EFFECTIVENESS AND PREFERENCE OF ARBITRATION IN SRI LANKAN CONSTRUCTION INDUSTRY: A PROFESSIONAL PERSPECTIVE

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DECLARATION

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DEDICATION

This thesis is wholeheartedly dedicated to my beloved family who continuously provide me their immense support, being my source of inspiration.

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Abstract

Construction is one of the major economic activities where physical process of completing a building or infrastructure include the steps of planning, designing, and funding. Presence of disputes in construction industry is a common phenomenon. Dispute means an argument or disagreement between two individuals or groups. One of the major causes of project failures in the construction industry is increasing disputes. Therefore, determining appropriate methods and factors affecting dispute resolution is extremely important. The aim of this study is assessing the preference of arbitration and the effectiveness of arbitration in Sri Lankan construction industry with professional perspective under four objectives of, observe the importance of arbitration as a method used in dispute resolution in Sri Lankan construction industry; identify important constraints that affect the preference of arbitration in local construction industry; evaluate leading critical constraints against the preference of arbitration using a statistical method, determine preference and effectiveness of arbitration as a method of ADR(Alternative Dispute Resolutions), by professional in local construction industry. From the literature review flexibility, cost, willingness, time and binding decision, are identified as affected critical constraints for the Preference and Effectiveness of Arbitration in Construction Industry. The analysis was done on those critical constraints to determine whether the constraints identified have a relationship with the preference and effectiveness of Arbitration. This study was done based on professional perspective. This study applies quantitative research technique. The random sample consisted of 93 participants. A distinctive questionnaire was designed in and the feedbacks of participants have been plotted in 5 points Likert Scale. Through outcomes of the questionnaire, it was identified and determined that employees preferred arbitration to settle disputes that happen in real life. Hypothesis testing was conducted to discover the relationship between five critical constraints to the preference of arbitration in construction industry of Sri Lanka. From hypothesis testing it was recognized that the constraints identified in conceptual framework have a positive and a strong relationship with preference and effectiveness of Arbitration.

Keywords: Arbitration, Construction, Critical constraints, Dispute resolution, Professional perspective

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LIST OF ABBREVIATIONS

ADR: Alternative Dispute Resolution

B.Sc.: Bachelor in Science

CMCSL: Commercial Mediation Centre of Sri Lanka

COV: Coefficient of Variation

DAB: Dispute Adjudication Board

FIDIC: Federation Internationale Des Ingénieurs-Conseils (International Federation of Consulting Engineers)

GDP: Gross Domestic Product

HND: Higher National Diploma

ICTAD: Institute of Construction Training and Development

MBA: Master of Business Administration

M.Sc. Master of Science

NCT: National Certificate in Technology

PhD: Doctor of Philosophy

SBD: Standard Bidding Document

SPSS: Statistical Package for the Social Sciences

UNCITRAL: United Nations Commission on International Trade Law

INTRODUCTION

1.1 Background of the study

A development project could be identified as the process of planning, designing, and financing up to completion point of infrastructure work (Delmon, 2017). Development works resemble a large section of country's gross domestic product (GDP) and engage in designing and evaluating bodies with distinctive objectives and needs, expecting to improve their specific strengths as supremacy (Dhurup, Surujlal & Kabongo, 2016). The construction industry is a major sector, even though it requires complex, uniform and cumbersome tasks, expertise and circumstances, that altogether differentiate a project (Kavinda, 2010). In construction set of skills, abilities require from one project to another change drastically due to the variety of customer needs and due to the set-up of the project (Kumaraswamy, 1997). Construction projects have various contentions, such as funding issues, contracts and documents that need to be signed, chaos and amount of activity involved, communication issues, and poor drafting which result in disputes during the construction period (Marashi, 2018).

Key reason for deadlock of construction activities is the rise in disputation (Kavinda, 2010). Disputes indicate disagreement among two or more persons (Levin, 2016). Most construction-based disputes cause as a result of misunderstanding of signed contracts or agreements, the various needs of investors, delays in projects, disputes relevant to compensation, and hurdles to business connectivity (Kavinda, 2010). If these disputations are not addressed adequately, those may held up, surge and eventually end up with legal proceedings to solve amicably (Kumaraswamy, 1997). As a result of these concerns, the businesses have put emphasis on formulating alternative dispute resolution (ADR) methods (Bekele, 2005). There have been previous studies conducted relevant to dispute resolution methods in construction field. Studies carried out on dispute resolution relevant to construction industry are

limited (Cheung & Suen, 2002). There is necessity of in-depth analysis on ADR topic in building sector (Levin, 2016).

Not all recorded conflicts undergo ADR procedures. Even though ADR has not been authorized as tribunal or court, it is the third fraction which is intervened to resolve out conflicts in irregular ways (Abenayake, & Weddikara, 2012). ADR methods produce a fair point while giving chances to both, plaintiff and defendant (Semple, Hartman & Jergeas, 1994). ADR techniques could be referred to design a treaty with fair treatment for all groups and to create bond among relevant parties (Hughes, Champion, & Murdoch, 2015). Cheung et al., (2002) mentioned that, "at present, efforts to settle disputes are not successful". The stakeholders caused long-lasting unpleasant situations during the dispute, and currently rely on arbitration and other available techniques (Gann & Salter, 2000). Arbitration can be defined as a controversial process for the final and obligatory verdict (Kumar, Kumar & Rao, 2003).

The importance of arbitration is to settle a specific dispute which was identified using former researches and studies. Recent researches on arbitration commonly demonstrates construction agreements and other associated aspects such as construction conflicts and alternate dispute resolution practices in the building sector. Therefore, a background study needed to be conducted. During this initial study, different studies were discovered which related to ADR applications used in construction sector and also the study identified that only hand full of researches were available related to arbitration practice in Sri Lanka (Amarasooriya, 2009).

This study emphasized an evaluation of concerns on dispute solving and tendency of arbitration practices relevant to local construction landscape (Brooker & Lavers, 2000). Even though arbitration is an addictive alternative dispute resolution arrangement, it is not that much widespread among building professionals to figure out disputes which are caused due to points such as conception among general public, errors or loopholes in the signed documents, associated risks, effective period, design faults, contract noncompliance, breaching (Sander, 1985).

Therefore, this study expects to fulfill that inspection gap by focusing on key areas that have an effect on the preference and effectiveness of Arbitration rehearses within the local construction sector.

1.2 Research problem identification

Arbitration is the most prominent and widely used method of Alternative Dispute Resolution (Main, 2018). Many professionals target to enhance the effectiveness of arbitration in solving disputes. Effectiveness and preference of arbitration is a subject of debate in academically as well as in industry. However in Sri Lankan context, the importance and preference of arbitration has not been identified in a productive way in former researches and documentaries.

