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To cite this article: I. M. C. S. Illankoon, Vivian W. Y. Tam, Khoa N. Le & K. A. T. O. Ranadewa (2022) Causes of disputes, factors affecting dispute resolution and effective alternative dispute resolution for Sri Lankan construction industry, International Journal of Construction Management, 22:2, 218-228, DOI: [10.1080/15623599.2019.1616415](https://doi.org/10.1080/15623599.2019.1616415)

To link to this article: <https://doi.org/10.1080/15623599.2019.1616415>



Published online: 24 May 2019.



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Causes of disputes, factors affecting dispute resolution and effective alternative dispute resolution for Sri Lankan construction industry

I. M. C. S. Illankoon^a, Vivian W. Y. Tam^{b,c}, Khoa N. Le^b and K. A. T. O. Ranadewa^d

^aSchool of Architecture and Built Environment, University of Newcastle, Australia; ^bSchool of Computing Engineering and Mathematics, Western Sydney University, Penrith, New South Wales, Australia; ^cCollege of Civil Engineering, Shenzhen University, China; ^dDepartment of Building Economics, University of Moratuwa, Moratuwa, Sri Lanka

ABSTRACT

Construction industry is typically vital to the economy of any country. It appears that on-going large-scale building and infrastructure projects in Sri Lanka have attracted numerous international contractors. Moreover, in Sri Lanka, there are several foreign investors, and to-be-funded mega government projects at their inception and initial stages, increasing competition which has already been fierce. However, these massive projects under various stakeholders with different interests usually initiate conflicting claims, if not resolved, will likely lead to disputes, and filing law suits. Once a dispute is crystallized, there are commonly used alternative dispute resolution (ADR) mechanisms. However, the causes leading to the claims to form a dispute, and the effective ADR methods are largely dependent on the perspective of the stakeholders. This research aims to identifying those dispute causes, factors affecting the selection of dispute resolution methods, and the most effective ADR method in the perspective of different parties to construction projects in the Sri Lankan construction industry. First, an extensive literature review was carried out to identify the ADR context in Sri Lanka. Second, a comprehensive questionnaire survey was conducted involving professionals representing various stakeholders such as contractors, clients and consultants. Survey responses were then analyzed using special purpose statistical software (SPSS). To determine the statistical significance difference among stakeholders' perception, Kruskal-Wallis H test was used with a 90% confidence level. This research thus provides additional insights into causes of claims and ADR selection from different perspectives.

KEYWORDS

Alternative dispute resolution; construction industry; disputes; Sri Lanka

Introduction

Sri Lanka reported a share of construction activity to the gross domestic product (GDP) of 7.7% in the second quarter of 2018 (Ministry of National Policies and Economic Affairs 2019) signifying its importance in the country's economy. Disputes are regularly featured in the construction industry, unnecessarily and unproductively consuming additional resources. Therefore, resolving disputes has been one of the many important daily tasks of every construction manager. Minor conflicts can fester, and grow into disputes with crippling consequences for project participants (Jannadia et al. 2000). If construction disputes are not promptly resolved, they tend to stagnate and escalate, thus causing project delays, and ultimately may damage business relationships.

According to Arcadis (2016), for 2015, the global average value of disputes in the construction industry was United States Dollar (USD) 46 million, and the

global average dispute length was 15.5 months. Further, for 2016, the total value of construction disputes reached USD 67 million, and the corresponding average length of 19.5 (Arcadis 2016). For the Asian region, the total dispute costs and length were significantly above the global average values. In addition, the construction industry in the Asian region has recorded the longest average dispute settlement period, and the total dispute value has been noted as the second highest (Arcadis 2016). Therefore, there is a clear requirement to analyze suitable dispute resolution mechanisms for the region.

According to The World Bank (2017), Sri Lanka is a country in South Asia with a steady GDP growth of 4.8% for 2016 compared to 2015. Significant construction development activities, and the resumption of major projects such as a USD-1.4 billion Colombo Port City real estate project, have boosted the Sri Lankan economy (The World Bank 2017). Therefore, for such complex construction projects, resolving

disputes has become an inevitable and important part of a project manager's responsibilities. Deep understanding of various forms of the settlement of dispute processes, and their critical factors will no doubt be invaluable to project managers in handling disputes (Cheung 1999).

