

Causes of disputes in the Turkish construction industry: Case of public sector projects

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Abstract

Disputes are inevitable in construction projects. They pose serious risks for the project participants and if not managed properly, disputes prevent the completion of construction projects within the desired cost, time and quality. Therefore, it is vital to determine the factors that contribute to construction disputes. The main purpose of this study is to identify the primary causes of disputes in the Turkish construction industry. In this context, the public construction disputes among the parties during the execution of the contract are examined. The findings show that the problem areas giving rise to disputes are mainly related to seven dispute categories as unit prices, delays and extension of time, contractual matters, variations, contract documents, payments, and other disputes. These dispute categories are analyzed comprehensively, and finally, main causes of disputes in each dispute category are identified and discussed in detail.



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Keywords

Causes of disputes, Construction industry, Dispute, Dispute categories, Turkey.

1. Introduction

In construction industry, many work pieces are integrated together in a construction project using large amounts of money, materials and equipments by different participants from several specialties. Despite the fact that the main purpose is completing the construction project within the budgeted cost, scheduled time and accepted quality; participants of the project have their own goals and perceptions. Due to differences in perception and conflicting goals among the participants in a project, conflicts in the construction project environment are inevitable (Cheung and Suen, 2002). If not properly managed, these conflicts can quickly turn into disputes. Thus conflicts, claims, and disputes could be considered an unavoidable consequence of the construction process (Fawzy and El-adaway, 2012; Ogburn and El-adaway, 2013).

The terms conflict and dispute have been used interchangeably (Acharya et al., 2006) and they are inter-related (Chong and Zin, 2012). However, conflict and dispute are two distinct notions (Fenn et al., 1997). Conflict has been defined as a serious difference or disagreement between two or more beliefs, ideas or interests (Kumaraswamy, 1997). Therefore, conflict can be managed in order to prevent to result in dispute. On the other hand, disputes are taken to imply prolonged disagreements on unsettled claims and protracted unresolved/destructive conflict (Kumaraswamy, 1997; Abeynayake, 2008). Disputes require resolution, and the process of dispute resolution lends itself to third party intervention. An effective dispute resolution process is critical to the financial success of the project (Bates and Holt, 2011).

In this regard, this paper aims to identify and explore the primary causes of disputes occurred during the execution of the public construction contracts. In order to reach this aim, a literature review is conducted for the analysis of the causes of disputes from several countries. Disputes among the contracting parties during the execution of the contract are examined in the public construction projects. The examined disputes are the ones which

were applied by the state institutions to the Supreme Technical Board for investigation and a proper settlement. With the help of the examination, the main dispute categories are revealed according to their nature and mode of occurrence. Furthermore, main causes of disputes in each dispute category are identified and discussed in detail.

2. Literature review

There has been considerable research undertaken in order to determine the causes of disputes in the construction industry. Watts and Scrivener (1992) examined the sources of disputes on building contracts in Australia and identified most frequent dispute sources as variations, negligence in tort, and delays including damages. A case study conducted in the UK was determined seven main types of disputes: contract terms, payments, variations, extensions of time, nomination, re-nomination, and availability of information (Heath et al., 1994). Another study in the UK revealed the main factors contributing to the development of construction disputes such as poor management, poor communication, inadequate design, unrealistic tendering, adversarial culture, and inadequate contract drafting (Rhys Jones, 1994). In Canadian construction industry, five primary causes of disputes were found as unrealistic expectations, ambiguous contract documents, poor communication, lack of team spirit, and failure to deal with changes and unexpected conditions (Bristow and Vasilopoulos, 1995). Diekmann and Girard (1995) identified three categories of project characteristics: people, process and project aspects on the occurrence of contract disputes. The classification of Kumaraswamy (1997) derived from a cross section of the literature provided a good reference of the common sources of construction disputes. Fenn et al. (1997) identified causes of construction disputes as poor communication, absence of team spirit, deficient management, and discrepancies or ambiguities in contract documents. Kumaraswamy and Yogeswaran (1998) mentioned that the sources of construction disputes are mainly related to contractual matters, including