Technical personnel such as Engineers, Architects and Quantity Surveyors are directly involved with disputes in construction industry (Adnan, Shamsuddin, Supardi, & Ahmad, 2012). Many disputes occurred due to technical errors, agreement drafting, material selection and payments which escalate the importance of identifying the opinion of these technical personnel on the effectiveness and preference of arbitration (Adnan et al., 2012).The views of Arbitrators and legal sector personnel who are not directly involved in construction sector can be identified in recent researches. There is a research gap on evaluating the effectiveness of arbitration and the preference of professionals on arbitration who are directly involved in the construction sector in Sri Lankan construction industry. This research mainly focuses on perspective on selection of arbitration as an ADR method, by technical personnel like Engineers, Quantity Surveyors and Architects who are directly involved in Sri Lankan construction sector.

Accordingly, the necessity arises to rectifying the preference and effectiveness of arbitration concerning crucial components of construction disputes with professional perspective.

1.3 Research aim and objectives

Aim

The aim of this study is to assess the effectiveness and preference of arbitration in Sri Lankan construction industry under a professional perspective.

Objectives

- Observe the importance of arbitration as a dispute resolution method in Sri Lankan construction industry

- Identify the critical constraints that affect the choice of arbitration in construction industry

- Evaluate leading critical constraints against the preference of arbitration using statistical analysis.

- Determine the preference and the effectiveness of arbitration as a method of ADR, by professionals in Sri Lanka.

1.4 Research Methodology

Literature Survey

An in-depth literature review was performed through related articles published in journals, Conference papers subject-specific books, relevant dissertations and industry-related reports in order to find out the research issues.

Questionnaire Survey

A questionnaire survey was carried out to obtain the weightage for crucial elements behind success of arbitration based on construction sector outlook of respective causes for dispute solving process.

Data Analysis

The key factors affecting arbitration were assessed in data analysis stage. Mean and the standard deviation of the responses (1-5 likert scale) were calculated. A hypothesis

testing was conducted to determine the preference of arbitration as a method of ADR, by professionals in Sri Lanka.

1.5 Scope & limitations of study

The research focuses on the use of arbitration process to find amicable solutions for disputes existing in construction industry, thereby reducing time used on decision making and resolution.

This study was conducted on getting feedback from construction industry professionals in building sector, such as Civil and Structural Engineers, Quantity Surveyors and Architects in Sri Lanka.

These professionals were selected from Western Province Sri Lanka as there is a high probability of involving those professionals in dispute resolution and having more experience on the subject area. Besides, majority of the constructions are taking place in Western province in Sri Lanka.

1.6 Chapter Breakdown

Chapter 1 Introduction
- Introducing the general background, goals and objectives, methods, problem statements, scope and limitations.

Chapter 2 Literature Review
- Critical Review of the Literature Construction Industry Arbitration, Clearly Describe the Research Issues Discussed in the Study.

Chapter 3 Research Methods
- Interpreting Research Methodology Research Methods, Research Processes, Data Collection Methods, and Data Analysis Methods.

Chapter 4 Data Analysis and Discussion
- This chapter consists of data from the questioner's survey. Then discuss these findings with appropriate reasoning and propose models developed for strategic choices.

Chapter 5 Conclusions
- Finally, through research findings, recommendations and further research, the conclusions of the study are presented.

Figure 1.1: Chapter breakdown

LITERATURE REVIEW

2.1 Introduction

Literature review discloses knowledge on the field of study highlighting the details which have already been revealed, the facts that have been commonly accepted and the contradictions within the relevant topic in different perspectives. Research gap on the relevant subject area will be identified in the literature review and the study will focus on addressing this gap. Accordingly, followings are the key points addressed in the chapter,

- The dispute notion and the way it happens
- Elements affecting dispute within building sector
- Settlement of dispute
- Legal actions
- ADR
- ADR strategies practiced among local industry professionals.
- Pronouncement
- Arbitration
    - Arbitration referring FIDIC contract forms.
    - Arbitration referring ICTAD contract forms.
    - Legal conditions of Sri Lankan arbitration process.
    - Key phases in arbitration procedure relevant to the Sri Lanka Act of Arbitration - No, 11 (1995)
- Key restrictions for conflict solving

2.2 Concept behind dispute

There is a link in among conflicts, claims and disputes (Love, 2007). Figure 2.1 demonstrates the link among those entities.
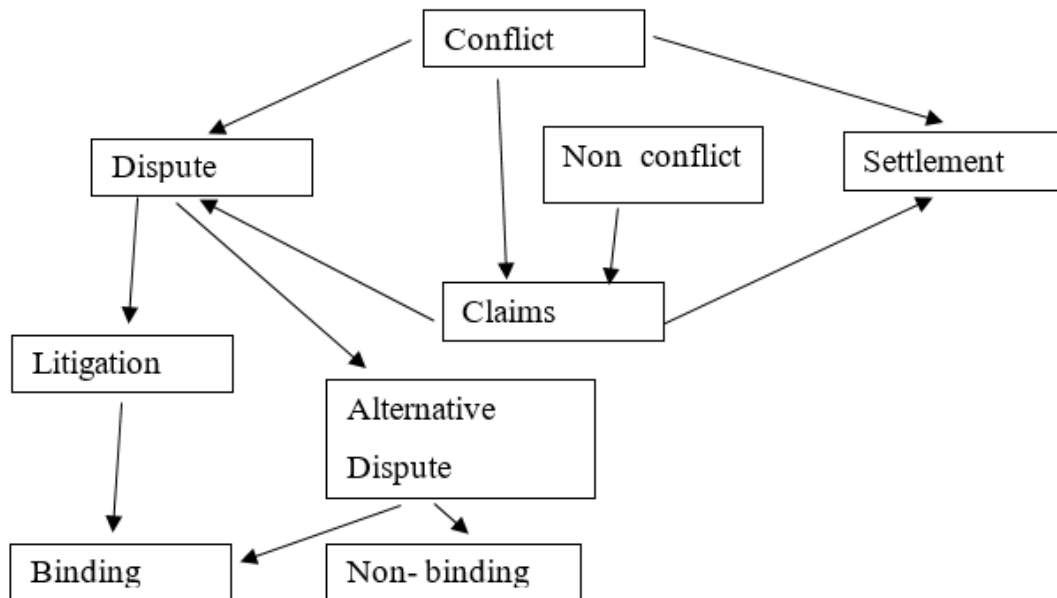
Figure 2.1: Relationship of disputes, claims and conflicts

Figure 2.1 demonstrates the interdependency among disputes, claims, conflicts and settlements. It indicates that in case an acceptable compromise is not achieved, allegations could be transformed into disputes (Love, 2007). Conflict could be accepted as root cause not only for allegations, but also for disputes. Kumaraswamy, (1997) disputes, conflicts, claims as various bodies that are commonly adhered mutually.

