

# DEVELOPING A FRAMEWORK TO MINIMIZE THE OCCURRENCE OF CONSTRUCTION CONFLICT AND DISPUTES IN DIFFERENT PROCUREMENT STRATEGIES: AN INITIAL REVIEW OF LITERATURE

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The selection of the procurement system leading to the decision of contractual agreement to be adopted has been a popular research focus over the last two decades. Different kind of disputes concerning construction contracts have occurred and becoming increasingly common. However, it was also evident that current research in the construction contract management appears to pay more attention towards the dispute resolution rather than preventing conflict and disputes to occur in the first place. In light of this, a PhD research project has been set aiming to minimize conflict and disputes in construction contracting. As an integral part of the on-going investigation, a thorough study encompassing a critical review of reported cases as well as research that has been conducted for the past two decades on the conflict and disputes in construction contracting have been conducted and the findings are presented in this paper. Various conflict and disputes are grouped within different procurement systems and analysed against the characteristics of the relevant procurement systems in order to determine direct and/or indirect links. The findings capture the relationship between characteristics of the procurement system and the types of conflict and disputes occurred in the construction industry that can be used as a platform for the development of a framework to minimize their occurrences in different procurement scenarios.

Keywords: conflict, disputes, procurement.

## INTRODUCTION

The statutory definition of the law of contract has been considered extremely wide as this may include any agreement in writing or evidence in writing under which a party does any of the works such as carrying out construction operations, arranging for others to carry out construction operations and providing labour to deliver the construction. Construction contracts are governed by the general law of contract. In construction contracts, there are typically certain additional clauses on payment and settlement of disputes, which are unique to construction contracts. Until recently, the law did not treat construction contracts as a special class, but merely as part of a larger category known as contracts for work and materials (Murdoch and Hughes 2008). Disputes can be considered common in the construction industry, judging by the growth in publications and reports dealing with construction cases (e.g. Cheng *et al.*

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2009; Mitropoulos and Howell 2001; Fenn *et al.* 1997). The construction industry has gained a reputation for being contentious and litigious in a manner that may have also damaged the reputation of its stakeholders in disputes. These disputes may affect work quality and delay the progress of the construction process (Sutrisna 2004). This is despite the fact that construction industries are striving to identify ways to resolve disputes equitably and economically (Cheng *et al.* 2009). Mitropoulos and Howell (2001) identified that most of the research on construction disputes had been focusing on specific factors, such as contractual language and its judicial interpretation, the technical causes of claims, contractual equity or parties' relationship. There is a rather strong body of knowledge in dispute resolution (e.g. Gunawansa 2008; Jannadia *et al.* 2000) which mainly concern with situations after the disputes occurred. In light of that, the main focus of this paper is to investigate the occurrence of conflict and disputes and the potential link or relationship between disputes and the procurement systems applied in construction projects as a part of an ongoing PhD research. The aim of the research project is to develop a framework to minimize the occurrence of construction conflict and disputes in different procurement strategies. The objectives are; a) to review the current body of knowledge and study the contemporary issues in construction contracting and procurement; b) to investigate the nature of conflict and disputes in the construction contracting within different procurement strategies; c) to gather formal and informal practices in the construction contracting which have the potential to minimize conflict and disputes; d) to develop a framework that can be used by the key stakeholders to minimize conflict and disputes on different procurement strategies.

## **CONSTRUCTION PROCUREMENT AND CONTRACTING**

In executing construction projects, there are different ways of delivering known as procurement systems. There appear to be a consensus that there is one procurement method that is in some sense better than any others for an individual project, but that no one procurement method is likely to be better than others for any project (Love *et al.* 1998). Procurement selection has been considered as an important research subject over the last two decades. Responding to the distinctive needs of the client, project, and external environment, a procurement system provide a strategic framework whereby a construction project is brought about (Kumaraswamy and Dissanayaka 2001). It also sets out the specific authorities, responsibilities and relationships of various project participants (Love *et al.* 1998).