variation, extension of time, payment, quality of technical specifications, availability of information, administration and management, unrealistic client expectation and determination. Thompson et al. (2000) indicated that disputes arise due to lack of communication, distrust, misinterpretations of contracts, uncertainties of role and responsibilities, and imbalance in risk allocations. In US construction industry, it is found that disputes mainly arise due to project uncertainty, contractual problems, opportunistic behavior, contractor's financial position and cost of conflict and culture (Mitropoulos and Howell, 2001). Cheung et al. (2001) classified six common causes of disputes: budget overrun, outstanding payment, different percentage of claim submission and certification, number of days behind programmed, liquidated damages and percentage change from original design. Chan and Suen (2005a) classified the sources of construction disputes into three categories: contractual, cultural, and legal. Moreover, Chan and Suen (2005b) indicated that the problem areas giving rise to disputes in Chinese construction industry are mainly related to contractual matters such as payments, variations, extension of time, risk allocation, and unclear contractual terms. Cheung et al. (2006) defined the factors that contribute to construction disputes as the inclusion of special conditions in contract, changes in construction plans and specifications, and contradictory and error of information in the documents. Cheung and Yiu (2007) identified dispute sources in two different category as construction related and human behavior related. Main reasons for disputes in Sri Lanka construction industry are determined as breaches of contract, inadequate administration of responsibilities, plans and specifications that contain errors, omissions and ambiguities, sudden tax and cost increase (Abeynayake, 2008). The research in Australia provided to understand the underlying pathogens contributing to disputes as failure to detect and correct errors, failure to oblige by contractual requirements, and unforeseen scope changes (Love et al., 2010). According to Gad et al. (2011) differ-

ent contractual factors, cultural backgrounds, legal and economic factors, languages, technical standards, procedures, currencies, and trade customs make projects more vulnerable to disputes. Although researchers have concentrated on various causes of disputes, there is a certain level of commonality in the causes of disputes. The common causes of disputes were identified through a relevant literature review and classified into related categories. Among the dispute categories derived from a cross-section of the literature, contract related disputes were found as the most common ones (Cakmak and Cakmak, 2013; Cakmak and Cakmak, 2014).

2.1. Disputes in the Turkish construction industry

There are few studies concerning the concept of dispute in Turkish construction industry, and these studies are related to the perspectives of the project stakeholders to the dispute factors (Ilter, 2012) and the selection or usage of dispute resolution methods (Ilter and Dikbas, 2009; Tas and Firtina, 2015). Besides, there is no evidence on the identification of the disputes and the main causes of dispute occurrence for the projects in the Turkish construction industry. However, it is crucial to identify the sources of construction disputes; as they are one of the main factors which prevent the successfully completion of the construction projects.

Completion of the projects within the budgeted cost, scheduled time and accepted quality has great importance especially in public construction projects. In public construction projects, the owner is the government and the money needs to be spent carefully. Any dispute that cannot be resolved in a public construction project has to be submitted to the courts. However, the decision process is long, expensive and acrimonious. This results not only in unsuccessful and incomplete projects, but also time delays and cost overruns.

In public construction projects disputes are juristically examined in two main topics in Turkey. The first one is the disputes which arise during the tender process; and the other one is the

disputes that occur during the execution of the contract in the construction phase. Disputes and complaints during the tender process are subject to administrative jurisdiction and their resolution process is under the responsibility of Public Procurement Authority (KIK). In other words, it is KIK's responsibility to analyze disputes and complaints and bring them to a conclusion. The responsibility is given to KIK by the Public Procurement Law no: 4734; hence it is KIK's responsibility "to evaluate and conclude any complaints claiming that the proceedings carried out by contracting authority within the period from the commencement of the tender proceedings until the signing of the contract" (KIK, 2016a). KIK's responsibility on dispute resolution finishes after the contractor is selected and the contract is signed. As soon as the contract is signed, it becomes a private law contract between the parties: owner and contractor. Hence, any disputes are subject to civil jurisdiction. This means that unless a dispute is resolved, the owner or the contractor needs to apply to the commercial courts. It is indicated in the standard form of contract as "the disputes that may arise between the parties during the execution of the contract shall be settled by the Turkish Courts" (KIK, 2016b). If the contractor is an international one, then the disputes can be settled in terms of International Arbitration Law provisions. Otherwise, there is no alternative mechanism for the dispute settlement such as mediation, arbitration or dispute review boards. In other words, there is not any establishment or organization which analyzes and settles the disputes between the parties before going to a court. Besides, the Supreme Technical Board (in Turkish, Yuksek Fen Kurulu-YFK), a service unit of the Ministry of Environment and Urbanization, has some responsibilities on public construction disputes which arise due to the execution of the contract.

