

# Large construction projects in developing countries: a case study from Vietnam

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## Abstract

Although various studies have been undertaken into the factors affecting delays, cost overruns, quality, safety, and productivity, etc. and other problems in specific types of projects, these studies seldom discuss common and general problems of construction projects. Thus, comprehensive studies on these problems are essential. Since the problems are rather contextual, the studies need to focus on a specific geographical area, country or region. This paper presents problems of large construction projects in Vietnam. Data analysis revealed that the problems could be grouped under five major factors: (1) incompetent designers/contractors, (2) poor estimation and change management, (3) social and technological issues, (4) site related issues, and (5) improper techniques and tools.

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## 1. Introduction

It is widely accepted that a project is successful when it is finished on time, within budget, in accordance with specifications and to stakeholders' satisfaction. Unfortunately, due to many reasons, high project performance and project success are not commonplace in the construction industry, especially in developing countries. Therefore, professionals and scholars have been motivated to take extensive efforts to meet this challenge. As a result, several studies have been undertaken on factors affecting delays [1–11], cost overruns [4,9], quality [12], safety [13–15], and productivity [14,16], etc. and problems in specific types of projects [17,18]. These studies usually focus on one or some certain specific aspects of project performance.

Although the focuses are very often necessary, comprehensive studies on common problems of construction projects seem much more urgent. The reason is that a project cannot be successful if all key project performance indicators and project targets do not reach certain levels

and that there are intricate interrelations among these indicators as well as the targets. Thus, practitioners must develop the capacity to foresee potential problems likely to confront their current and future projects. Identification of common problems experienced on past projects in their construction business environment is a good option. As the common Asian saying goes “a problem well defined is a problem half solved”. Project parties must be proactive in managing their projects in which potential problems are fully anticipated.

Vietnam is currently among countries with high gross domestic product (GDP) growth rates. For example, GDP growth hit 7% and recorded the fastest economic growth in Southeast Asia in 2002 [19]. Construction investment in Vietnam has been increasing to meet the needs for the socioeconomic development. Management of construction projects in Vietnam, however, has faced various problems due to many causes, controllable and otherwise. Gaining insight into the problems is necessary to help professionals to be active in dealing with the problems and their consequences.

The objective of this paper is to provide insight into problems experienced in large construction projects in Vietnam. The research defines a large

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construction project as a project with a total budget more than \$1 million. It is intended that findings of the paper are useful not only for Vietnamese construction participants but also for those in other developing countries.

## 2. Previous research

The major problems faced by contractors in developing countries have been classified as: (1) problems imposed by the industry's infrastructure, (2) problems of inaccurate information and frequent changes in instructions and failure to meet obligations on the part of clients and consultants, and (3) problems imposed by their own shortcomings [20]. Research into the delays experienced in high-rise building construction projects in Thailand supports this classification. Specifically, Ogunlana et al. [6] confirmed that construction industry problems in developing economies can be nested in three layers: problems of shortages or inadequacies in industry infrastructure, problems caused by clients and consultants, and problems caused by contractor's incompetence/inadequacies. A recent study on East Asia cross-border construction [21], identified five groupings of obstacles as business environment risk, regulatory restrictions, contractual arrangement, and differences in standards and culture. If the problems and/or obstacles are not solved swiftly, they can cause delays and cost overruns in projects, harm cooperative relationships, reduce efficiency, lead to claims and disputes, and probably invoke litigation proceedings [22].

Other studies relating to industry problems concern causes of time delays and/or cost overruns. Such studies have been conducted worldwide from developed countries such USA [1] and UK [3] to developing countries such as Turkey [2], Nigeria [4], Saudi Arabia [5], Thailand [6], Hong Kong [7–9,23], Malaysia [24] and Jordan [10,11]. Causes and factors pertinent to time and cost overruns and other project performance indicators in these studies are generally termed "adverse factors" in this paper. A set of the adverse factors is a comprehensive foundation for identifying common problems of large construction projects in this research. By probing the underlying relationships, the adverse factors can be classified into groups of problems within the purview of financiers, owners, contractors, consultants (including designers), project attributes, coordination and environment. The problems or adverse factors are listed in the respective groups as follows:

*Financier-related problems* are problems in the financing domain. High cost of financing [1] and difficulty in getting loans [2] are adverse factors identified in previous work. Furthermore, interference in owner's decisions and funding shortages are other common problems attributed to financiers.

*Owner-related problems* are the problems for which clients or employers are responsible. Finance and payments for completed work [1,2,4,5,11], excessive change orders [1,5,8], slow owner's decision-making process [2,5,6,11,18], owner interference [11], and ill-defined duties and responsibilities [2] are adverse factors frequently cited in previous studies.

*Contractor-related problems* concern problems or adverse factors caused by contractors. They include inadequate experience [11,24], construction errors [1,4,11], poor site management and supervision [1,6,8,11], equipment failures or allocation problems [1,6,11], inadequate labor skills [1,5], site manager lacking authority [2], improper planning and scheduling [1,2,6,11,24], inaccurate estimation [4,5], and poor contract management [1,4,11].

*Consultant-related problems* are problems or adverse factors attributable to designers/consultants. Preparation and approval of drawings [11,12], design errors, delays in work approval [4,6,11], uncompromising attitude [6] are common problems for which consultants are held responsible in literature.

*Project attributes-related problems* are problems or adverse factors that derive from the characteristics of the project and/or are difficult to classify into other problem categories when the project delivery system and other project information are not taken into account. For example, in some research [11], an adverse factor, namely improper quality assurance/control was considered to be within the purview of consultants. Except for traditional procurement, this classification may be inappropriate in other project delivery systems. In the other project delivery systems such as design and build, contractors have to establish systematic quality assurance/control or face the consequences of low quality otherwise. This research therefore considers improper quality assurance/control as a project attributes-related problem. Unforeseen site conditions [1,4,8,11,24], confined site [6], problems with neighbors such as pollution [6,11,25], unrealistic imposed contract duration [4,11], inaccuracy of project information [18] are other adverse factors in this category.

*Coordination-related problems* are problems or adverse factors such as poor communication [1,3,11,18], excessive use of subcontractors and nominated suppliers [1,4,11], excessive bureaucracy [2,5,25], fraudulent practices and kickbacks [4,25], misalignment of client's expectations [18], and jurisdictional disputes [1,22].

*Environmental problems* are external problems or adverse factors. They may be caused by natural conditions, for example inclement weather [1,3,4,11] or socioeconomic conditions such as material shortage or late delivery [1,3,4,6,11,24], labor shortage [1,2,5,11], price fluctuations [4,11]. In addition, problems or adverse factors perceived to be responsible by external project

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