



Creative Construction Conference 2016

Conflict Scenario Typologies in a Public Construction Project

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Abstract

Conflicts have critical effects on cost and scheduling in public projects. Due to their complexity and larger scale, public projects frequently cause a high-level conflict that can lead to cancellation. Furthermore, because most of these projects are mega-projects, economic losses caused by the conflict can be enormous. Although investigations into the causes of conflict and resolution have been conducted, their findings have not been applied to conflict solution. This paper aims to establish a conflict scenario of projects based on the causes of conflict and to suggest a mitigation strategy. Representative public projects in which the conflict has peaked are studied, and the conflict scenario is classified by the causes of the conflict. While the aspect of conflict change can be readily identified, the conflict scenario has to be distinguished by the results of the conflict aspect. In this research, five types of conflict scenarios are defined in accordance with the results of completed projects, and characteristics of the scenarios are investigated. The characteristics can be a key factor in finding solutions for conflicts. This research is expected to assist project stakeholders in developing effective strategies for addressing possible conflict.

Keywords: Conflict; Conflict Management; Conflict Scenario; Public Project

1. Introduction

1.1. Research background

As public construction projects become larger, they are reaching into the mega-project size. Accordingly, the stakeholder structure has become more complex, and many conflicts occur in the construction project. The conflict involved in public projects affects project performance, including duration and cost, and may result in project cancellation. For projects that are larger and more complex, finding the cause of and a solution to the conflict can be more difficult [1]. Moreover, the conflict occurring in a large project has an important effect on not only project performance but also social governance [2]. Although the government and local jurisdictions continue their efforts to resolve conflicts [3], for example, through the analysis of conflict effects in the project planning phase, conflict occurrence continues to increase.

To manage a conflict effectively, the conflict needs to be recognized and systematized alternatives should be suggested using a fundamental approach. There have been many academic studies to resolve conflicts in construction projects, in particular the social sciences have addressed a conflict occurrence mechanism. The conflict occurs due to differences in stakeholder positions [4, 5]. Therefore, evaluating stakeholder satisfaction is one way to resolve the conflict [6], and stakeholder interest is also important [7]. When a conflict occurs, determining how to respond is also one aspect of the conflict [8]. In engineering science, the schedule or cost management is usually studied [9- 11]; however, analyzing a schedule delay and suggesting a conflict resolution using a mathematical model can provide an alternative but cannot provide a reason in the early stage for the cause of the conflict. Therefore, early evaluation and alternative deduction should be the goal. To address this problem, this research aims to establish a conflict scenario of projects based on the causes of conflict and to evaluate the characteristics of the conflict scenario to identify mitigation measures.

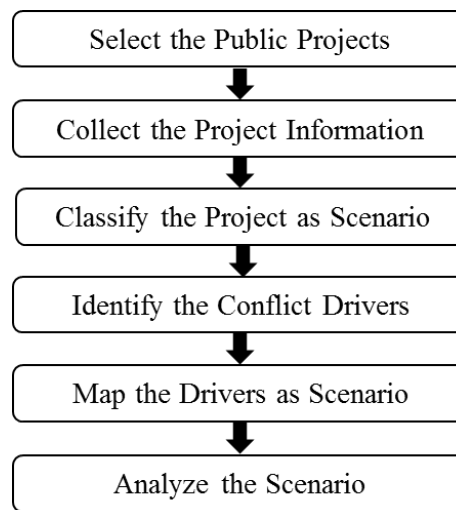
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1.2. Research scope and process

For analyzing the progression of conflicts, retrospective case studies are used and conflict scenarios are mapped. The research flow is shown in Figure 1. First, public construction projects are selected based on their social effect and the ease of data collection. Then, the data are collected in the form of secondary data from journals, government reports, and other sources. The projects are classified into scenarios based on the conflict impact to the construction stage, and conflict drivers are identified and mapped. The characteristics of the conflict drivers are then investigated to suggest an appropriate strategy for the conflicts.