### **Construction Procurement**

The procurement system term has been defined as the organization arrangement chose by the client for the management of the design and construction implementation, and at times eventual operation of a project (Masterman 2002). Similarly, Love *et al.* (1998) stated that the terms 'contractual arrangement' and 'procurement system' are usually used synonymously. The definition that has been adopted here is that a procurement system is 'an organizational system that assigns specific responsibilities and authorities to people and organizations, and defines the relationship of the various elements in the construction of a project'. Under the traditional procurement system or strategy, design should be completed before competitive tenders are invited and before the main construction contract is let. In construction management procurement a part from management contracting, the client does not allocate risk and responsibility to a single main contractor. Instead, the client employs the design team and a construction manager is engaged as a fee-earning professional to manage, programme and co-ordinate the design and construction activities and to facilitate collaboration in order

to improve the buildability of the design. Design and build can be considered as a fast-tracking strategy. Construction can start before all the detailed design is completed, and the contractor absorbs the risks. Under a design and build strategy, a single contractor assumes the risk and responsibility for designing and building the project, in return for a fixed-price lump sum (Morledge *et al.* 2006). These definitions will be adopted in interpreting the relationship between parties in this research.

### **Construction Contracting**

It is a common practice in the construction industry for parties who involve in a construction project to enter into a legal and binding agreement called contract. Contractual obligation by any party in any contract will be of questionable state if the understanding of the terms and interpretation of the contents of the contract documents are not fully appreciated. Therefore it is necessary to have a proper understanding of the contents of the contract documents which leads to the enhancement of the contractual relation and assurance of the intended deliverance of the product (Mohamad and Madon 2006). The main purpose of engaging into a contract is to allow the involved parties in the project to have recourse to the law in the event that either of them fails to meet the purpose or main goal of a project. Contract as a legally binding document can be perceived as the 'glue' that binds parties from different background into the process of construction project. The terms, which are agreed by parties who are making the contract, express the intentions of both parties whilst privity of contract restricts the scope of the clauses provided in the contract that is only applicable to the parties who signed and had agreed with the contract (Murdoch and Hughes 2008). Whitfield (1994) believed that besides the main parties who are involved in construction contract, there are other parties who have interest towards the end product of the project such as the funder, the developer, the planning authority and not to mention the public at large as the end user. All of this variety of interest and the complexity of the projects appear to be the contributing factors to conflict and disputes in the industry.

## **CONFLICT AND DISPUTES**

Conflict and disputes are almost inevitable in construction industry (Hellard 1988; Campbell 1997; Fenn *et al.* 1997). It also can cost the parties in disputes their time, money and also jeopardize their good relationship (Gould *et al.* 1999; Fenn 2007). Review of literature concerning conflict and disputes in construction has lead to understanding that both terms seem to be used inconsistently. It appears that distinction between these two terms has been made in some research (Hellard 1988; Armstrong 1997; Hibberd and Newman 1999; Cheung *et al.* 2000) and while other is using 'dispute' to describe both (Morgan 2008). The common understanding about conflict is generally when two or more individuals see the same situation differently. Whereas disputes on the other hand arise when a claim made by one party to the other is rejected. Kumaraswamy (1998) has adopted dispute definition under Rule 1 of the Institution of Civil Engineers Arbitration Procedure which prescribed dispute as 'where a claim or assertion made by one party is rejected by the other party and that rejection is not accepted'. In addition to the formal definitions by various institutions, other scholars have also imparted their own justifications in understanding the conflict and disputes. Conflict can be divided into two which are functional and dysfunctional. Smith (1992) believed that functional conflict is essentially a construction community problem when it is an unavoidable consequence of the relationship in construction industry whereas dysfunctional conflict may have arisen if the actions of the parties have gone beyond what is recognized as functional conflict. As for Gould *et al.*

(1999), functional conflict is assumed as positive and productive whilst dysfunctional can slow down the progress and withhold success. Conflicts also have been perceived as opposition of interest (Hellard 1988); difference in understanding about intentions of differing values system from confusions between the aims of an action and the objects of the actors (Armstrong 1997). However it can be assumed that the potential for conflict is inherent in any contractual situation.