2.2.1 A Conflict

Nisansala (2012) explained conflict as consequential differences and controversies on key aspects and serious gaps among two or more faith, concepts or interests. Further Nisansala (2012) stated that a broad interpretation of conflict is stated as a tussle among utterance of at least two independent groups who think that the intentions are ill-matched, pressurize supplies, and intervene with others". In the construction sector, mismatch of views results in bad blood such conflicts might be advantageous

(Nisansala, 2012). Therefore conflict management persuades such positive disputes while minimizing the type of unfavorable or negative conflicts that might result in personality frictions and declaration of non-negotiable context (Arsecularatne, 2010).

Conflict might be converted into a controversy which is a full-blown contention that required to be solved (Brown & Marriott, 1999). Controversy can be defined as an open disagreement which needs an agreement on terms (Brown & Marriott, 1999). The issue was caused by the differences among stakeholders in construction projects (Kavinda, 2010).

2.2.2 A Claim

A claim is an issue which has been filed and recorded for appraisal at an additional meet up and might yet be settled at the ground level (Kumaraswamy, 1997). An example for a claim in the building sector is the project contractor solicit reimbursement for extra activities or damages far exceeding the agreement as no person is aware of what has given in the preliminary agreement (Jayalath, 2011).

Construction damages are normally requested (for compensation) due to additional time or cost when one Party to the contract incur harm and must be reimbursed by the other party to the contract (Gebken, 2006). Hence, a construction claim is a method of getting reimbursement with the use of proofs and points submitted by one party to the contract strengthen its stance (Gebken, 2006).

2.2.3 What is a dispute ?

Different opinions and disagreements between project parties can result in disagreements which are unavoidable during the building project circumstances (Saeb, Mohamed, Danuri & Zakaria 2018). If relevant parties are not attended correctly the conflict might soon cause a dispute (Saeb et al., 2018). If disputes are not resolved on time the negative impact will be worsen causing a long lasting effect (Saeb et al., 2018).

Dispute is called as a mismatch in opinions. Contractually, disputes are known as a problems, regardless of business or technical, increase rapidly after once it has been

disputed between the sides, awaiting decision in a court case or else (Gebken, 2006). As per FIDIC (2008), Dispute is (a) a scenario in which a particular body produces a claim hostile to other body; (b) the opposing side refuses the claim as a whole or as part; (c) the first side does not permit, but if the other side is unsuccessful in-ground protest or a return to an assertion might account a rejection, in such circumstance the DAB or arbitrator(s), as scenario might be, views it rational.

2.3 Elements affecting disputes in construction sector

All building firms consist of range of experts, staff and manual level employees whose jobs are not identical. As each person's mindset and work expertise vary, sometimes they are unable to reach given targets, where issues and conflicts take place (Chan, 2014). Mosta (2006) figured out following reasons which lead to dispute in industry circles.

- Shortcomings in contracts
- Peoples' attitude
- Risk
- Time
- Construction process
- Warranty
- Flaws in design
- Agreement breaches
- Insufficient overlooking of responsibilities
- Flaws in building specifications
- Tariffs and increased expenses
- Holding up of releasing drawings, designs, guidelines and variation orders.
- Imperfect designs
- Unfavorable climate
- Varying site environment
- Wrong directions
- Liquidated damages

It is essential to know the points which cater to the disputations within sector. All development sites possess a lot of generic, complex and unique characteristics.

Mosta (2006) also introduced following points for the investigation of disputes in construction projects as key elements influencing industry disputes;

I.   Terms in the contract

•   Lack of perfection in contract document
•   No considerations on costs involved.
•   Psychology of the constructors

II.   Flaws in the design

•   Problems with underground area
•   Risk
•   Defective plan
•   Means or method, specification performance

III.   Construction procedure

IV.   Customer feedback

•   Public proprietor
•   Warning

V.   Time

Disputes are commonly originated due to problems caused by the purchase of supplies, services and machinery fitting agreements in local construction industry (Abeynayake, 2007). Abeynayake (2007) mentioned that the predominant causes behind conflicts in the local construction such as,

➢ Any side to the contract breaks the contractual terms and conditions.
➢ The owner, contractor or subcontractor possess inadequate administration of duties.
➢ Building plans and provisions comprise flaws, exclusions and confusing clauses.

➢ High tariffs and increasing costs.

Harmon (2003) emphasized that complication and size of the above mentioned work, multiple major entities, formulation and execution of irregular agreement paperwork, ad hoc planning, economic concerns and conveying problems are key causes for construction conflicts. Ranjithkumar (2005) stated below points in detail as familiar reasons for disputes in the local industries.

➢ Holding up the release of finalized design, drawings, change instructions and guidelines needed by the contracting party.

➢ Set back as a result of errors in design.

➢ Unpredicted and abnormal unfavorable weather or physical conditions, which result in setbacks.

➢ Buffer for fluctuating rates being inadequate.

➢ Actual site's state differs from what's mentioned in agreements.

➢ Provide agreement guidelines, hamper the contractor's activities, worksite measures or building processes.

➢ The financial soundness of either side to the agreement is inadequate.

➢ Lack of willingness or inability to agree with contractual aim or abide by business norms.

➢ The employer failed to move into the site during the period stipulated by the agreement.

➢ Price variations.

➢ Liquidation and verification of damages.

Accordingly, the dispute is unavoidable and complex over the accomplishment of any development agreement among both sides (Maritz, 2009). Therefore, it is essential to know how disputes are solved within constriction industry.

2.4 Dispute Resolution

Dispute has lured attention of a large number of professionals and researchers. Different researchers determined to identify the mechanism for selecting the dispute resolution plans depending on specific elements like economic factors, the level of power by the stakeholders, seclusion, -period, adaptability, enactment, classified details, binding obligations, etc. (Cheung & Suen, 2002).

Due to shattered and complicated style of construction works, there is no any other suitable method for handling the disputes, as usually, they are contrasting in size, scope, complications and nature (Kotb & El Beheiry, 2016). In Sri Lanka, lot of construction conflicts lean-to approach the DAB in initial case and then reach arbitration in line with FIDIC (1999) and ICTAD/SBD (2006) (Abeynayake, 2007). Even though, regular the issue is how to routinely ascertain whether to use DAB or arbitration depending on style of the dispute (Capasso, 2018). Despite the subject of dispute settlement has been broadly debated and studied in-depth, few types of research have performed relevant to this particular issue.

As per Cheung (1999), the Center of dispute resolution board, recommends alternate dispute resolution which could be elaborated using the theme of "Four 'C's".
I. Consensus — Combined target to search for a commercial answer.
II. Continuity — A willingness to get an answer in case of a prevailing trade connection.
III. Control — Capability of formulating an answer, which is focused on achieving a commercial solution on behalf of a verdict ruled by the law, that might be further constraining or unsuitable for requirements of the sides.
IV. Confidentiality — Safeguard sensitive business information and avoid unwarranted exposure.