The most important consideration is the stakeholders, who can be classified into two categories [4, 5]: 1) internal stakeholders who are bound by a contact between the demand side and supply side and 2) external stakeholders who consist of public sectors and private sectors. In this paper, only external stakeholders are considered in the conflict scenarios due to dealing with superficial conflicts.

Figure 1. Research process.



2. Research methodology

2.1. Retrospective case studies

Retrospective case studies were conducted for classifying the conflict scenarios. Using retrospective case studies is a method for deducing the meaningful results from a case study through inductive inference [12]. This methodology can investigate a social phenomenon in depth so that conflict cause and effect, progression, and consequences are identified. Moreover, a conflict that may be difficult to analyze quantitatively can be understood by processing data using this method.

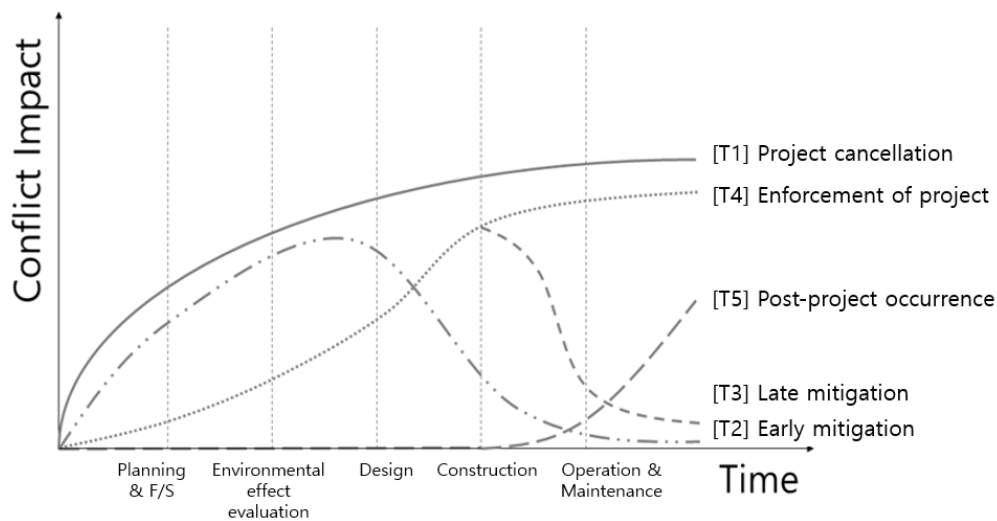
For the retrospective case studies, we selected 22 public construction projects. Project selection considered the social effect, which helps to analyze conflict progression, and ease of data collection since project information, the reason for construction, and conflict aspects are important considerations. Data were collected from journals and government reports to convert unstructured qualitative data from structured information. Insufficient data were complemented through cross-checking against newspapers and private reports.

Table 1. Cases for the five scenarios

Scenario	Case
Project cancellation	Yeongwol dam project
	Ulsan memorial park project
	Anmyeon Island radioactive waste disposal facility project
	Wi Island radioactive waste disposal facility project
	Yongsan redevelopment project
	Gadeok Island airport project
Early mitigation	Cheonggye stream restoration project
	Guri-Pocheon expressway project
	Songsan green city borrow pit project
Late mitigation	Mountain Cheonseong tunnel project
	Mountain Sapae tunnel project
	Saemangeum reclamation project
	Sihwa-Banwol industrial complex project
	Busan memorial park project
Enforcement of project	Miryang transmission line project
	Jeju naval base project
	Iksan waste disposal facility
	Jucjeon-Bundang road project
Post-project occurrence	Onsan industrial complex project
	Yeosu industrial complex project
	Suwon world cup stadium project
	Gori nuclear power plant project

Of the five scenarios listed in Table 1, project cancellation is for cases when severe conflict occurs in the planning and feasibility study stage. Early mitigation represents cases when there is a proper response to a conflict at an early stage. Cases in late mitigation are the most common; due to the continuance of conflict, the cost and duration of a project increases, but adequate compromise results in advancing to completion. Enforcement of a project is when the government enforces the project on the condition of no compromise. Post-project occurrence is for cases when the conflict occurs in the operation and maintenance stage; maintenance cost and usage fees are the main causes of conflict.