As stated in the legislative decree of the Ministry of Environment and Urbanization, one of the duties of the Supreme Technical Board is to investigate and settle the disputes occurred during the progress of the contracts signed by

the state institutions and organizations regarding consulting and construction works, referring to related state institution's applications (YFK). Another duty of the Board concerns the disagreements about the new unit prices. The Board is responsible for determining and fixing the new price which legally binds the parties. Other decisions on the disputes do not legally bind the parties; and the parties can search for other solutions or can go to the court. Nevertheless, especially state institutions apply to the Board for the investigation and settlement of disputes during the execution of the public construction contracts.

3. Research objective and methodology

Since disputes are the main factors that prevent the completion of construction projects within the budgeted cost, scheduled time and accepted quality; it is crucial to determine the problem areas giving rise to disputes. In this regard, this study aims to identify the main causes of disputes occurred during the execution of the public construction contracts. In order to achieve this purpose, construction disputes, which were applied to the Supreme Technical Board for investigation and a proper settlement, were analyzed. The analyzed disputes were the state institutions' applications that investigated and settled by the Board. In this regard, contextual analysis was used to assess overall applications with respect to construction disputes. Accordingly, the applications were classified and examined in terms of the subject of the dispute. Then, each application was examined in three main topics: (1) state institution's remarks and evaluations on the dispute, (2) contractor's remarks and evaluations on the dispute, and (3) the final decision about the dispute.

Analyzed applications are the ones which were published by the Board through their website (YFK) and printed publications of the Board (YFK, 2015). Thus, a total of 198 application were accessed which were investigated by the Board between the years 2005 and 2015. Of these applications 32 of them were eliminated as they were not related to construction disputes.

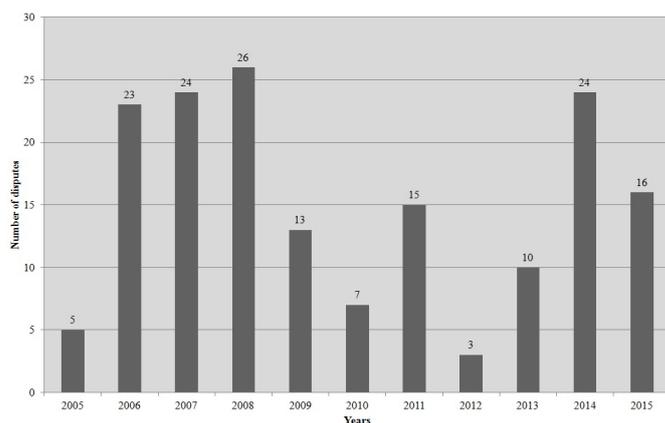


Figure 1. Number of disputes.

Table 1. Profile of applications.

Variable	Category	Frequency (%)
Contract type	Mixed contract	1.8
	Unit price contract	27.7
	Lump sum contract	70.5
Contract year	2005	3.0
	2006	13.9
	2007	14.5
	2008	15.7
	2009	7.8
	2010	4.2
	2011	9.0
	2012	1.8
	2013	6.0
	2014	14.5
	2015	9.6

Table 2. Dispute categories.

Dispute categories	Number of disputes	Frequency (%)
Unit prices	36	21,7
Delays and extension of time	34	20,5
Contractual matters	28	16,9
Variations	24	14,5
Contract documents	18	10,8
Payments	16	9,6
Other	10	6,0

Hence, 166 applications referring construction disputes were analyzed. Table I presents general characteristics of the analyzed applications.