On the other hand, disputes arise if there is an actual difference of opinion concerning the interpretation and implementation of the contract (Hibberd and Newman 1999). Morgan (2008) asserts that a dispute is applied to any contentious issues that the parties to a construction contract disagree upon which need to be settled within or outside the contract. Kumaraswamy (1997) believed that disputes may arise from different perceptions as to the rightful and quantum of the claim. The potential for conflicts and disputes and always exists and it can be beneficial to recognize this from the early stage of any contractual relationship. From those various definitions and views on conflict and disputes it can be conclude that conflict is unavoidable but disputes are to be averted. Disputes on projects or contracts are more than troublesome; they actually can draw important resources from the main aim of the project which are typically completion within time, cost and at its highest quality (Turner, 1989). The cost of construction can be directly and adversely affected by litigation costs and by construction business failures and it may also affect by the way contracts are put together and awarded. Furthermore, disputes genuinely cost money and consume time to resolve, and it also can damage the good relationship between parties (Mmopi and Sutrisna 2008; Fenn 2007; Gould *et al.* 1999; Kumaraswamy 1998).

## RESEARCH METHOD

Research project often relates to the individual's interests, expertise and experience of the one who wish to embark the research (Fellows and Liu 2005). Review of prior and relevant literature is an essential feature of any academic project. A competent review of existing research creates a firm basic understanding for advancing knowledge. It assists the progress of theory development, closes areas which a vast of research exists and discovers areas where research is needed (Webster and Watson 2002). With a thorough literature review on the current body of knowledge which highly related to the research area can lead to an understanding on the contemporary issues in construction contracting and procurement. Furthermore, it also can be useful to avoid any repetition of previous work. Chynoweth (2008, pg. 1) advocated that "legal research can be perceived as relatively recent phenomenon within the built environment research community. Its academic methods have traditionally been scrutinized by other built environment researchers who have struggled to recognize its outputs as credible research contributions. There are five frequently used research strategies in the social science field which are surveys, experiments, archival analysis, histories and case studies (Yin 1994). Due to the nature of the subject being investigated, the research is limited to the UK construction industry. Archival work provides a complexity of variables which could be difficult to be simulated in an environment such as laboratory. However it is also understood that laboratory experiments afford specific controls that cannot be duplicated in real life. Thus, archival work should not be considered a standard, against which other research strategies should be evaluated, but rather as a valuable additional approach to the study (Behrman and Davey 2001). The result from this archival study can enhance this ongoing PhD research to the next level.

Hartman (1993) revealed that information on the number and the nature of disputes, their causes and the cost of their resolution can be hard to obtain. In relation to that, this research is conducted based on the legal cases which have been published reported in the Construction Law Report. At this stage, the archival study has been conducted towards 40 legal cases from 2005 to 2009. In further stages of the research, other cases from previous years and from other legal databases such as Building Law Reports and others will be studied to identify the trend of the disputes occurrence in the construction projects. In addition, the next pace of this ongoing PhD research will also includes the combination of other research strategies to satisfy the research aim and objectives.