According to Awwad et al. (2016), literature on dispute resolution can be divided into two categories namely dispute causes and resolution methods. Many research studies have attempted to identify causes of construction disputes in different countries (Irlayici 2016; Yildizel et al. 2016). Similarly, there are research studies on the applicability of ADR methods such as mediation (Besaiso et al. 2016; Gregory-Stevens et al. 2016), arbitration (Garth 2015; Moza and Paul 2016; Ranasinghe 2012), adjudication (Jayasinghe and Ramachandra 2016; Ranasinghe and Korale 2011), dispute review boards (Harmon 2009). In Sri Lankan context, there are research studies focusing on the enforceability, applicability, and effectiveness of ADR methods. Ananda Ranasinghe (2012), researched arbitration practices in Sri Lanka. Similarly, Abenayake and Weddikara (2012) identified critical success factors of adjudication and arbitration considering the nature of disputes arising from Sri Lankan construction contracts. There are research studies on the mediation process, its advantages, disadvantages, barriers for the implementation and approaches of establishing mediation by overcoming perceived barriers (Abenayake and Weddikara 2014b). Further, Jayasinghe and Ramachandra (2016), investigated the effectiveness of the current adjudication practice emphasizing on the necessity of its enforceability in the current context. However, most findings on Sri Lankan construction disputes appear to focus on one specific dispute resolution method.

The construction industry typically has significant and complex involvement of different parties such as contractors, consultants and clients. According to Waidyasekara and Silva (2014), stakeholder involvement is one of the unique characteristics in the construction industry compared to other sectors. However, in the existing literature and Sri Lankan context, there is a clearly lacks of research on the state of construction disputes under different perspectives of different parties on a relevant construction project (Awwad et al. 2016).

This research study aims to identifying the causes, factors affecting the selection of dispute resolution methods, and the most effective ADR method for different parties to construction projects in the Sri Lankan construction industry. Different parties to the contracts have different view on dispute resolution.

The causes of delays and the factors affecting the dispute resolution methods vary depending on the different viewpoints of the various contract parties. This research study identify these different viewpoints of various parties and identify the effective ADR methods for dispute resolution. Literature review of this research study is twofold. Initially this article discusses on the construction disputes and the available ADR. Afterwards, this article provides an extensive literature synthesis on the causes and factors affecting the ADR selection. Finally, this article presents the analysis in separate three sections followed by the conclusion.

Disputes, ADR and ADR methods

Disputes are very common in the construction industry. As the name suggests, disputes occur due to the disagreement among parties to the contract. Once there is a disagreement, the parties, to the contract focus on resolving it based on the conditions of the contract. However, if still the parties could not reach an agreement, the matter escalates to ADR. Litigation is the last step for resolving disputes in construction. ADR acts as an 'alternative' to litigation. Different countries have different mechanism for ADR, such as mediation, adjudication and arbitration. Each of these ADR methods have different procedures.

According to K.-W. Chau (1992), Mediation is a voluntary, nonconfrontational, informal, private, and non-binding dispute resolution process in which an impartial and independent person, called a mediator, helps the parties to try to reach a settlement. Mediation can be considered as a half-way house between conciliation and arbitration in that a mediator goes further than a conciliator in the degree of involvement in judgment decisions and attempts to resolve disagreement and focus on settlement by applying extra-legal principles rather than rigid legal rules, with due regard given to the trade customs, previous business connections and the prevailing circumstances (Chau 2007).

Arbitration is a process wherein opposing parties submit their dispute or conflict for a binding determination by one or more third parties (Harmon 2003). Arbitration usually follows rigid rules compared to mediation and also it is binding in court of law. Arbitrators rely on this document-based information which enables the arbitrator to evaluate the merits of each case presented and to determine which party, if any, deserves an award (Kangari 1995). Therefore, according to Kangari (1995) without adequate documentation, a claimant or respondent will have a difficult time proving the standing of his or her case to a

panel of arbitrators. According to Seifert (2005), as a result of the inadequacy arbitration to provide an efficient and cost-effective means of dispute resolution, construction industry has developed an innovative form of primary dispute adjudication called the Dispute Adjudication Board. In adjudication also the dispute is referred to a neutral third party, the 'adjudicator', who must generally make a decision within a stipulated period of days after the reference (Ndekugri and Russell 2006).

These different ADR methods have different features. ADR methods such as mediations are less automatic, yet provides non-binding solutions. Further, arbitration provides binding solutions. The time and cost invested in these ADR methods also vary depending on the various ADR methods and procedures. Therefore, the selection of an effective ADR method is crucial.