All of the analyzed applications are related to a construction dispute which were occurred in a public construction contract. Due to privacy issues, the Board gave limited information about

the projects. The information about project participants, project size, and project location are kept confidential. Only the year and type of the contract are shared. Of these contracts, 70.5% of them are lump sum contracts, 27.7% are unit price contracts, and 1.8% of them are mixed contracts.

The number of disputes that were brought to a conclusion in each year is depicted in Figure 1.

4. Findings and discussion

Based on the analysis of applications, the common disputes occurred during the execution of the public construction contracts are revealed at first. The analysis showed that there is a certain level of commonality in the causes of disputes. Thus, the common causes of disputes are classified into seven broad categories depending on their nature and mode of occurrence. As a result, the main dispute categories are identified as unit prices, delays and extension of time, contractual matters, variations, contract documents, payments, and other disputes. The main disputes categories, their numbers and frequencies are given in Table 2.

The distribution of disputes among categories in each year and dispute shares are provided in Table 3. In terms of the time span, the number of disputes has started to increase in 2006; and showed a decrease in 2012; which could be linked to the increase/decrease in the public construction expenditures. According to the KIK's statistics, the increase rate of public construction expenditures is 115% in 2004; and the decrease rate is 21% in 2009 (KIK Public Procurement Reports). It can be interpreted that this increase/decrease has reflect on the number of disputes in two/three years.

Accumulated number of disputes from each dispute category is presented in Figure 2. By 2015, there are 36 disputes focused on unit prices, 34 disputes on delays and extension of time, 28 disputes on contractual matters, 24 disputes on variations, 18 disputes on contract documents, 16 disputes on payments, and 10 disputes on other subjects.

4.1. Causes of disputes

After identification of the main dispute categories depending on their nature and mode of occurrence, each dispute category is examined comprehensively. Main causes of disputes in each category are summarized in Table 4.

As it is seen in Table 4, the causes of disputes were revealed with respect to dispute categories. The detailed explanation on each dispute category is given below respectively.

Unit prices: When there is a design revision on the project, a change in the work or an alteration of a material, equipment or system; new work items show up. Especially the public authority (the owner) wants to make changes on materials during the construction. Since these new work items have not been specified in the contract, the owner and contractor need to agree upon the unit prices of new work items. Although the steps to be followed in determining a new unit price is given in the General Specifications for Construction Works (KIK, 2016c), these steps are not defined clearly. The owner and the contractor interpret these steps according to their own benefits, so it causes disputes between them. If the owner and contractor fail to agree on the new unit price, they can apply to the Supreme Technical Board for the determination of the new unit price. The owner and contractor have to accept this new unit price; if not, they can also apply to the court. The disputes occurred on unit prices are mainly due to the determination of a new unit price, scope of the unit price, and revised unit price.

Delays and extension of time: A delay is a project slipping over its planned schedule and is considered as common problem in construction projects. Delays occur in public construction projects, when the owner instructed additional works for which the contractor will be entitled to additional payment and extension of time. Besides, the contractor causes delay himself due to the inefficient works and failure to meet the contractual completion date.

When the applications to the Board are analyzed, it is seen that the owners and the contractors had problems on

Table 3. Distribution of the disputes within the time span.

Dispute categories	Number of disputes											Total
	05	06	07	08	09	10	11	12	13	14	15	
Unit prices		5	3	4	9	1	2	1	2	5	4	36
Delays and extension of time		1	4	4		1	6		4	10	4	34
Contractual matters	2	10	5	2	1	2	2	1		2	1	28
Variations	1	6	5	4		2			2	3	1	24
Contract documents			6	6	1		1			2	2	18
Payments	1	1	1	5	2		2			2	2	16
Other			1		1		1	2	1	2		10
Total	5	23	24	26	13	7	15	3	10	24	16	166