Stipanowich (2004) recognizes 13 characteristics as indicated and categorizes them into 5 main parts:
➢ Settlement accord — enactment, binding decision and integrity;
➢ Benefits — conservation and economy;

➢ Complexion of the process — privacy and confidentiality;

➢ Result of the activity — resolution and innovative answer;

➢ Process of affairs — adaptability, power and speed

Cheung & Suen (2002) recommend that some scales must be more significant than others due to the specific aspects of construction conflicts. Cheung et al. (2002) figures out 18 characteristics and divide them into following 4 key categories:

➢ Nature — a variety of problems, voluntary, influence by groups, adaptability, ritual, privacy, confidentiality

➢ Neutral third party — impartial, authority to force unification, knowhow in construction

➢ Settlement — concurrence, righteousness, creative accord, capacity of the fix

➢ Benefits — speed to attain, cost to attain, obligation for opposing party's cost

Research conducted by Weddikkara (2003) has found out the connection between corporate culture and the dispute settlement method. Also his study elaborated regarding the impact of culturally ascertained conduct, perspectives, values and faiths for the governing tasks of the project stakeholders related to dispute settlement (Weddikkara, 2003).

Some researchers have emphasized different external influences like political, economic, financial, social, technical, and legal (Cheung et al., 2002). Also research conducted by Cheung & Suen (2002) briefed key elements of alternate dispute resolution determined by different researchers.

Dispute solving mechanism could be separated into judgment approaches and a bilateral accord process (Stephenson & Saville, 1998). Throughout the arbitration steps, the judge, the bench, the arbitrator, the arbitral tribunal dictates result of the process (Gotti, 2008). In mutually consent processes, the sides aim to achieve an accord during course of actions (Gotti, 2008). Litigation, arbitration, and adjudication are dispute resolution methods, whereas both negotiation and mediation are identified as collectively accepted processes (Sander & Rozdeiczer, 2006). Another method of

conflict solving is the shape of conflict and the procedure for cross-examination (Rosher, 2017). During the probing exercise, the third impartial meet up received assurance (Lee, Yiu, & Cheung, 2018). Litigation and arbitration are profiles of encounters, while mediation and adjudication are commonly known as probing methods (Shamir, 2016).

In the past common dispute settlement was a legal case categorically applied in construction works. This is a master plan that is much important, hold up, strict and interrupting (Kumar et al., 2003). Due to such causes, professionals are willing to settle various kinds of contentions. The afore-said methods could be treated as an ADR method (Ranjithkumar, 2005).

2.4.1 Litigation

Litigation is the commonly applied widely defamed and conventional dispute settlement process (Hons, 2010). Besides, it is a comparatively expensive step (Singer, 2018). Stressfulness, rigidness and protocol of court proceedings limited breadth of allegations and fixes could be stated as limitations of this method (Bookman, 2019). Litigation is considered as a conventional way of dispute settlement (Merrills, 2017).

Prolonged hearing, increased litigation expenses, waste of the client's productive time, harmful impact on business relations are certain disadvantages of traditional litigation method as revealed by Abeynayake (2007). Due to these reasons, businesses have been searching for other ways of solving disputes, causing what has termed as ADR.

2.5 Alternative dispute resolution

Though ADR is broadly acknowledged globally, methods or styles of ADR may differ from one region to another which depends on the legitimate structure of the relevant country or region (Gunasena, 2009). As an auxiliary procedure, ADR mechanism demonstrated below is adhered to in the court (Cheung, 2014).
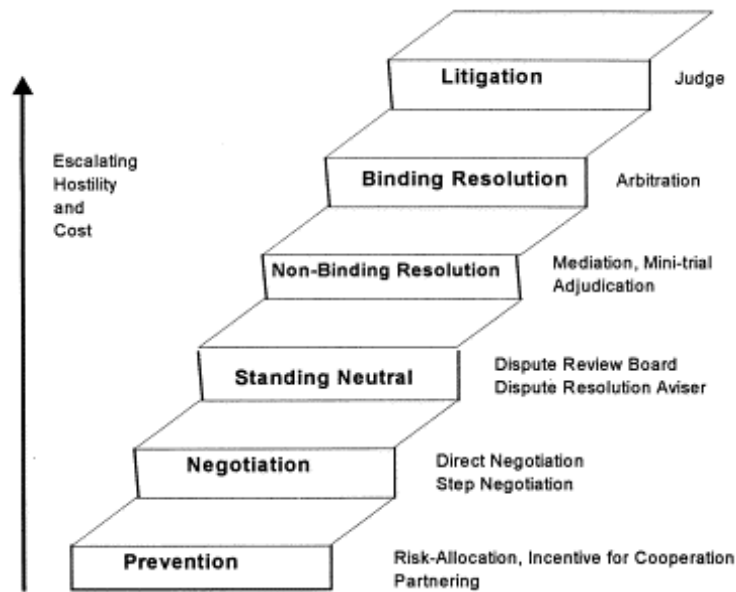
Figure 2.2: Stair step model of alternative dispute resolution

Source : (Cheung, 1999)

Different kinds of dispute settlements are indicated in stages of figure 2.2. How aggression and costs are relevant to various ways of dispute solving are demonstrated through aforesaid processes (Kavinda, 2010)

Though various kinds of dispute settlement techniques are available in the global context, few persons are aware in the case of construction industry (Cheung, 2014).

Widely accepted ADR methods are as follows:

- Negotiation

- Mediation

- Conciliation

- Adjudication

- Arbitration

2.5.1 Negotiation

As a universal affair of modern life, negotiation is another way of communication. Inherently negotiation and communication are interwoven (Jones, 2006). Oxford dictionary interprets negotiation as to discuss with opinion to arrive on to conditions; to discuss things about fundamentally for accord. There are no any third fraction joined during negotiation activities. As per Jones (2006), negotiation is a mutually accepted way; it needs both sides to be glad to settle the issue in this way. Negotiations could take various ways, from informal talk or phone communication between sides to prolonged highly organized and complicated undertakings (Moffitt & Bordone, 2012).

2.5.2 Mediation

In various parts of the world, mediation is practiced as a conventional method of dispute settlement (Kavinda, 2010). Mediation is explained as, a third side impartial way where it might be a person or a group, as a moderator to assist settle disputes among 2 or more groups (Kavinda, 2010). Mediation is an exercise in which an impartial third side gets in touch with the each party and support dialogue to assist the groups to reach their settlements (Arsecularatne, 2010).

2.5.3 Conciliation

Conciliation is an ADR method where a conciliator, supports individuals in a dispute to recognize the disputed subjects, develop decisions, consider replacements and try to achieve a settlement (Wenying, 2005). A conciliator who is the third party involved in dispute resolution will not make a conclusion about the argument. Conciliation arises as volunteer, court-ordered or obligatory as part of a contractual agreement (Moffitt & Bordone, 2012).