Construction disputes and ADR

Construction disputes tend to be common in nature due to the differences in the interests of several parties to the project. In other words, if there is an interaction between two or more parties or companies, and one party believes that his or her interests are not the same as those of the others, there will be a dispute (Neale and Kleiner 2001). Forms of contract such as Fédération Internationale Des Ingénieurs-Conseils (FIDIC) (1999) usually use the word 'dispute' (FIDIC 1999). According to Bunni (2013, p. 389), the meaning of dispute was chronically taken from a comment made by Lord Denning MR in an important decision in *Monmouthshire County Council v. Costello & Kemple Ltd*, where it was interpreted as

The submission of a claim does not necessarily (although it may) cause a dispute to arise; the rejection of a claim will probably do so, but not always, for the Contractor might accept either wholly or in part the views expressed by the Engineer. If the claim is not one which is met with a clear rejection, but with a request for further information or even with a stalling reply, then no dispute may arise.

According to this definition, there are certain conditions to be fulfilled. In construction, a submission of claims is a common procedure. However, for a claim to be crystallised into a dispute, it must be clearly rejected by the Engineer. Once a dispute is created, it is necessary to promptly come to a resolution. Litigation is a civil dispute resolution procedure, which commonly takes place in District Courts in Sri Lanka. However, directly referring to a construction dispute to District Courts is not common practice, and legally forms of

contract such as FIDIC (1999), which always refers the disputes to ADR. There are many reasons for ADR in construction. According to Abenayake and Weddikara (2013), many experts believe that litigation is especially inappropriate for resolving conflicts in construction because of valid reasons such as unfamiliarity of judges with the technological aspects, the higher costs of litigation, delays in the process and serious damage to future business relations. According to Hibberd and Newman (1999), ADR methods represent the responses to shortcomings of the conventional judicial system such as rigidity and limited choices, especially in the modern commercial world. Therefore, the overall expectation of the construction industry by an application of ADR methods is to provide the best solutions to construction disputes within the shortest time without damaging the reputation and relationships of the involved parties (Abenayake and Weddikara 2014a).

There are different ADR methods available in the Sri Lankan construction industry. According to El-Adaway and Ezeldin (2007), ADR includes partnering, med/arb, mini-trials, early neutral evaluation, mediation, adjudication and the deployment of dispute review boards. Specific ADR methods for construction are not yet available. However, certain forms of contracts tend to focus on various ADR methods. For example, FIDIC (1999) red book shows the effectiveness of a dispute adjudication board, amicable settlement and arbitration as ADR methods. However, these different types of ADR methods require various documents, procedures, costs, and different time intervals for settlement. Cheung (1999) illustrated the relationship of ADR methods, the level of hostility, and cost escalation using a stair-step model. Resolving disputes commonly starts with negotiation. If the negotiation fails, parties tend to seek assistance from a neutral third party. According to the stair-step model by Cheung (1999), there are three distinctive steps identified namely (1) standing neutral resolution including ADR methods such as dispute review boards, (2) non-binding resolution including ADR methods such as mini-trials and adjudication and (3) binding resolution including arbitration.

There are various ADR methods used in different countries depending on the context of the construction industry. According to the National Alternative Dispute Resolution Advisory Council (2012), negotiation, mediation, conciliation, neutral evaluation, and arbitration have been typically practiced as ADR methods in Australia. Further, a mandatory ADR process in the Australian context was used as a tool by courts and parties to achieve an early dispute resolution

Table 1. Causes of construction disputes.

Causes	Arcadis (2016)	Awwad et al. (2016)	Çakmak Pinar Irlayici (2016)	Yildizel et al. (2016)	Arcadis (2015)	Arcadis (2014)	S. O. Cheung and Pang (2014)	Marzouk et al. (2011)
Failure to properly administer the contract	✓	✓	–	–	✓	✓	–	–
Error and/or omissions in contract documents	✓	✓	✓	✓	✓	–	–	✓
Incomplete design information or Employer requirement	✓	✓	✓	✓	✓	✓	✓	✓
Failure to understand and/or comply with its contractual obligations by either party	✓	✓	✓	–	✓	✓	✓	–
Poorly managed construction process leading to shortage of resources and quality issues	–	–	–	✓	–	–	–	✓
Diverse interpretation of contract terms	–	–	–	✓	–	–	✓	✓
Inadequate risk identification/allocation	–	–	–	✓	–	–	✓	✓
Lack of corporation and trust among parties	–	–	–	–	–	–	✓	✓
Opportunistic behaviour of project parties	–	✓	–	–	–	–	✓	✓
Reluctance of project participants to deal with changes	–	✓	–	–	–	–	✓	✓
Conflicting goals and objectives of project parties	–	–	–	–	–	–	–	✓
Lack of experience in construction practices and management	–	–	–	–	–	–	–	✓
Lack of interpersonal skills among professionals	–	–	✓	–	–	–	✓	✓
External uncertain factors such as weather conditions or environmental regulations	–	–	✓	✓	–	–	✓	✓
External changes such as changes in market conditions and environmental regulations	–	✓	✓	✓	–	–	✓	✓