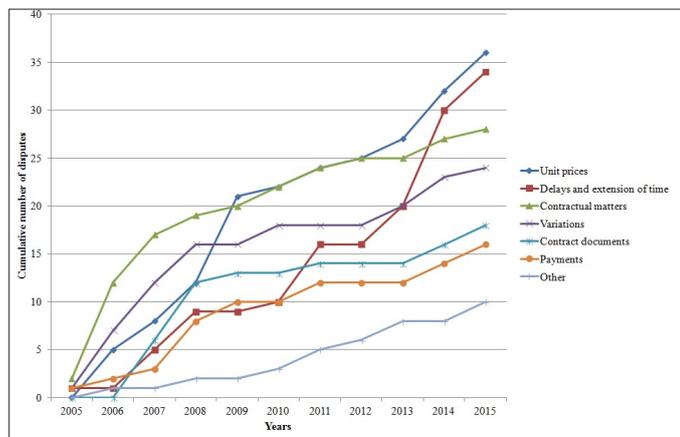


Figure 2. Cumulative number of disputes by category.

the cause of the delay; and they both did not want to accept any responsibility on the delay. The owners accused the contractors of the number of days behind scheduled and rejected the contractors' claim for time extensions. The contractors claimed for additional payments in the case of time extensions. On the other hand, the owners and the contractors had dispute on liquidated damages for the delay.

Contractual matters: Additional work items occur during the execution of a construction contract. Any dispute occurs whether that additional work is in the scope of the contract or not. Especially in lump sum contracts, since the owner and the contractor agree on a fixed price; payment of additional works caused serious problems. On the other hand, unclear contract terms and inadequate contract drafting caused different interpretation and misunderstanding of contracts; which resulted in disagreements between the contracting parties on their rights and

Table 4. Causes of disputes.

Dispute categories	Causes of disputes
Unit prices	Determination of a new unit price
	Scope of the unit price
	Revised unit price
Delays and extension of time	Number of days behind programmed
	Claim of time extensions
	Liquidated damages
Contractual matters	Scope of the contract
	Unclear contract terms
	Inadequate contract drafting
Variations	Project revisions
	Changes in the work
	Unforeseen scope changes
Contract documents	Differences between project design and contract documents
	Contradictory and error of information in the contract documents
	Plans and specifications that contain errors
Payments	Failure of payment
	Payment of price difference
Other	Other disputes

responsibilities. Due to the ambiguities in the contracts, the parties gave any meaning different from what was expressed by its terms.

Variations: A variation is any type of deviation from an agreed upon scope or schedule of works. Based on the analysis of applications, it is seen that variations caused disputes among participants in terms of project revisions, changes in the work, and unforeseen scope changes. Variations had not only cost-related effects like an increase in overhead expenses and additional payment for contractors; but also had time-related effects such as delays in payment, rework and demolition. Especially in lump sum contracts, a variation which caused additional payments was a source for a serious dispute. Besides, in unit price contracts, variations brought along the determination of a new unit price, which also resulted in disputes between the owner and the contractor.

Contract documents: The contract documents drafted for any contract should fulfill the intended roles and guidelines for the relationships between the contracting parties through-

out the project. Therefore it is necessary to have proper understanding of the contents of the contract documents. When the applications to the Board are analyzed, it is seen that any contradictory and error of information in the contract documents caused disputes between the parties. In order to avoid disputes, the owner should prepare whole and complete contract documents before the contractor selection. Analysis also revealed differences between project design and contract documents, plans and specifications that contain errors, failure in cost estimates, and incorrect work schedules resulted in time delays, cost overruns and quality problems.

Payments: Analysis of applications showed that payments are problematic issues in public construction projects. Owner's failure of payment, outstanding payments and late progress payments caused problems between the participants. In some cases, the contractor had to continue to work; although he had not received his payments on time. On the other hand, escalations are another dispute factor. When the contractors were entitled to a time extension, they also claimed for additional payment for price differences. Hence, it is important to indicate the payment of price differences in the contract in the case of time extensions.

Other: Other disputes were occurred in the following topics such as substantial and final completion operations, termination or suspension of the contract, incorrect work, correction of work, and return of performance bond.