## FINDINGS AND DISCUSSION

From the archival study done up to this stage, which have been captured from the reported cases are presented in Figure 1 and Table 1 and the ‘defects liability’ as the most common cause of litigation with 25% occurrence in the cases reviewed. The word ‘defect’ in this context includes any breach of contract affecting the quality of the work, whether structural on the one hand or merely decorative on the other, and whether due to faulty material or workmanship. It was then followed by ‘variation’ which represents 17.5% out of 40 cases analysed. The third highest percentage of dispute occurred is about ‘design changes’ with 15%. Non completion of project and extension of times with loss and expense and poor workmanship shared the same percentage which is 7.5%. Whereas ‘extension of time’, ‘no contractual relationship’, ‘liquidated ascertained damages’ and ‘payment’ also shared the same percentage of 5% each out of the 40 cases reported. However, in previous research Vidogah and Ndekugri (1998) indicated that there were eight areas which are likely to be disputed which were cost of disruptions, head office overheads, interest and finance charges, cost of preparing claims, loss of profit, inflation of costs, on-site overheads and others which different from the result of the analysed cases.

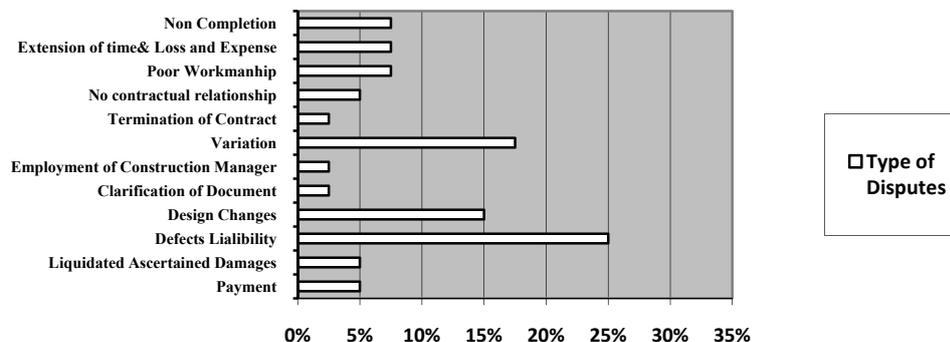


Figure 1: Type of Disputes in Litigation Cases in the UK, reported in the Construction Law Report (2005-2009)

Table 1: Mapping between the disputes occurred and procurement system

	Traditional	Design and Build	Construction Management
Payment (2)	<ul style="list-style-type: none"> <li>• Non-payment of invoiced fees</li> <li>• Client claim that they have overpaid the contractor</li> </ul>		
Liquidated Ascertained Damages (2)	<ul style="list-style-type: none"> <li>• Defendant accepts that the contract terminated as at September 2007 and no entitlement to LADs after that date.</li> <li>• Main contractor claim for LAD due to delay of work by subcontractor</li> </ul>		
Design Changes (5)	<ul style="list-style-type: none"> <li>• Changes was implied by the client and in result of that increase the total cost of the project</li> </ul>	<ul style="list-style-type: none"> <li>• Design changes made by designers to ensure buildability of the project</li> </ul>	
Clarification of Document (1)		<ul style="list-style-type: none"> <li>• The document is not clear</li> </ul>	
Defects Liability (10)	<ul style="list-style-type: none"> <li>• Allegation of defective works and overpayment to Contractor</li> <li>• Defects on the sewage treatment plant</li> <li>• Defects on building that need to demolish and rebuild</li> </ul>	<ul style="list-style-type: none"> <li>• Defects in the water paint and spraying system</li> </ul>	
Non completion (3)	<ul style="list-style-type: none"> <li>• Project is not completed on time as stated in the contract due to delay</li> </ul>		
Employment of Construction Manager (1)			<ul style="list-style-type: none"> <li>• Wrongly appointment of construction manager</li> </ul>
Variation (7)		<ul style="list-style-type: none"> <li>• Variations and incomplete design</li> </ul>	
Termination of Contract (1)	<ul style="list-style-type: none"> <li>• Wrongfully terminate the contract</li> </ul>		
No contractual relationship (2)	<ul style="list-style-type: none"> <li>• There are no legally binding contract signed by the parties, merely depends on letter if intent resulted to issues whether there is a contract at all</li> </ul>		
Poor Workmanship (3)	<ul style="list-style-type: none"> <li>• Poor workmanship of subcontractor which lead to defect in piling which attribute the failure to piling design</li> <li>• Fail to properly carry out the universal joint</li> </ul>		
Extension of Time & Loss and Expense (3)		<ul style="list-style-type: none"> <li>• To determine whether time has been set at large under one of the sub-contracts</li> </ul>	

