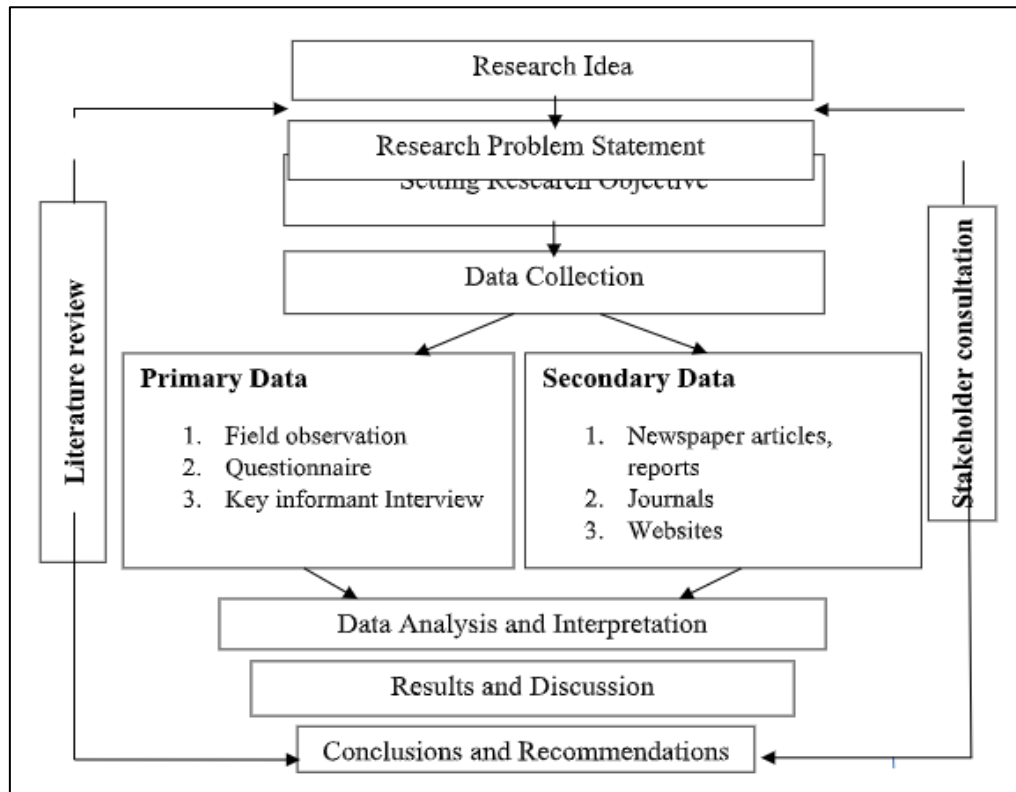


Fig 2 Methodological Framework of the Study

➤ *Data Collection*

Primary information was obtained through site observation and project records, e-procurement records while

secondary information was obtained from relevant literature, standards and specifications.

➤ *Assessment Criteria*

Table 2 Project Assessment Criteria

Assessment area	Major parameters
Planning	Scope, schedule, resources
Cost	Estimate, expenditure, variations
Quality	Materials, workmanship, testing
Time	Planned vs. actual progress
Procurement	Materials, equipment, contracts
Safety	PPE, site safety, hazards
Environment	Waste, dust, drainage, pollution
Supervision	Inspection, monitoring, reporting

➤ *Review of Project Implementation*

resource planning, procurement, and coordination among relevant stakeholders.

• *Project Planning*

The project planning process involved identification of work requirements, preparation of estimates, scheduling,

Table 3 Project Implementation Schedule

Phase	Activities	Duration
Month 2-3	Field planning and initial survey before implementation	3 months
Month 4-5	Fieldwork and data collection	2 months
Month 6-7	Further field work continuation, updating measurement sheets	2 months
Month 8-9	Validation, field work continuation, drafting	2 months
Month 10-12	Drafting, field measurement and completion	3 months

- *Site Investigation and Initial Conditions*

Prior to construction, the site was examined to identify existing physical conditions, accessibility, drainage, utilities, surrounding structures, and other constraints.

- *Estimation and Cost Management*

The estimated quantities and costs were prepared based on drawings, specifications, site conditions, and approved rates for the running fiscal year.

- *Procurement and Material Management*

Procurement of construction materials and resources was reviewed with respect to availability, quality, timing, storage, transportation, and cost through online bidding process publishing on official procurement website.

- *Construction Practices*

The major construction activities were reviewed with respect to the approved drawings, specifications, workmanship requirements, construction sequence, and site conditions.

