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RESEARCH ARTICLE

Assessment of Contractors' Claims on Construction Projects in Vietnam

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Abstract:

Background:

Claims have increasingly become inevitable in construction projects. A great amount of money, time, and merit of claims are the most critical factors that prudent companies should not overlook.

Objective:

The objective of the study is to survey claim practices in the Vietnamese construction industry by collecting data from both contractors and consultants.

Material and Methods:

This paper presents findings that the lack of awareness of the on-site people is the major problem of claims management. Moreover, the inadequacy of supporting evidence, originating from the unawareness of personnel as well as improper documentation system, is also a serious problem causing the loss of chances to recover incurred damages.

Conclusion:

To overcome these problems, it is recommended that the management should pay more attention to these aspects in order to have effective claim management, by which unnecessary losses could substantially be reduced and deserving compensation would be recovered.

Keywords: Claim, Construction, Contract, Documentation, Management, Vietnam.

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1. INTRODUCTION

In the complex, risky, multiparty-involved, and dynamic nature of the construction business, completing a project successfully without any deviation from the primary contract is almost impossible. Changes and claims are, therefore, inevitable, especially in major projects. Construction claims are discerned as a time-consuming and expensive process, requiring great human endeavor and know-how to process them successfully [1]. It is determined as an assertion to the right to additional money and extended performance time [2]. As a consequence, poorly managed practices significantly lead to the occurrence of many blatant problems.

When unexpected events occur during construction processes, it is vigilant to inform the other party about the

situation since it might result in claims afterward. The management of construction claims involves documentation not only for substantiating the claimant's entitlement but also for the assessment of such claims [3]. Moreover, there are some aspects that should be considered during the process of filing a claim. Notification of a claim is required by a typical contract. Settlement through negotiation needs experts who have skills for negotiation with the objective to resolve claims in a non-adversarial manner since litigation and arbitration are too expensive and consume a lot of time [4].

Since claims are used to indicate problems encountered during the construction process [5], many efforts have been made to identify their root causes in various areas with diverse framework objectives in order to enhance construction practices. In addition, the aspects of shortcomings in claim management processes have been extensively discussed. It has generally been observed that issues originate from an ineffective documentation system when the project personnel fails to keep proper records [6]. Furthermore, another major

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factor contributing to poor claim management is the unclearly specified time requirement in the contract.

In developing nations like Vietnam, businesses are now experiencing severe recession. Vietnamese construction companies have suffered dismal business failure due to terrible financial problems and risks coupled with prior competition [7]. The growth of complex and mega construction projects involves an increased number of parties. Claim management, therefore, has become a crucial factor influencing the success of the project. Therefore, Vietnamese construction companies essentially require concrete and constant improvement of claim management [8]. This paper aims to identify the underlying causes of problems and provides pertinent suggestions for the improvement of claim management in the Vietnamese construction industry.

2. LITERATURE REVIEWS

In the past few decades, construction claim aspects have become increasingly important. Bakhary *et al.* [9] investigated the claim problems experienced by Malaysian contractors in construction projects. The findings of their study indicate that the lack of awareness of the site staff to proactively detect claims, inaccessibility or unavailability of the relevant documents, and conflicts that arise during owner/contractor negotiation are the critical problems associated with the process of claim management. Vidogah and Ndekugri [10], while doing a survey of sixty-one U.K. contractors, aimed to identify the shortcomings and causes of claim practices focusing on the perspective of contractors. The result revealed the poorly mismanaged aspects of the claims-management process. In 1998, Vidogah and Ndekugri emphasized the importance of construction claims by conducting a remarkable survey study based on the viewpoint of consultants. They found inadequate and improper contractors' documentation and information system. These findings are not surprising outcomes considering the sophisticated nature of the construction business.

Kumaraswamy [2] studied the relationship between three important subjects (conflicts, claims, and disputes) and the causes of claims based on the construction companies in Hong Kong. The survey disclosed that matters related to designs are the major sources of claims. Considering redress construction claims, Semple *et al.* [5] also examined the potential causes of claims, delays, and cost overruns in twenty-four projects in Western Canada. It indicated the most common causes, such as an increase in the scope of work, weather, restricted access, and acceleration. Crucial and critical aspects of claims, which can significantly lead to disputes and adversarial working relationship, are contract administration, cause recognition, claim solutions, documentation system, and comprehensive understanding of the contract.

Claim processes vary significantly from contract to contract. Some may necessarily require claimants submitting notices of the intention of claims after such events have first arisen within certain days, while some may not clearly specify. To map the entire process in general cases, extensive study on the characteristics of construction is needed. Mirza [11] indicated claim as a management issue and that the process

needs efficient and effective management during the entire duration of the project. The construction project generally has four well-recognized phases for claim processes, Pre-tender, Contract Formulation, Construction and Post Completion. Most of the claims relate to the encountered conditions or events, which occur during the construction phase. However, the causes of the claim and the factors essential for the development are present in the contract documentation and the information supplied or not supplied in the pre-contract phase. Kululanga *et al.* [12], in order to provide a generic framework of claims management, developed a model of construction claims generally categorized into six main phases, encompassing all the fundamental processes of claim procedure, which are: (1) Identification; (2) Notification; (3) Examination; (4) Documentation; (5) Presentation; and (6) Negotiation.