2.5.4 Adjudication

In the process of adjudication there is a neutral and unbiased third party who is called an Adjudicator who is an expert in subject area (McAdams, 2005). Adjudicator's duty is deciding the matters caused in dispute by mutual agreement, and offer a solution (Hewagama, 2009). These decisions are generally binding temporarily except and

till overturned in arbitration or litigation (Prakken, 2008). He will usually be able to act inquisitorially (Seifert, 2005). Statutory adjudication and contract adjudication are the two kinds of adjudications in construction sector (McAdams, 2005).

2.5.5 Arbitration

This research mainly focuses on arbitration as a method of alternative dispute resolution. Arbitration is kind of optional conflict solving method which assist to settle conflicts beyond the limits of courts (Harmon, 2003). It enables one or many unbiased individuals to ask for a finish or obliged decision (Gaillard, 2010). The arbitral reward is legitimately obliged and could be imposed in a court (Gaillard, 2010). Among the ADR methods, arbitration is one of the best methods because of its flexibility wide range of disputes can resolve, not only the construction industry disputes, but every kind of commercial disputes without going to the court system (Yiannibas, 2018). Flexibility in the sense, privacy & the time are the most important factors (Trakman & Montgomery, 2017). Everyone in the business field likes to solve their controversies by having privacy to that problem & as soon as possible (Loosemore & Lim. 2016). So the arbitration is one of the most suitable ADR methods. Cost for the arbitration process is considerably high, but it hides automatically with its number of advantages. Sometimes there may be problems when hearing the Awards from arbitration tribunal (Gaillard, 2010). However, clauses in arbitration act clearly describe how to react when having unexpected situations from tribunal (Gaillard, 2010). Arbitration is the most effective & famous method in resolving international disputes in any kind of corporation (Main, 2018).

2.6 Advantages and disadvantages of ADR methods

A variety of ADR methods are discussed above which have varied techniques, allowing parties to settle their disputes in a beneficial and convenient mode. Though they have several disadvantages, these ADR methods are now generally acknowledged in different countries and regions including in Sri Lanka. Following table 2.1 discusses the advantages and disadvantages of ADR methods.

Table 2.1: Advantages and disadvantages of ADR methods

Method of ADR	Advantages	Disadvantages
Negotiation	- Resolving disputes is more efficient (Harmon, 2003). - Due to the informality more flexible (Harmon, 2003). - Good relationship status is maintained between parties (Jones, 2006). - Occurs privately (Harmon, 2003).	- The power between parties will imbalance in negotiation (Harmon, 2003). - Disputes might not be settled every time (Moffitt & Bordone, 2012). - The protection given by law is lack of negotiation (Harmon, 2003).
Mediation	- Parties involved in disputes control the settlement completely (Kavinda, 2010). - Less tension (Arsecularatne, 2010). - Less damage to the relationship of parties (Kavinda, 2010). - The procedure is trustworthy (Kavinda, 2010).	- The decision will be given based on the preference of the parties hence disputes will not be settled all the time (Arsecularatne, 2010). - It lacks the support of any judicial authority in its conduct (Arsecularatne, 2010). - The absenteeism of a formal mediation process (Kavinda, 2010). - The mediation will not base on legal principles (Kavinda, 2010).
Conciliation	- Due to the informality, the process is flexible (Wenying, 2005). - Less damage to the relationship of parties (Moffitt & Bordone, 2012).	- Not a binding process with the parties involved in disputes (Moffitt & Bordone, 2012). - No way to appeal the case (Moffitt & Bordone, 2012).

Method of ADR	Advantages	Disadvantages
	• The procedure is trustworthy (Moffitt & Bordone, 2012). • Productive than Mediation (Moffitt & Bordone, 2012).	• Parties will not be able to accomplish a settlement to the disputes in all time (Wenying, 2005).
Adjudication	• On agreement the time limit may adjust considering the complexity (Manuja, 2010). • The reputation of the parties involved in disputes is protected (Hewagama, 2009). • Most of the cases are less costly (Prakken, 2008). • For a lengthy case an impartial judgment can be obtained (Seifert, 2005). • Adjudicator's decision is normally binding, except the parties appealed to proceed Litigation or Arbitration (Prakken, 2008).	• The time given to the responding party to be prepared is very tight (McAdams, 2005). • The adjudicator has no power to command the defeated party to pay the legal cost which the winner's award (McAdams, 2005). • As both parties have the right to be heard the case in court as a fresh case adjudication will not always provide a final settlement (Manuja, 2010). • The adjudicator does not have any authority to act beyond the contract (Manuja, 2010).
Arbitration	• Process of arbitration is flexible (Harmon, 2003). • Economically feasible method compared to litigation (Gaillard, 2010). • An efficient process compared to Litigation interms of saving time of involving parties in disputes (Wimalaehandra, 2007).	• When the process of arbitration in settling disputes is compulsory as per the contract, parties have no right to hear the case in court (Gaillard, 2010). • There are very narrow opportunities to appeal the case (Gaillard, 2010).

Method of ADR	Advantages	Disadvantages
	• Protect the confidentiality by not revealing the matter to the public (Harmon, 2003). • The parties have the authority to pick an arbitrator in the arbitration process (Bunni, 2003). • Awards of the arbitration process have high enforceability (Gaillard, 2010). • It has a well-developed structural process (Gaillard, 2010). • Foreign awards also can be enforced (Bunni, 2003).	

Taking into account, the drawbacks of ADR methods figured out by researchers, an extensive record of bottlenecks influencing arbitration is produced.

2.7 Professional involvement in arbitration process

Kavinda (2010) stated that the level of contract formulation and contract management in local building companies are relatively weak, hence resulting in undesirable issues and disputes. Apart from that the contracting party normally involves in the dispute due to various beliefs or lack of clarifications of terms and conditions in contracts (Kavinda, 2010).

Professionals are the people who have proper training and education on a specific profession (Olatunji, Akinola, Oke & Osakuade, 2014). Professional perspective is a conceptual view or prospect of professional on an area relevant to their profession (Gunnarsson, Linell & Nordberg, 2014). The study focuses the preference and effectiveness of arbitration in Sri Lankan construction industry; a professional perspective. This study collects data from Engineers, Architectures, Quantity

surveyors who are the professionals directly involve in construction sector. These professionals are the main persons who mainly cause for disputes and also who directly involve in dispute resolution in a construction project.

2.8 Arbitration as a method of Alternative Dispute Resolution

In the circumstance of arbitration, the impartial party who is known as the arbitrator, hears the arguments of both parties and after studying the dispute, the decision will be taken by the arbitrator in which that decision is binding with both parties (Gaillard, 2010). Arbitration can be recognized as an alternative private means of dispute resolution (Dickson, 2018). Treat all the parties equally in the process of arbitration is the main principal of arbitration (Dickson, 2018).

