

Assessment of Critical Success Factors for Road Construction Projects in Ethiopia

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Abstract

Road construction projects are means through which development objectives are achieved. Various efforts to develop the road have been made to ensure projects' success. There are still remain problems of delay and cost overrun of all road construction projects in Ethiopia. To improve performance and productivity within, it is very essential to investigate critical areas in road construction projects. The data I collected showed that what are taken as success criteria by road project organizations are not sufficient. They lack consideration of other important criteria such as satisfaction of user, project team, contractor, client organization and donor organizations; learning and motivation for future projects; health, safety and environment. I also found out that there are problems in road construction management practice, road construction technology, road construction resource, and practitioners' ethics. There is demand to develop capacity of the road construction industry in these areas. The practitioners also identified critical success factors which they believe are important but are not fully practiced by majority of actors involved in the road construction projects. These activities are: Assessment and adaptation of new technology, Assessment of the market that related to the project e.g. manpower, material supply, facilities, Involvement of local society in road construction projects, Management of stakeholders, Clear communication of top management focus, Bench marking & experience transfer, Competent PM with appropriate educational background & experience.

1. Introduction

1.1 Background

Road construction projects in Ethiopia are means through which development strategies are achieved. Development strategies which are fulfilled through successful road projects intend to improve accessibility of rural area; lower costs associated with transport maintenance and open more areas for development activities. Road projects, involving large amount of capital, also contribute to the total economy through job creation and in a ripple effect to other business activities. Various efforts to develop the road sector have been made to ensure projects' success. Phased Road Sector Development Programs (RSDPs) which provide a coordinated framework for intervention along with policy, institutional and regulatory reforms have been launched. These programs aimed at developing an efficient and self-sustaining construction industry and improving the management of the road. To remove bureaucratic impediments, regional and rural road authorities were separated from the Ethiopian Road Authority (ERA). Every authority was then made to take on the role of a client of road works. Special attention was also paid to the private sector participation, via strengthening Contractors' competitive capacity to undertake construction and maintenance works. The midterm and final reviews of the RSDPs show that despite the improvement seen in performance and productivity within the sector, there still remain problems of delay and cost overrun of all road construction projects. It is also identified that there is a need for further strengthening of institutional capacity, adoption of new construction technologies and modern project management principles, and additional regulatory reforms in order to maximize the efficiency of the Ethiopian road construction industry.

1.2 Statement of the Problem

The road construction industry as a whole suffers from institutional, organizational and technical problems. Road management practices in the industry are still done in traditional style. The practioner in these projects are less experienced both in project management and international business administration which accounted for considerable delays and cost overruns. Out-put of local contractors is still very low. Problems of road construction projects in Ethiopia can be categorized under the following three major characteristics.

1.2.1 Scarcity of Resources: Unique Human and Organizational problems and Uncritical Adaptation of Technologies and Management. Scarcities in Ethiopian road construction projects cover not only financial and physical ones but also intellectual and institutional resources. Incapability to implement large projects, lack of capacity to compete globally, and strong dependency on the developed nations for importing most of the construction materials, equipment, and expert services explain this fact.

1.2.2 Unique Human and Organizational Situations: Issues related institutional barriers, internal conflict, insufficient development of financial, human and physical capital; and cultural and historical constraints seem inherent characteristics of public construction projects in developing countries. Self-serving objectives; lack of co-ordination; and disregarding contextual issues are also included in this category.

1.2.3 Uncritical Adaptations (Management & Technology): Many organizations and their projects in Developing Countries have been forced to or advised, and even feel themselves that they must strive to adopt Western thought and practices to achieve economic prosperity within the shortest possible time irrespective of their unique and contextual realities.

1.3 Scope and Limitations of the Study

The study is concerned with identifying critical activities for road construction projects in Ethiopia in general. It intends to give a holistic view of possible areas of activities that can be undertaken to improve the total road construction.

1.4 Objective

1.4.1 General Objective

The general objective of this project is to integrate conceptual material from current construction management theories with practical experience by applying knowledge and skills for definition and analysis of general problems on construction of roads in Ethiopia.

1.4.2 Specific Objectives

- i. To review and assess the conceptual theory of critical success factors in road construction
- ii. To identify the significant factors that affect the successful completion of road projects in Ethiopia
- iii. To distinguish road construction practices in Ethiopia and other countries

1.5 Significance

This indicates that areas of weakness which require attention from all Practitioners involved in road construction projects. It also shows what should be done to develop the sector. It also shows the level of road Management capacity of Ethiopian road projects. It tries to suggest what can be done to improve this capacity. I believe that areas assessed in this study can initiate at least an intellectual debate among actors Involved in road construction projects.