3. RESEARCH METHODOLOGY

3.1. General

Intensive reviews of the literature were carried out to develop extensive knowledge related to the problems encountered in claim processes. Six main phases encompassing all the fundamental processes of claim procedure including (1) Identification; (2) Notification; (3) Examination; (4) Documentation; (5) Presentation; and (6) Negotiation were proposed based on previous research studies [12]. A preliminary study was additionally undertaken to obtain a deeper understanding of current claim practices in Vietnam. Combining pertinent information, a questionnaire was accordingly designed, modified, validated and finalized by consultation with experienced professionals to highlight the problems concerning the six phases of claim procedure (Fig. 1). While comparing the perspectives of contractors, claimants, owners, and respondents, researchers decided to acquire data involving all the view points by developing two different sets of questionnaires to focus on the general process of claims and the common categories of claims (Table 1).

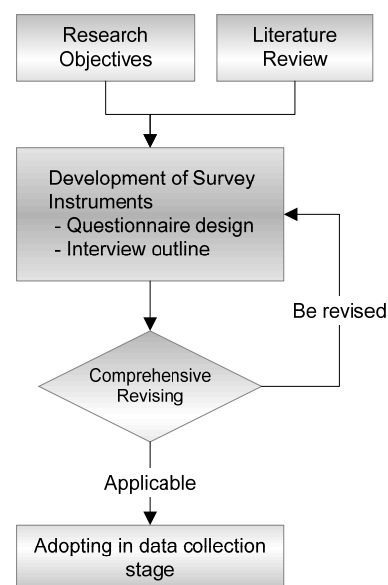


Fig. (1). Survey instrument development flowchart.

Table 1. The organization of research questionnaire.

Description	Main Part ^a		Supportive Part ^b	
	Problems	Documents	Concerns	Opinions
General Claim Procedure				
Identification	Contractors	-	Contractors	Consultants
Notification	Contractors	-	Contractors	Consultants
Examination	Contractors	-	Contractors	Consultants
Documentation	Both	Both	-	-
Presentation	Contractors	-	Contractors	Consultants
Negotiation	Contractors	-	Contractors	Consultants
Common claim categories				
Delay claims	Contractor		-	
Change order claims	Contractor		-	
Design-related claims	Contractor		-	

Remark: ^a used mainly in data analysis, ^b used supportively in data analysis.

The questionnaire was designed as an instrument to gather the data related to the operational aspects of construction claims. The purpose of the questionnaire design was to develop effective tools for acquiring pertinent and sufficient data concerning the validation of data. To accomplish the goal, the questionnaire was divided into four parts: ‘problems’ inquires how seriously each problem affects during different phases; ‘documents’ aims to define the most unavailable documents in construction claim; ‘concerns’ inquires contractors which facet they are concerned about; whereas ‘opinions’ conversely interviews the consultants regarding the contractor’s claim practices. The first and second parts were used as the main sources for analyzing, while the third and fourth parts, as supportive data, constructively expanded the understanding in detail.

3.2. Data Collection

147 and 116 questionnaires for medium and small scale, private Vietnamese contractors and consultants were individually distributed to on-site people concerning their claim experience and relevant functional management, respectively. Data collection through a project-based approach resulted in 96 and 78 sets with an overall response rate of 66.4%. A number of responses reached the minimum required sample size of 30 [13]. Moreover, some experienced practitioners were interviewed to indicate their opinions regarding construction claim practices. Tables 2 and 3 present two categories of respondents classified as “claim experience” and “project value experience”.

Table 2. Respondents classified by the claim experience.

Claim Experience	Respondents	
	Number	Percent
Less than 5 years	48	50.0
5-10 year	36	37.5
More than 10 years	12	12.5

3.3. Data Analysis

The quality of surveys is fundamentally affected by means of analysis. An appropriate and reliable method can disentangle the complex data and interpret them in the most effective

manner. This study was, therefore, conducted to meticulously select the proper statistical technique for data analysis. A simple and basic approach was chosen for easy understanding and interpretation.

Table 3. Respondents classified by the project value experience.

Project Value Experience	Respondents	
	Number	Percent
Less than 15 billion VND	12	12.5
15 - 60 billion VND	39	40.6
60 - 120 billion VND	30	31.3
More than 120 billion VND	15	15.6

Remark: VND means Vietnam Dong, official currency of Vietnam. 01 billion VND is approximately 43,000 USD.

Undoubtedly, construction claims are sensitive subjects with respect to money and time, influenced directly by the experience and skill of the claimant. Dealing with these, researchers were determined to apply both quantitative and qualitative statistical analysis methods. The former was conducted in ranking orders by the calculation of relative index (R.I.), while the latter was subjectively carried out according to the unstructured interviews with experienced professionals. Combining both the sources of information could unravel the root causes of problems in claim management practices. Through a questionnaire survey, respondents were individually asked to indicate their opinion on a scale from 1 to 5 for the severity of problems associated with each claim process, where ‘1 = problem never found’ to ‘5 = very serious problem’. The relative index (range of 0 - 1) indicated the most serious problems for each process.