- ✓ *Engineering Construction Activity 1*

For procurement, the official e-bidding platform in compliance with Public Procurement Rules of Nepal was used. Notice was published in PPMO, official site of Nepal with auto-generated Contract Identification number. Preparation of the tender documents, responding to bidder queries was done. After the evaluation process, selection of the qualified contractor as per set evaluation criteria was completed. Once the contractor was mobilized, regular monitoring of the project with anticipated drawings and technical specifications was done. Regular monitoring of the progress using comparative charts, bill of quantities, work schedule (submitted by contractor) and weekly site meetings was performed. On-site issues such as drainage layout revisions and site access constraints by coordinating with municipal authorities and the contractor was solved.

The civil engineering works executed during the project included: landscaping, construction of civil structures, plantation works, and installation of traditional items in culturally sensitive areas. I ensured proper planning and execution for these elements. Somewhere, traditional brick paving works were also employed to enhance aesthetics view of the area. Safety measures and environmental safeguards were being followed.



Fig 3 Aesthetics Promotion of the Area using Traditional Elements

- ✓ *Engineering Construction Activity 2*

The green space maintenance and promotion of the green space was addressed using bio-engineering aspects like dubo-carpeting, embankment protection works, plantation. Regular quality checks from initial excavation, on reinforcement placement, concrete mixing ratios, curing, paving levels, and green area development till final site clearance work was performed.



Fig 4 Green Space Maintenance with Plantation and Minimal Construction of Structures

- ✓ *Engineering Construction Activity 3*

Safety measures and environmental safeguards were being followed. And addressing issues raised during public audits conducted was performed as key project milestones. Open gym spaces were created and walkable lanes for senior citizens was also created while fostering breathable platform for recreation.



Fig 5 Installation of Exercise Equipment at Open Spaces Along Riverside

- *Quality Management and Site Supervision*

Quality management was assessed through material inspection, workmanship monitoring, field measurements, testing, compliance with specifications, and regular site supervision.

- Inspection of construction materials
- Verification of material specifications
- Measurement of completed work
- Testing where required
- Inspection of workmanship
- Verification against approved drawings
- Rectification of defective work

➤ *Project Performance Assessment*

• *Time Performance*

The planned and actual project schedules were compared to identify delays and their causes based on work schedules approved by both parties before project implementation.

• *Cost Performance*

The planned cost was compared with the actual expenditure, where reliable project records were available and payment was given as per field measurements.

• *Quality Performance*

Quality performance was assessed based on compliance with drawings, specifications, material requirements, workmanship standards, inspection records, and observed defects.

• *Safety Performance*

Construction safety practices were reviewed based on PPE use, site access, equipment operation, working conditions, and hazard control.

• *Environmental Performance*

Environmental aspects considered included construction waste, dust, noise, drainage, material disposal, and impacts on surrounding areas.

IV. RESULTS AND DISCUSSION

The project review indicates that successful project implementation depends on the integration of technical and managerial aspects. Proper planning and regular supervision helped in maintaining construction quality, while timely decision-making was important for addressing unexpected site conditions.

➤ *The Major Findings of the Review are Summarized as Follows:*

- Plantation was done to create green open space and children-friendly spaces.
- Cycling lanes and walkable route for senior citizens and open gym spaces were created
- Landscaping features, ensuring structural protection of river embankments were constructed
- Sustainable urban design near river corridors to beautify areas were promoted

V. RECOMMENDATIONS

- Detailed site investigation should be completed before finalizing construction plans.
- Project schedules should include realistic allowances for procurement and site constraints.
- Quality-control procedures should be documented systematically.
- Regular coordination meetings should be conducted among project stakeholders.

- Construction materials should be inspected and stored appropriately.
- Safety requirements should be monitored continuously.
- Environmental-management measures should be incorporated into routine site supervision.
- Digital documentation and photographic records should be maintained throughout project implementation.

VI. CONCLUSION

The Riverside Beautification Project was successfully executed under my technical supervision and administrative coordination. The main aim of the project “River and Road Beautification Work” is to upgrade greenery along riverside and its peripheral road and to maintain planned open space for the public adding some aesthetics of traditional and modern construction and somewhere fusion of modern and traditional construction pattern. It demonstrated engineering skills in survey work, quantity estimation, procurement management, site supervision, and contract billing. While working as a Site Engineer from the client’s side helped to understand the comprehensive project lifecycle from planning to final payment phase. This project enhanced the abilities in technical problem-solving, public procurement, and multi-disciplinary coordination within a government urban development framework.

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Tripti Roka has completed graduation from Western Region Campus, IOE, TU in Civil Engineering and completed Master of Science in construction Management with distinction from Nepal Engineering college. She has over nine years of professional experience in designing and execution of public infrastructure projects including urban landscaping, conservation of heritage and historical buildings, open space designing and development. She has served as an engineer in Kathmandu Metropolitan City where she has contributed in infrastructure development and construction management.