1.6 Methodology

The basic design used explorative methodology. It has been chosen in order to assess the critical success factors for road construction project. Exploratory method enabled us to assess the management styles adopted by various road contractors and the critical success/failure factors associated. In addressing CSF in road projects, I surveyed practitioners in the sector that are currently engaged in road construction projects.

1.7 Tools for Analysis

For analysis purpose using Microsoft excel program first feed the data to a computer then sum the total value for each factor identified and those factors with gave large sum were selected as critical areas of activities which can be applied.

2. Literature Review

Critical Success Factors (CSFs) are defined as the limited number of areas in which results, if they are satisfactory, will ensure successful competitive performance for the organization. They are the few key areas where things must go right for the business. If results in these areas are not adequate, the organization's effort for the period will be less than desired. ...the critical success factors are areas of activities that should receive constant and careful attention from management. The current status of performance in each area should be continually measured, and that information should be made available. CSF method basically is a top-down managerial approach which first identifies strategies and goals. To come up with contextually valid CSFs for road construction projects in Ethiopia I have adopted CSF sources identified. Before assessing the CSFs for road construction projects in Ethiopia, it is necessary to review CSFs for a project in general, and specifically for the construction industry. I will then attempt to discuss this within the country's context. The need to discuss project success criteria precedes the direct description of CSFs because without clearly defined criteria, identification of critical success factors can be misleading or meaningless.

2.1 Project Success Criteria

The purpose of project organizations to create an environment for project success. Each project has its distinct notion of what success is. Within the context of this paper, however, I would like to deliberate on what individual projects in Ethiopia aim to achieve with their undertakings and attempt to define priorities among these criteria. Road project objectives in Ethiopia are beyond the traditional Golden Triangle of time, cost and quality. Project objectives vary along four dimensions:

- Different stakeholders have different objectives (client and contractors are not the only ones worth

considering)

- Objectives change for each major phase in project life cycle
- Objectives have a hierarchical dimension: the primary objectives vary for each level of management in an organization (it is important to understand organizational objectives and project objectives)
- Objectives vary with type of projects: ownership and motive (private/public sector), necessity (it should work), opportunity (it should pay), prestige (it should exist) and research (reaching a solution).

2.2 Critical Success Factor

2.2.1 Risk, Enduring [Temporal] Factors and Uncertainty Management

Activities that may or may not happen and that if not prepared for, will pose a significant risk/loss of positive impact to project success. These activities are with reasonably high probability of occurrence and high consequence if they occur. Enduring factors-factor that are event driven rather than life cycle phase driven and that are essential to project success. These events have happened yet were difficult to anticipate. For example collapsing of bridge in road construction project cause loss of skilled personnel, this has impact on a new project by drawing them away.

2.2.2 Modification Management: Activities that are now done as part of the regular business process, or physical condition that currently exists or is currently planned, and which, if not changed, will cause the project to fail.

2.2.3 Performance/Quality Requirements: Activities that are associated with the achievement of an identifiable level of performance or quality requirement that must be realized for the project to be successful. In construction phase there are also concrete measurable performance requirements (in quality plan) elements of product must meet. There are also other key indicators in progress, cost etc. for projects.

3. Assessment of CSFs in Road Construction Projects in Ethiopia: A Survey Analysis

Road construction projects in Ethiopia involve various bodies which have their own strategic and operational objectives. The outcome of the projects affect them according to their primary objective. Therefore the criteria; Meet project's strategic & operational objectives, in which majority of the practitioners agree, requires consensus between individual objectives of all parties concerned in a road project.

Investing in road projects involve large capital associated with high risk. It is therefore important that they are completed successfully. This requires experienced personnel, contractors and regulatory bodies. Every road construction project undertaken then can be source of experience based knowledge. But it requires a project management which focuses on activities that support this effort. However road projects lack consideration of this fact as they do not consider learning effect and motivation for future projects as success criteria. From the data collected I have identified that road construction projects in Ethiopia suffer from (see table below):

- Road construction management capacity related issues
- Road construction technology capacity related issues
- Road construction resource capacity related issues
- Practitioners' ethics related issues