(Australian Alternate Dispute Resolution Law 2014). Similarly, the perceived shortcomings of litigation with the concomitant rise in costs, delays, and adversarial relationships have encouraged rapid growth of alternative dispute resolution (ADR) processes, namely, conciliation, mediation, adjudication, and other hybrid processes in the Hong Kong construction industry (Cheung et al. 2002). According to Abenayake and Weddikara (2014a), negotiation, mediation, conciliation, adjudication, and arbitration have been widely used for ADR practices in Sri Lanka. Arbitration in Sri Lanka appears to be governed by the Sri Lanka Arbitration Act No 11 of 1995. This research focuses on the Sri Lankan construction industry and its disputes. Therefore, negotiation, mediation, conciliation, adjudication and arbitration are identified as main ADR methods for this study.

Causes of construction disputes

There are many causes of construction disputes. In the early 90s Jahren and Dammeier (1990), identified the preliminary construction dispute causes as changes in conditions, payment issues, time and delays, bidding errors and lack of communication. However, there are thorough investigations on the causes of construction disputes. There is a series of reports published on the global construction disputes worldwide focusing on different regions (Arcadis 2014, 2015, 2016). When analyzing the reports from 2014 onwards, there are six common causes of construction disputes worldwide namely; (1) Failure to administer the contract, (2) Poorly drafted or incomplete and unsubstantiated claims, (3)

Errors and/or omissions in the contract document, (4) Incomplete design information or employer requirements, (5) Employer/contractor/subcontractor failing to understand and/or comply with its contractual obligations and (6) Failure to make interim awards on extensions of time and compensation (Arcadis 2014, 2015, 2016).

In a similar research focusing on the Middle Eastern region by Awwad et al. (2016), 12 causes of disputes have been identified, and categorized into three types: administrative causes, contractual causes, and cultural causes. Similarly, Çakmak Pinar Irlayici (2016) also carried out research to identify the causes of disputes in Turkey focusing on six dispute categories. In this research, for each dispute category, the causes of dispute was identified after analyzing 166 documented disputes (Irlayici 2016). Yildizel et al. (2016), also identified 31 causes of disputes in the Turkish construction industry. After an extensive literature review, Cheung and Pang (2014), identified five sources of disputes and numerous causes of construction disputes underlining them. In their research, Cheung and Pang (2014), however, did not focus on one specific country, but focusing on disputes worldwide. Marzouk et al. (2011), also identified 44 causes of disputes after a thorough analysis of literature and unstructured interviews with experts in Egypt.

Most dispute causes identified in the literature appear similar in their meaning. However, certain researchers identified causes of disputes in an extensively detailed manner. After reviewing all these causes of disputes, 15 causes have been shortlisted in this study as shown in Table 1.

Table 2. Factors affecting the selection of ADR method.

Factors affecting the selection	S.-O. Cheung (1999)	S.-O. Cheung and Suen (2002)	Chan et al. (2006)	Chong and Mohamad Zin (2012)	Awwad et al. (2016)
Confidentiality	✓	✓	✓	✓	✓
Degree of control by parties	✓	✓	✓	✓	✓
Third party control on the process	–	✓	✓	✓	–
Flexibility in implementation	✓	✓	✓	✓	✓
Enforceability of the method	✓	–	–	✓	✓
Bindingness of the decision	✓	✓	✓	✓	✓
Ability to appeal if not satisfied with the result	–	–	–	✓	–
Degree of formality	–	✓	✓	✓	–
Cost of implementing the methods	✓	✓	✓	✓	✓
Time to reach a settlement	✓	✓	✓	✓	✓
Type of contract	–	–	–	✓	–
Preservation of relationship between parties	✓	✓	✓	✓	✓
Suitability in local law system	–	–	–	✓	–
Complexity of the dispute	–	–	–	✓	–

According to [Table 1](#), there are causes of disputes focusing on administrative aspects, personal aspects, and external factors. Most researchers identified causes such as errors and omissions in contractual documents, and incomplete design information. However, to resolve all disputes, related parties to the contract must identify the most suitable dispute resolution method. Therefore, it is necessary to study factors, which are considered in selecting the ADR method.