To further measure the association of ranking orders in detail requires applicable statistical tests. This study used non-parametric tests, which dealt with ordinal data with less stringent assumptions than parametric tests and obtained efficiency as high as 95 percent [14]. Kendall’s coefficient of concordance was selected to measure the level of agreement of ranking orders rated by three or more groups of respondents [15]. The value of the test, represented by ‘W’, varied between 0 - 1, in which a high or significant value represented good

agreement among groups. By the same concept, Spearman's rank correlation "r" was also employed to measure the level of correlation between two sets of ranks. Values of "r" varied from -1 to +1, where a positive value represented a positive correlation, while a negative value represented a negative correlation.

4. RESULT AND DISSCUSSION

4.1. GENERAL PROCESSES OF CLAIM PROCEDURES

Six processes were used to investigate practices of claim management in the Vietnamese construction industry, based on the proposed idea of Kululanga *et al.* [12]. The causes of problems in every process were determined by a questionnaire and in-depth interviews. The explanation was followed by the results of fact-finding.

4.1.1. Claim Identification

The first and crucial task that claimants have to accomplish in filing potential claims is to identify subjects. Since it is widely perceived that construction is inevitably operated in a chaotic environment, detecting problems that lead to claim is not easy. Thus, on-site people, who are directly involved in day-to-day activity, should have sufficient awareness and knowledge of the claim procedure (Kululanga *et al.* [12]). Moreover, the contract is extremely important to guide people regarding the projects dealing with any claim.

The order of ranks suggests that the most concerned problems, as contractors, associated with the process of claim identification are "lack of awareness of the on-site people", "inadequate knowledge of the on-site people regarding the contract", and "lack of skilled personnel" (Table 4). It is not unexpected that matters relating to people's awareness and knowledge arise as the most serious obstacles. The literature fact-finding also confirmed that lack of awareness and knowledge of the contract and claim procedure are the main factors causing problems in this phase. Additionally, insufficiently qualified personnel involved in the claim identification create further problems for contractors.

According to the findings, it was revealed that people's awareness and knowledge critically became a major concern during the construction phase, as confirmed by the high values of Kendall's coefficient of concordance ($W_{claim} = 0.550$ and

$W_{value} = 0.743$). It could be interpreted that Vietnamese contractors have significantly agreed to this aspect in spite of their perceptions coming from different claim experiences and project value experiences. A possible reason that could explain this overwhelming problem is that on-site people do not thoroughly read the contract. This assumption is supported by an exploratory study [6] reporting that only a few contractors take time to carefully read and entirely understand the contract. Moreover, Vietnamese engineers are not trained for this issue as their major attention is focused on technical aspects. Further in-depth interviews found that the responsibility of contract administration is mostly assigned to the management. As on-site people do not understand the contract well, when problems suddenly arise, there is a high risk of failure to comply with the contractual procedures. In addition, in Vietnam, claim identification is not regularly perceived as a very important aspect as contractors always have a concern for a long-term relationship, therefore, minor claims might arbitrarily be overlooked.

4.1.2. Claim Notification

Notifying owners regarding the existence of potential claims in an acceptable timeframe is very important and generally required by the contract. Thus, non-conformance with this requirement might legally waive claimants' right of compensation, even though the damages might be clearly proven. Furthermore, Vidogah and Ndekugri [10] revealed that all the aspects of claim procedures were essentially time-consuming, especially in preparing documents and identifying relevant information. Besides, problems related to site records originate partially due to inexperienced and unskilled on-site people, who collect the information [16].

Table 5 summarizes the results of the analysis regarding the causes of problems in this phase. It suggests that the most challenging facets are "inaccessibility of documents submitted with notices", "no standard format of notice", and "queries back due to the ambiguities of notices". The facts confirmed that the inadequate documentation system is the main cause of these problems. Meanwhile, non-conformance with claim procedure and lack of time in notifying and preparing a claim that has been found in the literature are not very serious problems in the process of claim notification in Vietnamese construction companies.

Table 4. Problems in the process of claim identification.

Rank	R.I.	Problems
1	0.70	Lack of awareness of the on-site people
2	0.67	On-site people have inadequate knowledge of the contract
3	0.63	Lack of skilled personnel
4	0.57	Inaccessibility of documents used to identify a claim
5	0.52	Difficulty in detecting any problems during work due to high workload
6	0.49	Inadequate time
7	0.48	Unclear responsibility to detect a claim
8	0.47	Unclear procedures in recognizing a claim
9	0.46	Poor communication between sites and head office

$W_{claim} = 0.550$ $W_{value} = 0.743$ (significant at 1% level)

Table 5. Problems in the claim notification.