## Defects and Liability

In most of the standard form of building or engineering contract, there are provisions dealing with defective works. Defective works could be in the forms of design fault, defective building materials or bad workmanships. In construction contracts, the works cannot be said to have been practically completed, if the work is so defective that it would prevent the owner from using the building as intended by the contract. In presidential address to the Institution of Structural Engineers by Dr. Alistair Paterson as cited in Doran (1997); a clear exposition of the causes of defects in buildings is given. The causes were analysed in terms of cost of repair, frequency of appearance and defects in the ten years after construction. It was concluded that many of these defects occur at the interfaces between materials as they react differently to their environment. Timing wise, the contractor's liability for defects can be demarcated along three principal stages of a typical contract, namely during construction, during defects liability period and post defects liability period (Tan 2007).

From the review of the cases, it was found that most of the defects occurred during construction period and also during the post defects liability period which have brought up issues on whose liabilities the defects can be referred to. The construction work is defective when it does not accord with the standard that is required by the contract. The obligation of the contractor to procure and achieve the specified kind and standard is an absolute one. If the contractor fails to do so, he would be in breach of contract; however, if the consultants on behalf of owner or owner fail to notify the defects at its early appearance until the defects liability period end, the liability of the defect can be questioned. From the cases reviewed, most of the defects occurred in the traditional procurement system. In traditional system, it can be said that the contractor's involvement and input is 'minimal' and 'often nil' (Rowlinson 1999). In result of that, there is nearly no chance or opportunity for the contractor to contribute towards the design element (Walker and Hampson 2003). Because of that there are

possibilities that defects can occur since contractors may fail to fully understand the clients' requirements.

### **Variation**

Variation orders have become almost inevitable in most of the construction project (Sutrisna 2004). The term variation in construction contract is usually described where new items of works (additional item) being added to a contract as well as situation where some of the original items were omitted (omission) or substituted with other material from the original contract (Wilmot-Smith 2010). Sutrisna (2004) perceived variation as an agreement either by words or conduct to be paid by the owner, as instructed by or on behalf of the owner, and applies on the works that are not genuinely agreed in the contract. From these definitions, both scholars seems to agree that variation is extra work that need to be done or work that need to be eliminated which is not preliminary agreed by both parties before signing the contract.

Basically there are two types of variations widely agreed, namely variations expressly authorized under the term of the contract which correlated to the requirement for completion of the original works in the contract and variations to the terms of the contract itself may be all changes that had been agreed by the employer and the contractor, thus it may include works that were not in the original scope of the contract and also can be unrelated to the completion of the original works (Sutrisna 2004). The result from the analysed cases seemed to be in parallel with the cause of variations from literature review where the variations mainly occurred as the results of the instruction from the owner in order to complete the work.

The analysis of the cases also revealed that most of the variations occurred in project executed with traditional procurement system. Traditional procurement system is broadly characterized by the contractor not being responsible on the design or the documentation work. Although the traditional procurement system implies that the accepted price tender (often the lowest price wins) will be the total cost of the project, it appears to be hardly the case in actual project (Cooke 2001). In short, even though traditional tender may give the lowest price, it might not be the lowest overall construction cost because of the variations and other circumstances that could probably happen (Kong and Gray 2006).