Factors affecting the selection of ADR method

There are various ADR methods available in the construction industry. Each of these ADR methods has different advantages, disadvantages, which are valid under specific scenarios. Cheung (1999) identified 12 attributes of ADR for considering in the selection process. Empirical studies have identified that in selecting a suitable dispute resolution method, the disputants are mostly concerned with the benefits such as a speedy resolution, low cost and preservation of relationship (Cheung, 1999).

Cheung and Suen (2002) identified 16 possible factors affecting the dispute resolution selection using published data in the literature. However, after an expert survey, eight selection criteria were short-listed and were listed as overall duration, relative cost, flexibility in issues, strategy and agreement, confidentiality, preservation of relationship, degree of control by parties, binding decision and enforcement, and degree of control by the neutral third party. Chan et al. (2006) developed a dispute resolution selection prototype model based on an analytical hierarchy process, and a multi-attribute utility technique. For this research the 16 factors identified by Cheung and Suen (2002) were directly used (Chan et al. 2006).

Chong and Mohamad Zin (2012) focused on negotiation, mediation, adjudication, arbitration and litigation,

and identified the significant factors of each of these dispute resolution methods. Considering those significant factors, Chong and Mohamad Zin (2012) developed 27 factors affecting the selection of dispute resolution methods. Further, for research focusing on the Middle Eastern region, Besaiso et al. (2016) directly used the 12 factors illustrated by Cheung (1999).

It appears that most of the factors identified in the literature are similar. However, certain researchers such as Chong and Mohamad Zin (2012) have expanded the main factors, and identified numerous other factors in a detailed manner. After a thorough review of the literature, 13 factors have been short-listed as shown in [Table 2](#).

Research methodologies

This research has initially conducted an extensive literature survey to determine the causes of disputes in the construction industry and the factors affecting the selection of ADR methods. [Table 1](#) and [Table 2](#) report the causes and the factors that influence the selection respectively. To identify the perspective of contractual parties in an ADR, a questionnaire survey was carried out. Afterwards, the survey data was analyzed using SPSS to extract useful insight.

The questionnaire, specifically designed for the study, comprises of four sections. The first section has gathered demographic information about respondents. Further, in this section respondent were asked as to which contractual party they have been working with. The second section in the questionnaire lists 15 causes of disputes as identified in the literature. Respondents were asked to rate the importance of these 15 causes based on the frequency of occurrence on an ordinal scale of 1 to 5. Similarly, in the third section, 14 factors affecting the ADR selection are listed, and the respondents were asked to rate

those factors using the same scale employed in second section. In the final section, the commonly used ADR methods are listed, and respondents were asked to rate them based on the effectiveness of each of the methods.

Relative importance index (RII) was used to rank the causes and factors affecting the selection of ADR methods. Afterwards, Kruskal-Wallis H-Test was used with a 90% confidence level to identify whether there are any differences among the contractual parties to identify the causes, factors affecting the selection, and also the effectiveness of ADR methods. Clients, contractors and consultants additionally form the contractual parties, who provided independent data. On the other hand, the causes and factors identified in the literature act as dependent variables.

For our proposed survey, 84 questionnaires were distributed, and 58 received responses were received with a response rate of 66.66%. The profile of the respondents is given in Table 3.

In the questionnaire survey, 2 of the respondents were eliminated because those two professionals did not fall into any of the categories identified in this research.

The RII calculation is based on Equation 1

$$RII = \frac{n1 \times 1 + n2 \times 2 + n3 \times 3 + n4 \times 4 + n5 \times 5}{5(n1 + n2 + n3 + n4 + n5)}, \quad (1)$$

Table 3. Profile of respondents.

Part to the contract	Level of experience	Population
Client	<5 years	2
	5–10 years	5
	>10 years	1
Contractor	<5 years	8
	5–10 years	12
	>10 years	4
Consultant	<5 years	5
	5–10 years	12
	>10 years	7

where $n1$, $n2$, $n3$, $n4$ and $n5$ are the numbers of respondents who selected 1 to 5 respectively.