Rank	R.I.	Problems
1	0.58	Inaccessibility of documents submitted with notice
2	0.56	No standard format of notice
3	0.53	Queries back due to the ambiguities of notices
4	0.50	Inadequate time to thoroughly prepare due to high workload
5	0.49	Prescribed time in the contract is too short.
6	0.48	Unclear procedures in notice preparation
7	0.45	Unclear responsibility person to prepare the notice
8	0.39	Poor communication to submit a written notice

$W_{claim} = 0.492$ $W_{value} = 0.315$

The low value of concordance ($W_{claim} = 0.492$ and $W_{value} = 0.315$) suggested the difference in the perception among respondents experienced in various contracts. It could be interpreted that problems of claim notification essentially differ according to the project type, size and provision. These facts could logically describe the reason why Vietnamese contractors have pertinently experienced problems regarding the inaccessible relevant documentation substantiating claims or even accessible but still inadequate documentation. Moreover, the lack of standard format may be an important obstacle at this stage, as it could cause further problems of confusion and query over claims. In-depth interviews found that the nature of using a technical-term style in Vietnam might create ambiguity in this phase. Additionally, ISO 9001-2015 has not been applied widely in quality assurance, therefore, probably not much effort has been put in creating proper standard formats for claims.

4.1.3. Claim Examination

For survey claim practices, claim examination is substantially an important subject that must be observed. The accurately quantified and qualified claims can ultimately prevent contractors from losses by enabling them to completely recover all the entitled costs. Additionally, well-documented claims are based on four aspects which include foreseeability, control, causation, and legal responsibility [17]. Well-documented claims based on these aspects have significantly improved the chances of recoveries. Furthermore, the formula of the computation of claims must be acknowledged concerning its suitability, reasonableness as well as reliability.

To deal with these complicated tasks, knowledgeable staff is required to cope with the process of claim examination.

The findings in Table 6 suggest that major problems at this stage are “lack of contract knowledge for establishing legal and factual grounds”, “unavailability of records used to access potential recoveries”, and “insufficiently skilled staff to assess claims”. It is again confirmed from the literature that the lack of an adequate documentation system, together with insufficient knowledge of the on-site people, are the main causes of problems in claim examination.

The findings showed that $W_{claim} = 0.719$ and $W_{value} = 0.659$, which could interpret that respondents significantly perceived the same problems despite difference in the claim experience and the project value experience. The problems regarding skilled staff, the same as in the previous phases, increased to the highest rankings, the first and third. This finding could reasonably emphasize the intensity of these problems in Vietnam. The ineffective documentation system is another severe aspect - also indicated by many scholars - which significantly affects the ability to recover the entitled compensation. There is another complaint made by most individuals in consulting firms, criticizing contractors' practice regarding their over-inflated evaluation of the claim that is increasingly becoming a culture in Vietnam. The alleged quantification is anticipated to cut negotiation, contractors, therefore, claim with some margin. This practice could substantially generate an onerous conflict during the negotiation when both parties have to resolve with a great deal of merits.

Table 6. Problems in the claim examination.

Rank	R.I.	Problems
1	0.66	Lack of contract knowledge for establishing legal and factual grounds
2	0.60	Unavailability of records to assess potential recoveries
3	0.58	Insufficient skilled staffs to assess claims
4	0.54	No standard formula for evaluating impacts and calculating damages
5	0.53	Inadequate time to perform examination due to high workload
6	0.52	Unrealistic formula used for calculating damages
7	0.51	Unclear procedures in claim examination
8	0.48	Unclear assigned person to evaluation of recovery amount
9	0.41	Poor communication for gathering required information

$W_{claim} = 0.719$ (significant at 5% level) $W_{value} = 0.659$ (significant at 1% level)

4.1.4. Claim Documentation

Without effective and complete documentation substantiating the alleged claims, chances to win are drastically reduced [18]. The construction industry is notorious for not documenting procedures and transactions; for instance, while information explosion during construction processes, there is a large number of relevant documents flowing every day in the project. Site records may seem to have little present value, but as problems arise, their value becomes significant in identifying claims [6]. Thus, due to the lack of a good documentation system, together with on-site people's inadequate understanding and knowledge, contractors would not be capable of capturing complete documents, not even just to retrieve them when required.

The results indicate that an insufficient documentation system causes the most serious problems in this phase. According to the literature, both contractors and consultants agreed that the critical problem of claim documentation in Vietnam arises due to the fact that "some information is not kept in writing". Moreover, "ineffective recording and keeping system" and "inaccurately recorded information" are ranked at the second and the third place, respectively (Table 7). The importance of recording information in writing is confirmed by the value of Spearman's 'r' which is equal to 0.583, which means that there is an agreement on the ranking order at a 10% level ($p < 0.1$).

In-depth interviews additionally revealed that underlying causes of problems in the claim documentation might partially arise from the on-site people, who do not completely understand the importance of the documentation system, for example, documents are not detected, recorded, and kept accordingly. This is crucial because sometimes oral instructions, directives, etc., which are not recorded and considered least important, cause issues that are unexpected to be encountered at that moment. Hence, when these are required for reference, they are not available. Therefore, despite the implementation of ISO 9001-2015 in the Vietnamese construction industry, which requires very strict information recording, the problems still arise. In the current practices, Vietnamese contractors are probably not conforming completely to the clauses of ISO 9001-2015, which creates room for a poor documentation system.