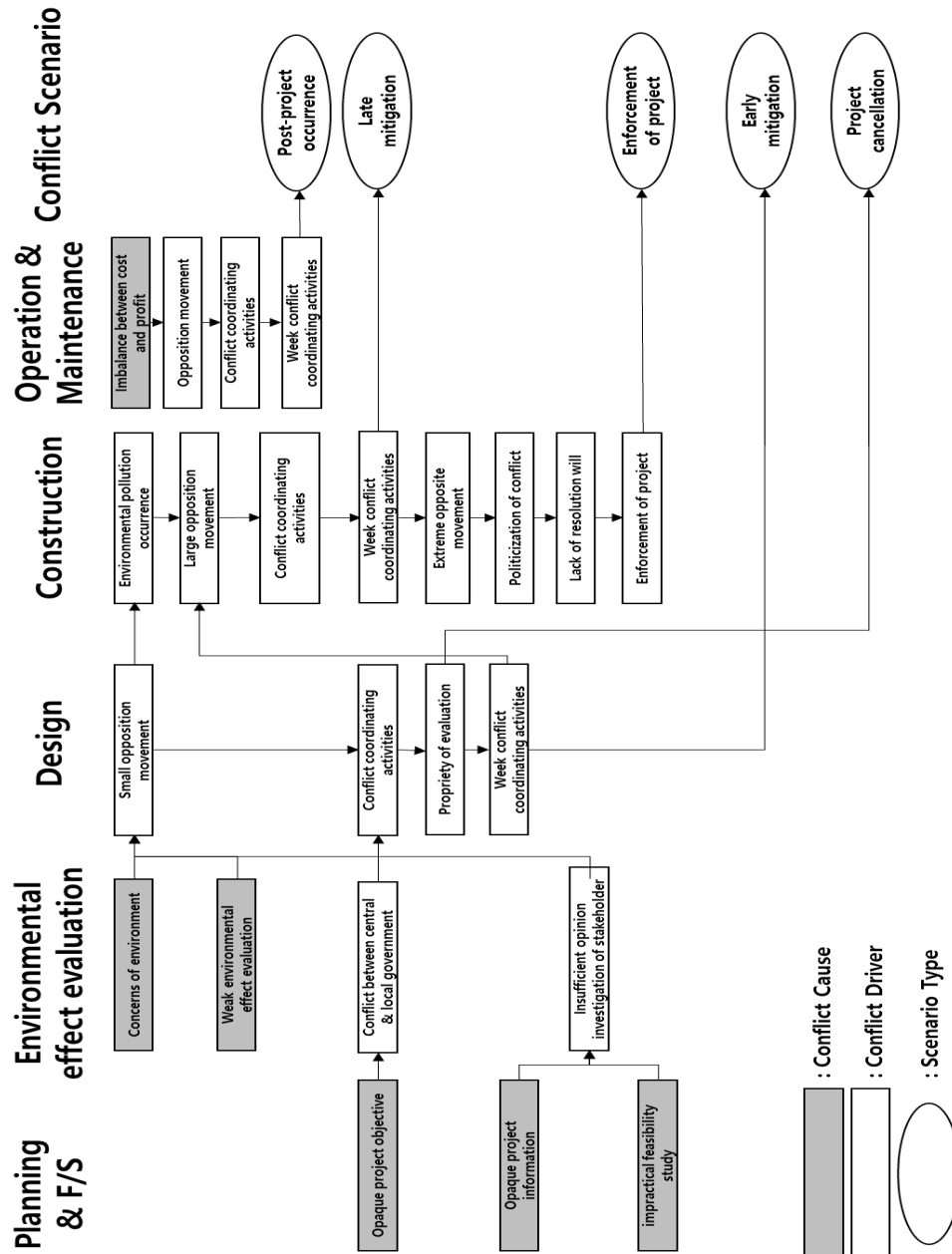
Figure 2. Five scenarios of public construction projects.