The parties who involve in disputes can enter a compulsory arbitration process when it is mentioned by litigation, under a statute, or when the contractual agreement approves the arbitration method by an exact clause (Rubino-Sammartano, 2014). Voluntary arbitration can be performed based on the choice of relevant parties who involve in disputes (Wimalaehandra, 2007). The judgment of the arbitration process in dispute resolution is known as an 'arbitral award' (Gaillard, 2010).

2.8.1 Basic steps in arbitration

Institutional arbitration and ad hoc arbitration are the two types of arbitration (Farag, 2019). In institutional arbitration process administering the process will be conducted by a specialized institution and in ad hoc arbitration the parties will decide themselves most of the aspects of the arbitration process (Farag, 2019). Arbitration can be a common verity which is put into consideration as added preference to court proceeding (Harmon, 2003). Affected sides have individual agents who estimate experts in particular field area (Bunni, 2003). It furnishes a legally obliged decision also. Arbitration steps can be elaborated as follows (Mix, 1996).

1. Start of the dispute
2. Citing and present a specific dispute
3. Picking an arbiter (s) is conducted through using the settlement of sides.
4. Arbitrator obtain designation

5. Conducted first gathering

9. Presenting the claims

9. Answers to the claims

10. Received records and specialist reports are arranged

12. Probing proofs from every side, agents, witnesses, and experts

13. Award

14. If non-compliance — measures for enactment or retained the reward

2.8.2 History of Arbitration

The pioneers in practicing the Arbitration process as a method of ADR were Great Britain and United States (Gaillard, 2010). Traditionally, disagreements between feudal dealers in fairs and bazaars in England were resolved by using commercial arbitration (Born, 2009). Once courts were permitted to impose parties' agreement to arbitrate, the practice of commercial arbitration was improved (Born, 2009).

As arbitration was rearranged more often, the expansion of Arbitration Law was powered by the followings:

- New York Convention on the Recognition and Enforcement of Foreign Arbitral Awards (1958)

- UNCITRAL Arbitration Rules (1976)

- UNCITRAL Model law (1985).

Model Law on Arbitration

A Model Law on International Commercial Arbitration was approved by the United Nations Commission on International Trade Law (UNCITRAL) in 1985 (Sanders, 2005). The guidance on remodeling and updating the process of arbitration according to the necessity of international commercial arbitration and specific features were given by the UNCITRAL Model Law (Farag, 2019). Offering a standard method and a uniform law in all the regions to facilitate international commercial arbitration was the determination of the Model Law (Farag, 2019). There are several adoptions in the process of Model Law of Sri Lanka (Abeynayake, 2008).

There were three legal instruments that the Arbitration Law practiced in Sri Lanka was based on before to the lawmaking of the modern Law of Arbitration (Abeynayake, 2008).

- Arbitration Ordinance (No.15 of 1856)

- Civil Procedure Code (No.02 of 1889-Chapter 51)

- Reciprocal Enforcement of Foreign Judgments Ordinance (No 41 of 1921)

The Arbitration Act of Sri Lanka No.11 of 1995 was the South Asian first Arbitration Law. It was guided by the UNCITRAL Model Law (Abeynayake, 2008). The Swedish Institute for Legal Development in cooperation with The Institute for the Development of Commercial Law and Practice of Sri Lanka put forward a draft Act which facilitated the enactment of the Arbitration Act of Sri Lanka No.11 of 1995.

2.8.3 Basic features of Sri Lankan Arbitration Act No - 11 of 1995

The basic features of Sri Lankan Arbitration Act No - 11 of 1995 are as follows,

1   ADR method which is binding

> Section 5 - Requirement of a valid agreement to commence Arbitration. The arbitration award is final and binding for both parties involve in disputes

2   Party Autonomy

> The parties involve in disputes have the ability to control many features in the process of Arbitration. Following are some areas that parties have control in Arbitration

> - Section 6 - Parties can decide the number of arbitrators involve in the process of Arbitration.

> - Section 7 - Parties can mutually agree on the procedure of appointing arbitrators.

- Section 16 - Parties can mutually agree about the place of Arbitration.

- Section 17 - Parties can mutually agree on the method of Arbitration which is to be followed during dispute resolution.

3. The instances where the court involve in Arbitration which plays a supportive role

The court has a limited interference on the process of Arbitration. Application to the court during an arbitration proceeding is permissible only in the following circumstance:

- Section 7 - Appointing of an Arbitrator

- Section 10 - To appeal in order to challenge the arbitrator

- Section 11 - Competency of Tribunal

- Section 13 - Interim measures of protection

- Section 20 - Summons

- Section 21 - Witness examination

- Section 30 - Delay in claims

- Facilitating enforcement of Awards

- Section 31 - The award can be enforced by the High Court.

- Section 32 - Set aside can be done on limited grounds by the high courts.

- Section 33 – enforcement of foreign arbitral

- Section 34 - Set aside a foreign arbitral award can be done in limited grounds.

- Regarding the merits award, Courts do not have jurisdiction.

As per Weddikkara and Abeynayaka (2007) the Act of Arbitration No. 11 of 1995 facilitates a legal structure for operative practice of arbitration activities in the Sri

Lanka and appeal criteria for social control of arbitrational verdicts, hence promoting arbitration as a feasible and swift method for the settlement of disputes.

Following are the main aims of the Act.

➢ Construct extensive legal arrangements for performance of arbitration steps and enactment of arbitral verdicts.

➢ Produce legal outline to give rise to agreement on acceptance and enactment of an external verdict.

Enforcement of law and acceptance:

The made decision in the process of Arbitration known as the award will follow out voluntarily by the parties involved in the dispute and it becomes an implied term (Kronke, Nacimiento & Otto, 2010). The ultimate permission for voluntary non-performance of an award is enforcement through a competent court by instituting enforcement proceedings (Kronke, Nacimiento & Otto, 2010).

New York convention in 1958 issued for controlling facilities for overseas arbitration verdicts (Noll, 2017). Sri Lanka also ratified the accord simultaneously (Weddikkara & Abeynayaka, 2007). It demonstrates the success of arbitration. Arbitration awards can be enforced in other countries if those countries has signed in New York convention (Kalderimis, 2018). Arbitral Awards by foreign can be enforced in Sri Lanka and execution can be challenged by the distressed party under Section 34 (Marsoof, 2017).

Domestic Arbitration Awards cannot be tested at the Enforcement Phase. If the Distressed party desires to challenge a Domestic Arbitration Award, appealing against the Arbitration Award under Section 32 is the solution (Marsoof, 2017).

Time is a key problem in the construction sector, and steps shall be arranged in a prompt fashion with no set back (Weddikkara & Abeynayaka, 2007). The FIDIC and ICTAD agreement terms do not possess any time restrictions for arbitration.