Moreover, it is noteworthy that the problem regarding "no standard format to record data" was ranked as sixth for contractors and second for consultants. During the construction processes, the Vietnamese contractors have to deal with a great amount of working documents and records coupled with the

wide implementation of ISO 9001-2015. If the standard format of documentation has been developed and followed properly, the Vietnamese contractors would not have to face much trouble. On the contrary, the Vietnamese consultants perceived this problem as the second-order. Perhaps, it originates from the unclear duties which need to be recorded as documents and by not adopting and following ISO 9001-2015 in the consulting firms.

By conducting further investigation into fundamental problems associated with the documentation system, this study aims to identify the most important specific documents that Vietnamese contractors should keep in mind and look for during the construction period. Overall ranking suggested that the most serious problems were related to the lack of documents regarding "oral instructions", "photograph depicting problems", and "correspondence between parties" (Table 8). It was emphasized again that the problem was associated with the quality of site records since these documents are basically generated on-site every day. Oral instruction was significantly agreed as the highest-ranked and seemed to be the most difficult source of information for retrieving when problems are faced. In Vietnam, the engineers generate instructions on the projects mostly on-site, which is not usually considered important at the moment. However, when problems arise, the pertinent recording of instructions becomes invaluable depicting the right in recovering damages incurred. Without written documentation, it is difficult to prove claims if disputes develop Wilson [1]. A good recording system is useful for eliminating this problem; therefore, all the information, such as oral conversations and instructions given or received by contractors, should be recorded [19].

4.1.5. Claim Presentation

As to be entitled in such assertion, after the notices are submitted to alert the owners of valid claims, a full detailed submission of the claim presenting the entitlement and the quantum must be prepared. The claim presentation is, therefore, another crucial process requiring serious consideration to efficiently complete this task.

The analysis of the results gathered from contractors, as shown in Table 9, suggests that the most crucial problems in preparing claim submission are "inaccessibility of substantiating documents accompanying with claims", "lack of skilled staff for preparing claim submission", and "unclear procedure of claim preparation". The poor documentation system is again emphasized as the main source that causes problems in the process of claim presentation.

Table 7. Problems in the claim documentation.

Overall		Contractors		Consultants		Problems
Rank	R.I.	Rank	R.I.	Rank	R.I.	
1	0.64	1	0.67	1	0.61	Some information is not kept in writing
2	0.54	4	0.53	3	0.56	Ineffective recording and keeping system
3	0.53	2	0.55	4	0.51	Inaccurate record information
4	0.52	3	0.54	5	0.50	Inaccessibility to documents when required
5	0.51	6	0.48	2	0.57	No standard form to record data

(Table 9) *contd....*

Overall		Contractors		Consultants		Problems
Rank	R.I.	Rank	R.I.	Rank	R.I.	-
6	0.50	5	0.51	5	0.50	Overdue process in record keeping
7	0.36	8	0.29	7	0.42	Lack of computerized technology applied
8	0.34	7	0.33	8	0.35	Expensive to retrieve required information

Spearman's "r" = 0.583 (significant at 10% level)

Table 8. Problems of unavailable documents.

Overall		Contractors		Consultants		Problems
Rank	R.I.	Rank	R.I.	Rank	R.I.	
1	0.56	1	0.60	1	0.52	Oral instructions
2	0.50	2	0.58	6	0.42	Photograph depicting problems
3	0.43	6	0.39	2	0.47	Correspondence between parties
4	0.43	3	0.43	4	0.43	Quality control reports
5	0.41	4	0.43	9	0.38	Daily reports and logs
6	0.40	7	0.37	6	0.42	Meeting minutes
7	0.39	9	0.34	3	0.44	Cost reports and records
8	0.39	5	0.42	11	0.35	Clarification memos
9	0.38	11	0.33	4	0.43	Labor power chart
10	0.36	12	0.31	8	0.41	Updates project schedules
11	0.33	7	0.37	13	0.28	Change order logs
12	0.31	13	0.24	10	0.37	Preliminary and baseline schedules
13	0.30	9	0.34	14	0.25	Submittal logs

Spearman's "r" = 0.419 (significant at 10% level)

Table 9. Problems in the claim presentation.

Rank	R.I.	Problems
1	0.56	Inaccessibility to relevant documents accompanied with claims
2	0.55	Lack of skilled staffs for preparing claim submission
3	0.46	Unclear procedures of claim presentation
4	0.45	Unclear responsible person to prepare full report of claim presentation
5	0.44	No standard format of claim submission
6	0.41	Inadequate time to thoroughly prepare due to high workload
7	0.32	Poor communication to present a claim

 $W_{Experience} = 0.456$ $W_{Highest CV} = 0.689$ (significant at 1% level)

According to the values of concordance ($W_{claim} = 0.456$ and $W_{value} = 0.689$), there is a change in the perception among respondents. While the claim experience makes respondents' opinions differ slightly regarding problems in this phase, the project value experience does not much affect respondents' opinions on the same problems. From the interviews, it was found that documentation is still the major problem requiring particular effective means to resolve it. Despite the adoption of quality assurance by the Vietnamese construction companies, which requires a very strict documentation system, documents are still ineffectively kept on-site. This aspect emphasizes the importance of the documentation system in the Vietnamese construction industry. Moreover, another important aspect is skilled staff that can effectively organize full detailed claim submission to convince the owners. In order to be well-organized, Kululanga *et al.* [12] suggested that claims must be divided into two major sections, the entitlement and the quantum. These matters require training and experience to deal with successfully, which in Vietnam, is still the cause of

problems. Some respondents have disclosed that there is still no specific department or team to deal particularly with matters regarding construction claims. A claim, in turn, is independently prepared differing from site to site, especially for the companies that are not considered large in the Vietnamese construction industry.