### **Design Changes**

Mere design problems or deficiencies can lead to a major dispute. Even though building can be seen as one solid product or unit, it is in fact a combination or assembly of various individual products. In principle, the fundamental elements of buildings are more or less the same of any product, materials and processes which are selected and arranged in order to meet the needs of manufacture and use. Hohns (1979) asserts that in order for design to be argued, it must at least alter the means, method, environment, duration or the condition of construction process. Tunstall (2006) regarded designing as a perpetual process of selection and arranging elements in a way to constitute the most significance and how can these elements contribute to the end product of a project. It also have been further discussed that the most common places in which design changes happen are in foundations, construction of frame and enclosure, utilization or spaces, in contract documents where method and materials and the required end result are specified, duration of project, and in connection with related performance by others (Hohns 1979). There are various institutes which have published codes of conduct relating to competent performance and good practical attitude so that the public can rely on the design for the building (Tunstall 2006).

From the analysis of the cases, it was found that design changes mainly happened during the construction stage and the implication of the design changes is disputed among the parties in the project. From the reviewed cases, most of the changes are initiated by the designer in order to make the project buildable. The dispute is then initiated by the contractor as the tender is based on the early design and it has cost them loss of money. It appears that the procurement routes used in the projects of the reviewed cases are traditional and also design and build. Whilst traditional procurement routes provide relatively less scope for design changes, the characteristics of design and build procurement actually does allow the changes of design as the construction process can start without having the complete design as long as the clients' requirement of the project is not neglected (Morledge *et al.* 2006). Based on the above fact and discussion, in order to eliminate or prevent dispute regarding changes of design, it is important that the contractor and designer together with the client discuss about the buildability and requirement of the project from the very beginning especially if it refers to mega project. In order for that to happen, it is suggested that design and build type of procurement system is adopted.

### **Relationship of Project Stakeholders**

It appears in the reviewed cases that disputes occurred more in the traditional procurement system rather than in other systems, i.e. the design and build, construction management or others. The relationship between parties may be affected if the attempt to resolve the disputes failed (Mmopi and Sutrisna 2008). Morledge *et al.* (2006) stated the one of main disadvantages of traditional procurement system is that the strategy is based upon price competition and that can lead to adversarial relationship, particularly when the cost is not as what has been expected in the earlier stage. In project delivered with the design and build system, the disputes in the reviewed cases mainly occurred between client and contractor and between contractor and suppliers and consultants. Disputes also do found between subcontractors and sub-subcontractors. The main reason of the disputes between client and contractor are mainly due to the difficulties that can be experienced by clients in preparing adequate brief to the contractor and also client changes to project scope might be vast (Morledge *et al.* 2006). Disputes can occur between contractor and subcontractor, suppliers or sub-subcontractors because of the payment, workmanship and also variation. These are some of the possible disputes that might occur between those parties. This is due to the fact that the main contractors are the leader of the project in design and build procurement and they are the one who organize and manage the way to get the project done.

### **CONCLUSION AND FURTHER RESEARCH**

Disputes can be considered rather a common occurrence in the construction industry. In parallel with a thorough literature study in construction conflict and disputes as well as procurement systems, an archival study has been conducted to evaluate and analysed the occurrence of conflict and disputes in construction industry represented by litigation cases and establishing potential relationship with the procurement routes taken by these reviewed cases. The main focus of this paper is to disseminate the preliminary findings of such investigation, particularly from reviewing the litigation cases so far as a part of an ongoing PhD research. From the findings and discussion, it was found that defects, variation and design changes appear to be the main issues that lead to disputes between parties and finally been brought to litigation. Most of the disputes seem to be occurred in the traditional procurement system which can be due to the characteristics of it which involve complex and long process and does not

involved the contractors at the early stage of the project. Next stages of the research will involve further literature synthesis, review of more litigation cases from the construction industry followed by finalization of the research design mainly to facilitate data gathering of the formal and informal practices in the construction contracting which have the potential to minimize conflict and disputes. The outcome of the research is expected to inform current practices, mainly to improve the current procurement systems, aimed to minimize or reduce the occurrence of conflict and disputes in the construction industry which is the primary aim of this research.

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