2.8.4 Arbitration under FIDIC conditions of contract

A contract type submitted in FIDIC (1999), explains dispute settlements in article 20. As demonstrated in evaluation in the latter parts, compatible with the clause 12.1, any demand by contractor for enhancement of their chance or additional part needs to be brought up engineer to inquiry. On the long odds those sides' balanced actions improper to achieve a verdict in 42 days, that must be increased assessment reliability with article 20 - 20.4. The request of person is commanding in each meeting when there is no notification of dissatisfaction at interim 28 days when it had received the DAB's preference.

During that stage groups are to undertake friendly agreement prior to the dispute implies on arbitration as demonstrated by term 20.5, adjudication may be initiated on or after 56 days period, after notification date of dissatisfaction term or condition. As demonstrated by the article 20.6, any friction which is not resolved in a friendly manner and considered the DAB's preference could not finish up ultimately and restriction will be finally solved through arbitration.

For agreements with distant contractors, common adjudication with steps controlled by the organization is denoted in agreement details. For agreements between local construction parties, adjudication with steps followed in line with employer's country laws. The arbitrators will possess full potential to come up with, review and change any validation, guarantee, instruction, deduction or estimate of the engineer, and any option of the DAB, relevant to the conflict (Ashworth & Perera, 2018). Judgment may be commenced prior or following realization of exercise.

Engineers assigned as per FIDIC contract conditions, might not possess adequate resources to fulfill their responsibilities of observation and agreement regulation. Also assistants working under engineers frequently fail to provide sufficient involvement in the process. Furthermore, in some cases professionals have to face intimidation from employers, since employers are forced to adhere to the terms set by funding partners, who are trying to restrict expenses within strained budgetary figures. Such external issues might result in discriminatory and unjust rulings being produced by professional and his/ her amateur assistants.

Appropriately, disputes emerge and practical option is to report those to DAB. Unreliable proofs indicate that a few of those drawbacks might be due to employers choosing and nominating professionals given that cut-throat tenders while construction ongoing, where nominated professional has possessed no past planning feedback or participation, besides based on certified potential, prestige, design know-how and contractual needs. Under such circumstances, where allowance has been paid on competitive basis, there could be substantial resistance from professionals to get associated with important works themselves. Nevertheless assign those activities to subordinates.

In case, where professional carried out a handful of official assessments on assertion for time prolongation of finalizing of company's acceptance, those did not receive approval.

2.8.5 Arbitration under ICTAD contract conditions

The ICTAD-SBD 01 2007 article is about arbitration. As per the subsection 19.1, any dispute will be suggested by one of two sides to adjudication for furthest settlement, in sanction with the Act of Arbitration No.11 of 1995, or any change. As demonstrated by ICTAD-SBD there are not any time constraints specified within agreement terms, where fulfillment must be done. However, time constraints ware existed in previous accommodation of ICTAD contract terms.

2.8.6 Factors affect the choice of Arbitration

Literature on factors affecting arbitration has been reviewed by literature review and the findings have been limited for the research publications that were published in Research Gate, Science Direct and Emerald which are the most common academic research databases from the 2000-2020 time period. In this study, all the constraints have been identified for twenty years where altogether 18 constraints have been reviewed by twelve researchers including Sri Lankans, where only few have studied all the constraints while the others in different proportions. Following table 2.2 discusses the key literature findings of constraints of arbitration.

Table 2.2: Key literature findings on constraints of arbitration

	Constrains of Arbitration	Details of constraints	(Kantor, 2002)	(Waters, 2018)	(Cheung et al., 2002)	(Born, 2009)	(Schwartz, 2008)	(Stipanowich, 2008)	(Abeynayake & Weddikkara,2012)	(Alam, 2014)	(Grant, 2009)	(Ranasinghe, 2012)	(Hons, 2010)	(Illankoon,Tam & Ranadewa, 2019)	persentage
1	Confidentiality	Avoid exposing any information material to the public	1				1		1		1			1	42%
2	Flexibility	Degree of using strict rules and procedures in the process	1	1	1	1	1	1	1	1	1	1			83%
3	Available Remedies	Width of outcomes which can be extracted from process proceedings		1	1	1				1				1	42%
4	Binding Decision	Binding nature of the decision	1	1	1	1	1	1	1	1	1	1	1	1	100%
5	Degree of formality	The formal way of the process		1											8%
6	Cost	Total amount of direct, indirect and hidden cost	1	1	1	1	1	1	1	1	1	1	1	1	100%
7	Time	Amount of time taken to resolve dispute	1	1	1	1	1	1	1	1	1	1	1	1	100%

	Constrains of Arbitration	Details of constraints	(Kantor, 2002)	(Waters, 2018)	(Cheung et al., 2002)	(Born, 2009)	(Schwartz, 2008)	(Stipanowich, 2008)	(Abeynayake & Weddikkara,2012)	(Alam, 2014)	(Grant, 2009)	(Ranasinghe, 2012)	(Hons, 2010)	(Illankoon,Tam & Ranadewa, 2019)	persentage
8	Relationship of parties	Ability to protect the relationships between the parties after the final decision		1	1	1	1		1						42%
9	Degree of control by a neutral third party	Control of the process, format and the content by the Arbitrators in the process	1		1		1				1			1	42%
10	Willingness	Willingness to resolve the dispute	1	1	1	1	1	1	1	1	1	1			83%
11	Documentation	Submission of pleadings	1	1	1										25%
12	Knowledge in Construction	Involvement of construction experts in the process			1				1		1			1	33%
13	Power Imbalance	Having equal power to both parties in the resolution process		1			1								17%
14	Participation of all stakeholders	Facilitate the participation of stakeholders			1	1		1	1						33%

#	Constrains of Arbitration	Details of constraints	(Kantor, 2002)	(Waters, 2018)	(Cheung et al., 2002)	(Born, 2009)	(Schwartz, 2008)	(Stipanowich, 2008)	(Abeynayake & Weddikkara, 2012)	(Alam, 2014)	(Grant, 2009)	(Ranasinghe, 2012)	(Hons, 2010)	(Illankoon, Tam & Ranadewa, 2019)	persentage
15	Creative Solution	Does the solution satisfy the needs of both parties			1										8%
16	Professional culture and ethics of parties	Culture and ethics of the professionals involved in the dispute resolution process	1				1			1					25%
17	Fairness	The ability of both parties to disclose the relevant facts		1						1	1				25%
18	Settlement of dispute	Power available in the process force the parties to settle			1	1			1					1	33%

From the above table, the constraints which have been reviewed by more than 50% of the selected 12 researchers, were identified as critical constrains that affect to preference and effectiveness of arbitration.

2.9 Explanation of critical constraints identified during the literature review

2.9.1 Flexibility

Flexibility indicates unavailability of rigid guidelines or methods (Trakman & Omery, 2017). Further, usually arbitration processes were considered as adjustable, as stringent legal policies are not exerted and the contents of litigation could be customized to attain the requirements of the sides (Cheung et al., 2002).