4.1.6. Claim Negotiation

Theoretically, the problem becomes a claim when someone asserts for money [17]. Therefore, the objective of the claim is to resolve problems in the best ways that target time, cost, and quality of work. Avoiding litigation and arbitration in claim settlement is the practice that contractors must keep in mind. In dealing with construction claims, cost and time of taking a matter through trial or arbitration are substantially high. Additionally, unfavorable results are likely to occur. Thus, this negative aspect could signify the essence of claim negotiation during a construction project.

Table 10. Problems in claim negotiation.

Rank	R.I.	Problems
1	0.65	Conflicts during negotiation
2	0.63	Lack of experts who have good negotiation skills
3	0.57	Insufficient evidences to convince other parties
4	0.51	Difficult to settle without any litigation or arbitration
5	0.49	Adversarial relationship with other parties
6	0.48	Inadequate time due to high workload

$W_{claim} = 0.834$ (significant at 1% level) $W_{value} = 0.416$

Same as other processes, contractors were asked to rate the level of severity of the six problems they experienced. The result was computed for the purpose of analysis as shown in Table 10. Their answers suggested that major problems during the negotiation phase were “conflicts during negotiation”, “lack of experts who have good negotiation skills”, and “inadequate evidence to convince other parties”. These results highlight the problems related to poor documentation system and lack of skilled people as indicated in previous stages, creating conflicts at this stage.

For the calculation of Kendall’s coefficient, it was found that there is a significant agreement in ranking among different perceptions, grouped by their claim experience, at a 1% level with $W_{claim} = 0.834$. On the other hand, the low value of coefficient ($W_{value} = 0.416$) grouped by the project value experience could interpret that there are different kinds of problems in different projects. That is, in lower value projects, Vietnamese contractors consider their problems different from those of higher value. Interestingly, the reason that could explain this point would be the difference in expectation from the negotiation. The higher value projects are negotiated and a higher amount of recovery is argued for. The negotiation can be much more serious. Conversely, in lower value projects, they would negotiate amicably since the amount of claim is not so high. In Vietnam, the relationship is more important than arguing for a minor interest in claims.

Theoretically, claims ultimately involve the contract administration; therefore, solutions for conflicts must rely on it. Even the interpretation cannot avoid conflicts occurring among parties. As construction claims have a great deal of merit (e.g., money and time), negotiation over this aspect is more serious than other issues. This may fundamentally be the root cause of conflicts during claim negotiation, which is ranked as the most severe problem by the Vietnamese contractors. The problem associated with experts in negotiation is ranked second. As

claim negotiation is generally implemented through meetings, gaining mutual satisfaction requires people who are familiar with negotiating techniques. From the interviews, it was found that most Vietnamese companies do not have this particular function responsible for claiming or related issues. Therefore, the task of negotiation is normally assigned to the on-site project managers or engineers, who may not be good for this duty.

4.2. Common Categories of Claims

The study is extended to survey construction claims in practice regarding three common categories of time extension, change order, and design-related claims. It aims to reveal problems associated with the preparation of each claim. The findings are very important to indicate major aspects that claimants must take into account when persuading claims.

4.2.1. Time Extension Claims

Time extension is a common category of claims frequently alleged in the construction industry. In fact, it is aimed to defray the deduction of liquidated damages when delays are occurring in the projects. Compensated money for overhead costs is separately considered. To deal with this claim, accurate evidence is required to prove the entitlement of time extension and/or the recovery of compensated costs. The Critical Part Method (CPM) of delay analysis is used to determine whether or not such activity will contribute toward delaying the projects [3].

Table 11 shows that the most difficult aspects regarding the preparation of time extension claim are “difficulty in proving the entitlement of claims”, “failure in timely notifying the engineer about potential delays”, and “difficulty in identifying damages associated with the delays”. These findings confirmed that although a claim for time extension is obvious, it is not an easy task for contractors to win this claim.

Table 11. Problems of the time extension claims.

Rank	R.I.	Problems
1	0.67	Difficulty to prove the entitlement of claims
2	0.66	Fail to timely notify the Engineer potential delays
3	0.65	Difficulty to identify damages associated with delays
4	0.64	Lack of staff who is expert in performing “time impact analysis”
5	0.62	Problems in proving that the situation is expected or unexpected
6	0.56	Difficult to detect problems as the schedule is not updated

$W_{claim} = 0.546$ $W_{value} = 0.463$

Table 12. Problems of the change order claims.