Analysis and results

This section focuses on the main three areas of this study namely; causes of disputes, factors affecting the selection of ADR methods, and the types of ADR used. Initially, RII score was discussed and afterwards, the results for the Kruskal-Wallis H-Test to identify the view of the different parties to the contract are discussed. Each section is then followed by a brief discussion.

Causes of disputes

From the literature (refer 'Factors affecting the selection of ADR method' section), there are 15 main causes of disputes. However, out of those various causes, it is necessary to identify the most significant causes of disputes in the Sri Lankan context. Therefore, based on the questionnaire survey, this research identifies the following causes in order of significance independent of the contractual parties. Table 4 lists the causes of disputes ranked in the order of significance with the RII score.

According to Table 4, 'failure to properly administer the contract' appears to be the most significant factor. Similarly, Arcadis (2014, 2015, 2016), statistics also show that failure to properly administer the contract as the main cause of disputes globally and especially over the Asian region. However, according to Awwad et al. (2016), this factor is ranked sixth out of 13 causes identified over the Middle Eastern region. According to Arcadis (2014, 2015, 2016), for the Middle Eastern region, failure to administer the contract is the most significant cause for disputes. The second cause of disputes is the 'error and/or omissions in contract documents' as shown in Table 4. It is interesting to note that Awwad et al. (2016) have

Table 4. Ranks of the significant causes of disputes in Sri Lankan context.

Causes for disputes	RII	Rank
Failure to properly administer the contract	0.800	1
Error and/or omissions in contract documents	0.786	2
Incomplete design information or Employer requirement	0.784	3
Failure to understand and/or comply with its contractual obligations by either party	0.771	4
Poorly managed construction process leading to shortage of resources and quality issues	0.767	5
Diverse interpretation of contract terms	0.743	6
Lack of interpersonal skills among professionals	0.741	7
Opportunistic behaviour of project parties	0.729	8
Lack of experience in construction practices and management	0.724	9
Lack of corporation and trust among parties	0.700	10
Conflicting goals and objectives of project parties	0.700	11
Reluctance of project participants to deal with changes	0.657	12
Inadequate risk identification/allocation	0.643	13
External changes such as changes in market conditions and environmental regulations	0.571	14
External uncertain factors such as weather conditions or environmental regulations	0.514	15

Table 7. Kruskal-Wallis Test-Statistics for factors affecting the ADR selection.

		Test Statistics ^{a,b}													
		Confidentiality	Degree of control by parties	Third party control on the process	Flexibility in implementation	Enforceability of the method	Bindingness of the decision	Ability to appeal if not satisfied with the result	Degree of formality	Cost of implementing the methods	Time to reach a settlement	Type of contract	Preservation of relationship between parties	Suitability in local law system	Complexity of the dispute
Kruskal-Wallis H	4.080	.157	.693	.693	3.133	2.583	.438	1.953	1.616	1.131	.991	2.034	2.457	3.148	2.109
df	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Asymp. Sig.	.130	.924	.707	.209	.275	.803	.377	.446	.568	.609	.362	.362	.293	.207	.348

^aKruskal Wallis Test.^bGrouping Variable: Party to the contract.

(refer 'Factors affecting the selection of ADR method' section). Table 6 reports the ranks of factors affecting the selection.

According to Table 6, 'time to reach a settlement' appears the most significant factor. This is similar to the factors identified by Awwad et al. (2016), where the time to settlement is ranked second in their list. Similarly, Lee et al. (2016) also confirmed the fact that the settlement time is one if the main factors directly affecting ADR method selection. According to Arcadis (2016), the Asian region has the longest dispute settlement time of about 19.5 months, which is well above the global average of 15.5 months. In 2011, the length of a dispute was 11.4 months, and within the 5-year period till 2015, this time period has increased drastically (Arcadis 2016). Therefore, the time taken for dispute settlement can be an issue in the Sri Lankan context. Therefore, all contractual parties tend to be eager to select a method that provides a quick but effective outcome. However, according to Chong and Mohamad Zin (2012), the time taken for a settlement is ranked fifth in their study, which was carried out in Malaysia, yet it is interesting to note that the speed of settlement is not considered significant in that context. Therefore, it is evident that the factors that affect the selection appear dependent on the context of the construction industry in the country. Further, the 'complexity of the dispute', 'flexibility in implementation' and 'ability to appeal if not satisfied with the result' are the other factors that influence the selection of ADR method. Similarly, enforceability is identified by Awwad et al. (2016) and Cheung et al. (2002) as another important factor.