When identified dispute categories compared with previous dispute classifications, it is seen that main causes of disputes are quite similar. First of all, many researchers agree that delays and extension of time cause disputes during the execution of the contract (Watts and Scrivener, 1992; Heath et al., 1994; Kumaraswamy and Yogeswaran, 1998; Cheung et al., 2001; Chan and Suen, 2005b). Similarly, contractual matters are identified as one of the primary dispute factors (Heath et al., 1994; Rhys Jones, 1994; Kumaraswamy and Yogeswaran, 1998; Thompson et al., 2000; Mitropoulos and Howell, 2001; Chan and Suen, 2005a;

Chan and Suen, 2005b; Cheung et al., 2006; Abeynayake, 2008). Another important dispute factor is identified as variations in many dispute related studies (Watts and Scrivener, 1992; Heath et al., 1994; Bristow and Vasilopoulos, 1995; Kumaraswamy and Yogeswaran, 1998; Cheung et al., 2001; Chan and Suen, 2005b; Cheung et al., 2006; Love et al., 2010). Likewise, previous researches also revealed that any contradictory and error of information in the contract documents cause disputes between the parties (Bristow and Vasilopoulos, 1995; Fenn et al., 1997; Kumaraswamy and Yogeswaran, 1998; Mitropoulos and Howell, 2001; Cheung et al., 2006; Abeynayake, 2008). Furthermore, as it is in Turkish construction industry, payments are also identified as an important dispute source by other researchers (Heath et al., 1994; Kumaraswamy and Yogeswaran, 1998; Cheung et al., 2001; Chan and Suen, 2005b).

5. Conclusion

Disputes have become inevitable parts of construction projects. If disputes are not properly managed, they may cause project delays, undermine team spirit, increase project costs, and, above all, damage continuing business relationships (Cheung and Suen, 2002; Chan and Suen, 2005b). Moreover, disputes prevent the successful completion of the construction projects within the budgeted cost, scheduled time and accepted quality. Especially in public construction projects, any dispute poses serious risk for the successful completion of the project; because if the dispute are not resolved among participants, they need to apply to the court. Since it is a long, expensive and acrimonious process; it results in unfinished, incomplete and unsuccessful public construction projects. Therefore, identification of the sources of disputes is vital in order to avoid them.

Accordingly, the purpose of this study was to identify the main factors contributing to the development of construction disputes in construction industry via public construction projects. A comprehensive analysis was conducted and 166 disputes in the execution of a contract were investigated

through a ten year period. The analysis results revealed that there are seven significant dispute categories shown in public construction projects perceived in Turkish construction industry. Based on the analysis, seven main general areas were identified for dispute categories: unit prices, delays and extension of time, contractual matters, variations, contract documents, payments, and other disputes. Then, each dispute category was examined comprehensively in order to identify the main causes of disputes. In the unit prices category, the main dispute causes were found as determination of a new unit price, scope of the unit price, and revised unit price. Delays and extension of time were the second dispute category and involved causes such as number of days behind programmed, claim of time extensions, and liquidated damages. The analysis showed that another problem areas giving rise to disputes were also related to contractual matters such as scope of the contract, unclear contract terms, and inadequate contract drafting. Moreover, variations as project revisions, changes in the work, and unforeseen scope changes were other causes of disputes among participants. Contract documents were identified as a dispute category; differences between project design and contract documents, contradictory and error of information in the contract documents, and plans and specifications that contain errors were found to be the main causes of disputes in that dispute category. Finally, failure of payment and payment of price difference were determined as dispute causes in the category of payments.

This study helped to identify the problem areas giving rise to disputes in public construction projects in Turkey. However, the data are based on only state institutions' applications to the Supreme Technical Board. Future investigation should focus on the private construction project practices.

The findings of this study can help the construction project participants by providing understanding on the primary causes of disputes during the execution of a contract. By having knowledge on the main dispute categories and their causes, participants can take

precautions, make effort to prevent disputes, and after all make a significant contribution in the successfully completed construction projects.

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