Rank	R.I.	Problems
1	0.68	Difficulty in proving due to no record of the Engineer's verbal directives
2	0.65	Misinterpretation due to ambiguities in the contract
3	0.64	Controversy in negotiating prices of varied works
4	0.62	Difficulty in identifying a claim due to various Engineers' directives
5	0.61	Problems associated with evaluating impacts and claiming damages

$$W_{claim} = 0.194 \quad W_{value} = 0.159$$

The values of Kendall's test ($W_{claim} = 0.546$ and $W_{value} = 0.416$) indicated that there is an insignificant agreement among respondents, both classified by the claim experience and the project value experience. Therefore, all the aspects regarding time extension claims are significantly difficult. To prove the entitlement of delay claim, great effort is required to find out either owners or contractors are responsible for such delays. Therefore, it can be concluded that analyzing delay claims to prove the entitlement is ranked to be the most critical problem for the Vietnamese contractor. Additionally, due to difficulties in analyzing delay claims, a good documentation system along with the awareness of the on-site people, are the compulsory requirements. However, since the Vietnamese style documentation system and people are not as efficient as expected, it takes time to detect the claim.

4.2.2. Change Order Claims

Reviews of the literature revealed that change order is the major source of disputes and conflicts. Its impacts are not only directly reflected on cost, time, and quality that cause reworks, but also indirectly on lowering productivity (Veenendaal [20]). Therefore, change order claim is a common aspect and its evaluation is complex and crucial that claimants must take into account.

The results suggested that the most critical factors in dealing with the change order claim are "difficulty in proving due to the engineer's verbal directives", "misinterpretation due to the ambiguities in the contract", and "controversy in negotiating prices varied works" (Table 12). The result further presented considerably low values of agreement in the ranking order ($W_{claim} = 0.194$ and $W_{value} = 0.1590$) as showed that respondents' perceptions differed according to their claim experience and project value experience.

From the findings, the problem of no proper documentation is emphasized again. In some circumstances, the engineers may detect areas that need to be corrected or

changed, therefore, they immediately issue oral instructions, which are usually not recorded by the Vietnamese contractors. The result shows that increased costs and/or time and recovery claims are necessarily required. Evidence depicting verbal directives may not be so easy to retrieve; therefore, chances to claim additional cost and time would be dramatically decreased. Additionally, for the Vietnamese construction industry, the contracts are drafted independently as international standard contract conditions (e.g. FIDIC or AIA) are used only for large-scale projects. Therefore, errors, mistakes and ambiguities in the contract provision are sometimes found, especially for change clauses - a salient aspect in the contract.

4.2.3. Design-related Claims

Bramble *et al.* [17] noted that the most serious cause of construction claims is 'defective design'. Conflicts in the design are the major source of disputes if not resolved quickly. During construction, while contractors and designers argue about the responsibility for fixing problems, construction processes may come to a standstill. Therefore, design-related claims are an essential category of claims.

The analysis of the results revealed that the most intricate aspects of the claimant in dealing with design-related claims are "ineffective design reviews during bidding stage", "difficulty in justifying the responsibility for verifying the design", and "argument about the responsibility for fixing defective designs" (Table 13). Research findings confirmed that defective designs cause problems in construction. Thai contractors make this problem more serious as they do not spend appropriate time in reviewing the designs when bidding for jobs. The low value of Kendall's coefficient of concordance, $W_{claim} = 0.350$ and $W_{value} = 0.331$, additionally indicated that respondents have different opinions regarding the cause of this problem depending on the claim experience and the project value experience.

Table 13. Problems of the design-related claims.

Rank	R.I.	Problems
1	0.73	Ineffective design reviews during bidding stage
2	0.67	Difficulty in justifying the responsibility to verify the design
3	0.66	Argument about responsibility for fixing defective designs
4	0.64	Fail to timely notify the Engineer of potential problems about drawing
5	0.63	Difficulty in justifying the ambiguity of drawings

$$W_{claim} = 0.350 \quad W_{value} = 0.331$$

Table 14. Summary of the problems encountered in each process of the claim procedure.

Claims Processes	Area of major problems encountered							Average Relative Index
	Lacking of Awareness of claim	Lacking of Knowledge of the Contract	Insufficient skilled personnel	Ineffective documentation system	Unavailability of evidences	Conflicts between parties	Unclear procedures	
Claim Identification	✓	✓	✓	-	-	-	-	-0.55
Claim Notification	-	-	-	✓	✓	✓	-	0.50
Claim Examination	-	✓	✓	-	✓	-	-	0.51
Claim Documentation	✓	-	-	✓	✓	-	-	0.49
Claim Preparation	-	-	✓	-	✓	-	✓	0.46
Claim Negotiation	-	-	✓	-	✓	✓	-	0.65