The perception of each party to the selection is also important. Table 7 reports the Kruskal-Wallis test statistics.

Similar to the causes of disputes, according to Table 7, there are no significant differences between the parties regarding the factors affecting the selection of ADR methods. Consultants, contractors and the clients look into the similar factors when selecting the ADR method. Therefore, in the Sri Lankan construction industry, there can be no issues relating to the selection of ADR for projects. The contractual parties should be able to quickly decide on the best suited ADR method because the requirements for all parties are the same. However according to Awwad et al. (2016), contractors typically consider the dispute settlement time to be the most important compared to other parties.

Effectiveness of ADR methods

In the Sri Lankan context, there are four mainly used ADR methods. The ranking of these methods is based

Table 8. Ranking of the ADR methods.

ADR method	RII	Rank
Negotiation	0.800	1
Arbitration	0.729	2
Mediation	0.643	3
Adjudication	0.614	4
Conciliation	0.614	5

Table 9. Kruskal-Wallis Test-Statistics for ADR methods.

Test Statistics ^{a,b}					
	Negotiation	Mediation	Conciliation	Adjudication	Arbitration
Kruskal-Wallis H	6.154	1.584	1.144	1.881	1.441
df	2	2	2	2	2
Asymp. Sig.	.046	.453	.564	.390	.486

^aKruskal Wallis Test.^bGrouping Variable: Party to the contract.

on the effectiveness in settling the most number of complex disputes, as given in Table 8.

According to Table 8, negotiation is the most effective method of ADR in Sri Lankan context. This method perfectly coincides with the first factor considered in the selection of ADR methods, and it preserves the relationship between the parties. It is commonly known fact that compared to other ADR methods; negotiations likely take less time to reach a decision than other approaches. Therefore, this ADR method satisfies the first factor: 'time to reach a settlement'. The second most effective method is arbitration. The decision of arbitration can be appealed in court. Therefore, this method satisfies the fourth factor affecting the selection of ADR method. To identify the perception of each party to the contract regarding the effectiveness of ADR methods, Kruskal-Wallis H Test is carried out. The results of Kruskal-Wallis test statistics are reported in Table 9.

According to Table 9, there are no significant changes in the perception of different parties to the contract. This shows that the Sri Lankan construction industry highly facilitate negotiations irrespective of the contractual parties. This appears imperative because to reach a settlement in negotiation all parties should genuinely commit to the negotiations. According to the results, all the parties strongly believe that negotiation is the most effective ADR method. Therefore, it is inevitable for the parties to go through negotiations in the true spirit of settlement.

Conclusion

This article has established the significant causes of disputes, factors affecting the selection of ADR methods, and the most effective ADR methods in the Sri Lankan context. Afterwards, the perception of the

parties to the contract; consultant, client and contractor is considered. Initially, with an extensive study, the causes, factors and the methods have been identified, which were followed by a questionnaire survey. Based on the survey results RII has been calculated to rank the factors and Kruskal-Wallis H-Test has been conducted to identify the perception of the different parties. According to the results, 'failure to administer the contract' has been the main cause of disputes. However, it has been interesting to note that all the parties have the same perception as shown in this finding. Therefore, it has been necessary to conclude that there can be external factors that impede the responsible construction managers from proper administration of contracts. Further, error-free construction documents can minimize the disputes. Therefore, both contract documentation and contract administration should be given proper attention to eliminate the main causes of disputes.

The main factor considered in selection of ADR methods has been the settlement time. All the parties to the contract unanimously have agreed to the fact that the settlement time is the most important factor when considering the ADR method selection. Similarly, negotiations have been considered the most effective in dispute resolution and all the parties once again have agreed to this ADR method, perfectly setting the environment to proceed with negotiations. Although there are main three parties to the contract, these parties have similar perception towards the causes, factors and ADR methods in the Sri Lankan context. However, irrespective of that, there have been many prolonged disputes in many existing projects. Therefore, it is necessary to examine those complex projects to identify the reasons for future research.

Disclosure statement

No potential conflict of interest was reported by the authors.

Funding

The authors wish to acknowledge the financial support of the Australian Research Council (ARC), Australian Government, under the Discovery Project DP150101015 and DP190100559.

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