2.2. Path diagram mapping

To develop the conflict scenario, understanding the progression of the conflict and mapping the conflict drivers are needed. The conflict drivers are deduced and structured by the five project stages, which are 1) planning and feasibility; 2) environmental effect; 3) design; 4) construction; 5) operation and maintenance. For consistency of terms, we combined synonym and analogous terms as representative terms. In so doing, the conflict driver pool was composed to map the scenarios. The conflict drivers were mapped to show the progression of the conflict from the planning & feasibility study stage to the operation & maintenance stage. In Figure 3, the conflict cause is shown to be situated at an early stage (planning & feasibility study stage, environmental effect evaluation), and the conflict deepens at the construction stage.

Figure 3. Conflict scenario map.



3. Conflict scenario typology

Christopher (1986) classified conflict into five types—1) value conflict, 2) relationship conflict, 3) interest conflict, 4) data conflict, and 5) structural conflict—and recorded the characteristics of each types [13]. Value conflict is caused by different ideas, values, and philosophy, and this is most challenging of conflicts. Relationship conflict is caused by strong emotions, misperceptions, or stereotypes. This type can also be affected by other types.

Interest conflict is caused by competition for profit, resources, or rights. Land compensation, NIMBY (Not In My Back Yard), or PIMFY (Please In My Front Yard) phenomena occur due to interest conflicts. Data conflict is caused by a lack of information, while the structural conflict is caused by unequal power, for example, the central government versus local government.

Table 2. Major causes and characteristics of conflict scenarios

Conflict Scenario	Conflict type	Conflict cause	Characteristics
Project cancellation	Value conflict	Poor project feasibility study	Conflict occurrence and deepening in early stage
	Relationship conflict	Distrust of government for closed administration	Unconditional opposition movement
Early mitigation	Interest conflict	Release of information	Conflict occurrence and mitigation in early stage
	Data conflict	Consultation of compensation	Securing transparency and reliability of information Active conflict management of government
Late mitigation	Value conflict	Selection of location	Conflict occurrence in early stage and deepening in construction stage
	Data conflict	Compensation	Conflict mitigation through reconsideration of project feasibility, technical review
Enforcement of project	Value conflict	Selection of location	Conflict occurrence in early stage and deepening in construction stage
	Interest conflict	Compensation	Enforcement of project through armed crackdown, governmental authority Continuous conflict after completion
Post-project occurrence	Interest conflict	Environmental issue	Conflict occurrence in operation and maintenance stage
	Structural conflict	Right of facility	Local-level conflict between local government and resident

The five conflict scenarios can be matched to the five conflict types. Project cancellation is matched to the value and relationship conflict; a poor project feasibility study or selection of location is the main conflict cause, and an unconditional opposition movement leads to project cancellation. Early mitigation is the solution scenario that mitigates the conflict. The government makes an effort to gain trust, show transparency through a public hearing, and coordinate conflicting activities. Late mitigation and enforcement of a project increase costs and duration delays. Selection of a location and compensation are the most common causes. A conflict that occurs in an early stage is amplified in the construction stage; with a deepening conflict, it becomes a political issue. These two scenarios need to resolve the problem before a conflict reaches its peak. The post-project occurrence has two causes, profit and complaints about rights and environmental issues.

4. Conclusion

In this research, we classified conflict in public construction projects into five scenarios according to the conflict impact to project stages, and we analyzed the major causes and characteristics of the conflict types. Most causes of conflict start at an early stage (planning & feasibility study) and deepen in construction. The feasibility study, environmental issues, selection of location, and compensation are the most common causes of conflict. Most importantly, efforts need to resolve the conflict at early stage.

The classified scenarios can be used to develop resolutions of conflict in public construction projects, particularly with the characteristics of each scenario. In further research, conflict impact will be analyzed by quantitative methods, and a concrete solution will be developed for each scenario.

Acknowledgments

This work was supported by a Korea Science and Engineering Foundation grant funded by the Korea government (MOST; No. NRF-2015R1A2A1A09007327).

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