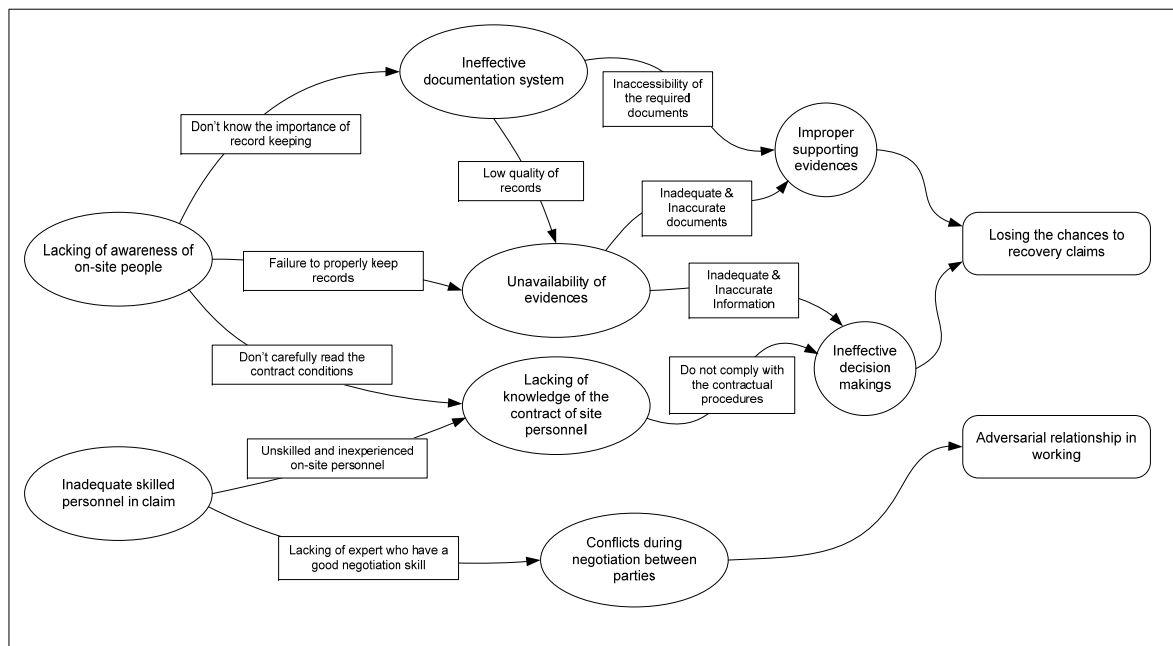


Fig. (2). The analysis of causal links among surveyed problems in claim management.

In some cases, owners may accuse the contractors of project risks by putting the responsibility for problems on them that might arise during contract periods. Thus, contractors are required to investigate site conditions, review the design and avoid using assumptions in estimation, evaluation and further familiar aspects of the project. Research along with in-depth interview found that this problem becomes the most difficult aspect to deal with as time constraint is the major factor preventing the Vietnamese contractors from thoroughly reviewing the design. For complex and large-scale projects, it is extremely difficult to recognize all potential problems by reviewing only. Claims regarding error and omission of the design still need to be filed. Consequently, further investigation is required to justify who is responsible for such errors, either owners or contractors. Even in Vietnam, due to its culture, minor claims are usually amicably compromised, but the major ones that involve a great deal of money and time are not negotiated easily.

CONCLUSION

In order to cope well with today's dynamic business of

construction, construction claim is increasingly becoming an important aspect and needs to be constantly improved. Thus, this study addressed this crucial issue to reveal the current performance of claim management in the Vietnamese construction industry. This paper presented the survey of the existing claim practices of the Vietnamese contractors based on the viewpoints of both contractors as claimants and consultants as respondents. Focusing on two important issues, i.e., general processes of claim procedure and three common categories of claims, the data were analyzed and interpreted by appropriate statistics. As a result of the study, major problems were identified together with their causes classified into six main processes (Table 14).

Moreover, Fig. (2) briefly presents the whole picture of causal links among major problems of construction claim in Vietnam. There are two major aspects causing problems in construction claims - awareness and practices. Lack of awareness, as well as insufficient skills and knowledge of the on-site people, is an important obstacle to the Vietnamese contractors in dealing with claim aspects as revealed in this study. To overcome these problems, the awareness regarding

claims and education of the on-site construction people must fundamentally be established first. Otherwise, a time would come, when the Vietnamese contractors might not be able to professionally compete with foreign firms that are increasingly being considered in the Vietnamese construction market as many mega-scale projects have recently been constructed under the joint venture contract.

As a result of these findings, it was discovered that construction claim practices of the Vietnamese contractors were not so efficiently performed. Some critical problems are still overlooked as most of the attention might be given to work progress or technical aspects, but not to claim processes, which causes damages, such as loss, delay, and disputes. By anticipating that these problems originate from inadequate knowledge of the project personnel and unawareness of the claim issues, researchers suggest that proper training courses should be organized along with commitment supported by the management level to enhance the claim management process. Additionally, proper and adequate documentation system must be considered as compulsory for the Vietnamese construction companies in order to record, maintain, use and retrieve claim-related documents and information in the most efficient and effective way. Furthermore, research should be carried out to (1) Introduce problems encountered in each process of the claim procedure to local practitioners so that they can understand and avoid these problems; (2) Propose practical solutions for removing and eliminating defined claim problems; and (3) Set up a comprehensive claim management system for the Vietnamese construction industry.

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CONFLICT OF INTEREST

The authors declare no conflict of interest, financial or otherwise.

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