Information management related issues
<ul style="list-style-type: none"> • Lack of information about the project definition in the construction stages • Slow and long decision making & tedious project approval process • inadequate information documentation and communication
Stakeholder management related issues
<ul style="list-style-type: none"> • Less participation of client in the implementation phase of the management process • Very loose coordination and integration among stakeholders • Lack of timely resolution of issues
Project Management related issues
<ul style="list-style-type: none"> • Integration problem among the strategic, tactical and operational objectives • Inadequate awareness of the project management process system by the practitioners • Fragmentation between design and construction phases of the management process • Inadequate monitoring technique/technology • Lack of sufficient competent project managers • Un adaptation of project management principles
Contract management related issues
<ul style="list-style-type: none"> • Contract types and tendering methods • Procurement & contract delivery systems
Road construction technology capacity related issues
<ul style="list-style-type: none"> • Un adaptation of technology such as construction methods • Backwardness of the technology
Road construction resource capacity related issues
<ul style="list-style-type: none"> • Constraints such as restricted budget and time • Scarcity of resources i.e. finance, material, workmen/professionals • Unavailability of resource suppliers • Unavailability of other support infrastructures
Ethics related
<ul style="list-style-type: none"> • Low-balling / Low costing • Corruption • Self-interest serving

Through the CSFs categories I presented, the following factors were identified as important but have not been applied by all practitioners;

- Assessment and adaptation of new technology
- Use of labor intensive construction method
- Assessment of the market that related to the project e.g. manpower, material supply, facilities
- Involvement of local society in road construction projects
- Management of stakeholders
- Clear communication of top management focus
- Bench marking & experience transfer
- Promoting Public Private Partnership
- Competent PM with appropriate educational background & experience
- Project team that stays throughout the project life cycle and delegates all stakeholders

4. Conclusion and Recommendations

4.1 Conclusion

I have presented factors that in my opinion are critical to ensure successful road construction projects in Ethiopia based on the results of the data analysis I conducted in the previous section. The activities I have identified as CSFs require a joint effort from practitioners, stakeholders and government.

4.1 Forming Project Team

A project team brings about a better coordination and integration among stakeholders. A project team that represents all stakeholders in a road project solves integration problem among the different objectives of the actors by creating a platform of mutual goal and understanding. This also helps to prevent conflicts and in case of disputes to solve the issues quickly. It also improves the information flow process by cutting short long bureaucratic lines to get decision and approvals. A project team that stays throughout the road project life cycle is vital in that it lubricates the interface between different stages of a road project. In other words it decreases fragmentation between design and construction phases of the management process.

4.1.2 Improving Procurement and Contract Management Practices

Adopting a relevant procurement and contract scheme is vital to address issues that result from large number of stakeholders involved in Ethiopian road construction projects. It also helps to address other important factors such as outcome, managing claims, principles of modern road administration, risks associated with cost overrun, public finance deficiency and promoting private participation. New contract types such as contracts based on standards, performance based contracts, and etc. must be studied and implemented.

4.1.3 Establishing a Construction Management Institute

As observed in the previous section there is a need to improve capacity Of Project managers in road construction. This is also true for the whole construction industry of the country. But radical changes in these areas require not a mere recognition neither individual effort. Rather fully integrated actions which are backed by appropriate legal frame work and institutional arrangement is required.

4.2 Recommendations

4.2.1 Development of Relevant Construction Management Principles Various New Management

Concepts developed in recent years and areas of activities identified by this cannot be expected to be annexed in Ethiopian construction industry by private effort alone. Besides, the traditional trend of construction prevailing in the country gives little incentive for individual Ethiopian construction companies to invest in research and development. Therefore to activate a cultural shift in Ethiopian construction industry, key role must be played by the government which is a major client for public works, in this case for road construction projects. Government should commit itself to being a best practice client.

4.2.2 Actively Promote Best Practice through Use of Contractor's Prequalification Scheme

It used to promote best practice through the use of contractor prequalification schemes using prequalification criteria. With analogous approach accreditation criteria could be listed for Ethiopian contractors who are involved in road construction projects or any other public projects. Among possible lists for such criteria the following can be implemented;

- Commitment to client satisfaction
- Quality management
- Health and safety management
- Partnering
- Benchmarking
- Value engineering

4.2.3 Promoting the Construction Profession

Ethiopian road construction, the whole construction industry alike, needs more professionals. There is a lack of sufficient competent construction professionals who got the appropriate organizational and technical skill required to successfully complete a modern road construction project. Therefore construction profession must be promoted. It is a big challenge to educate people about the construction industry. It provides professional registration and certification for individuals who want to take construction management as profession and ensures their participation in the construction industry

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