Arbitrator is chosen through the conformity among both fractions in most of the arbitration cases (Cheung et al., 2002). As per Brown and Marriot (1999), there is an occasion for related sides to examine the proceedings of arbitrators contrasting exposure, knowhow and professional context, however the potential of decision making capability vary from one approach to another.

Sides associated with disputes possess huge power over configuration and composition of dealings (Cheung & Suen, 2002). Arbitrator delivers the judgment during the process of arbitration, but related parties have the chance to pick the unbiased third fraction where disputed parties possess authority over none of the two. During legal action, contrary to the sides have not real options as form of actions, as it is beneath the court's jurisdiction. By creative accord, it is capable of reaching settlements which improve professional inter-connection and also individual problems could be evaluated (Walker, 1997).

2.9.2 Willingness

As per Weddikkara (2003), for the accomplishment of settlement willingness perform a key part where arbitration is applied. The sides must be informed regarding the significance of the willingness, before the proceeding initiates to remain them concentrate on actual problems and not on individual problems (Weddikkara, 2003).

In the absence of each fraction's will to participate in the exercise, it is hard if not impractical to arrive at a settlement (Weddikkara, 2003).

According to Kavinda (2010) professional culture comes up with its definitions, standards, behavior and signs. Further it elaborates how corporate parties will expect to experience and act in professional tasks. Ethics could also be treated as cultural elements (Kavinda, 2010).

Parties to a dispute are not permitted to reveal any record or details to the people except through mutual agreement of the parties (Franck, 2005). Cheung and Suen (2002) described that the arbitrators are also responsible to emphasize the parties to sternly safeguard the confidentiality of details throughout the operation.

The trials must not weight in for any of the sides. Both sides must have identical chance to reveal the related details. It is the responsibility of the arbitrator to command the hearings to happen in impartial and just manner (Brown & Marriot, 1999).

During the settlement procedure, there are lot of sides associated with the dispute in some cases. Mainly enable those groups for the settlement procedure and support them is appraised by this element.

2.9.3 Cost

As per Cheung and Suen (2002), the cost of arbitration comprise;

I. Direct expenses— Fees paid for entity Payments and charges paid to arbitrators

II. Indirect expenses — Salaries and overheads of organization's professionals who need to collect the points and figures and to face as witnesses.

III. Hidden expenses — lack of productivity, setbacks, and low quality work that disputes give rise to the construction activity.

Gebken and Gibson (2006) portray that in legal actions and arbitration the arbitrator or judge can command the side which loses to bear the opposing party's expenses.

2.9.4 Time

The time spent on submissions drafting and for responding accordingly to affairs are pre-planned (Kavinda, 2010). Arbitration is stringent but it is not strict as much as legal

actions which gives too much duration for the sides in between 2 hearings (Koremenos & Betz, 2013).

Speed is estimated by the level of time required to settle a dispute. In well-advanced countries, the public discover that fast settlement is favored due to limited time and complex living conditions (Cheung et al., 2002). Also it is hard to evaluate how much time it will need to achieve a compromise as it is based on different elements like quantum, complexity and the number of opponents mixed up (Cheung et al., 2002).

2.9.5 Binding decision

Complications of dispute are caused by amount of problems and gravity of them. Occasionally disputes might bring set of varying problems (Gent & Shannon, 2010). For the disputes which hold set of problems favor more antagonistic techniques (Gent & Shannon, 2010).

Parties are dedicated to resolving disputes through resolution steps. In such steps verdicts provided are compelled to enact by parties through court system (Govind & Jurcan. 2017).

Permanently binding verdict denotes that provided judgment as ultimate verdict. Also when it comes to Sri Lankan legal procedures, enactment is an aspect of arbitration and litigation only (Weddikkara, 2003).

2.10 Summary

Conflicts are unavoidable in the construction sector (Kennet & Cheung, 2005). The outcomes of disputes influence the outcomes of the construction sector (Fenn, 2012). Hence, the success of construction sector has set basis for conflict management (Fenn, 2012). The efficiency and effectiveness of dispute settlement rely great extent on plans exercised to settle conflicts and disputes themselves (Fenn, et al., 1997). The industry assumes that arbitration is an efficient way to settle disputes (Kennet & Cheung, 2005). By evaluating the attributes of dispute, the determination of the elements of dispute and personal association of those characteristics to arbitration is extremely crucial for

choosing arbitration suitability and eventually for a fruitful settlement (Fenn, Lowe & Speck, 1997).

This chapter has widely described the preceding researches and research problem identification, determining aim and the objectives which are fundamental in the entire research study. This chapter move into alternative dispute resolution through conflict, claim, dispute and dispute resolution. History of Arbitration as well as the current enactments in Arbitration has been carefully studied. The arbitration within the Sri Lankan construction industry, arbitration processes and other alternate dispute resolution techniques and their judicial means were then broadly analyzed.

Through literature review five critical constraints to the preference and effectiveness of Arbitration are identified and they are flexibility, willingness, time, cost and binding decision. This research will address the positive or negative association of these identified constraints to the preference and effectiveness of Arbitration.

RESEARCH METHODOLOGY

3.1 Introduction

All concepts and processes considered during the research were analyzed throughout the chapters by emphasizing the sort of perception or the ways that were adhered to within the research. With the scope of achieving the objectives, Chapter 3 explains sample selection, research design, data gathering process and various data assessment methods utilized throughout research to improve the accuracy of the research process.

3.2 Research Design

Research methodology describes the effort on the research from the research question to conclusion. Followings are the three main factors of research design (Kagioglou, Cooper, Aouad, & Sexton, 2000).

1. **Research philosophy** – research will be conducted based on the philosophy

2. **Research approach** – part of building theory or testing

3. **Research techniques** – collection and analysis of data
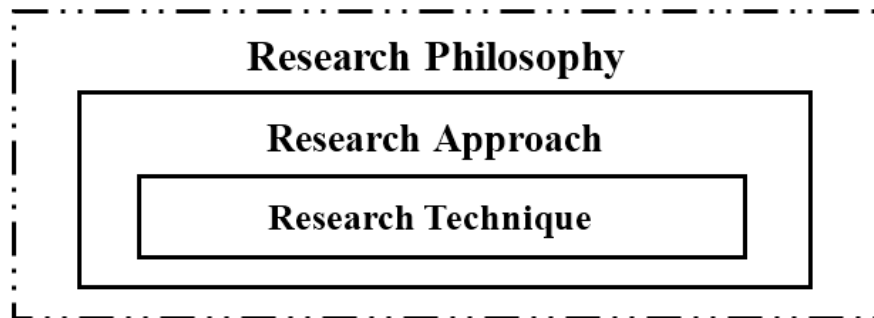
Figure 3.1: Nested Research Design

(Kagioglou, Cooper, Aouad, & Sexton, 2000)

The flow of the research methodology as follows
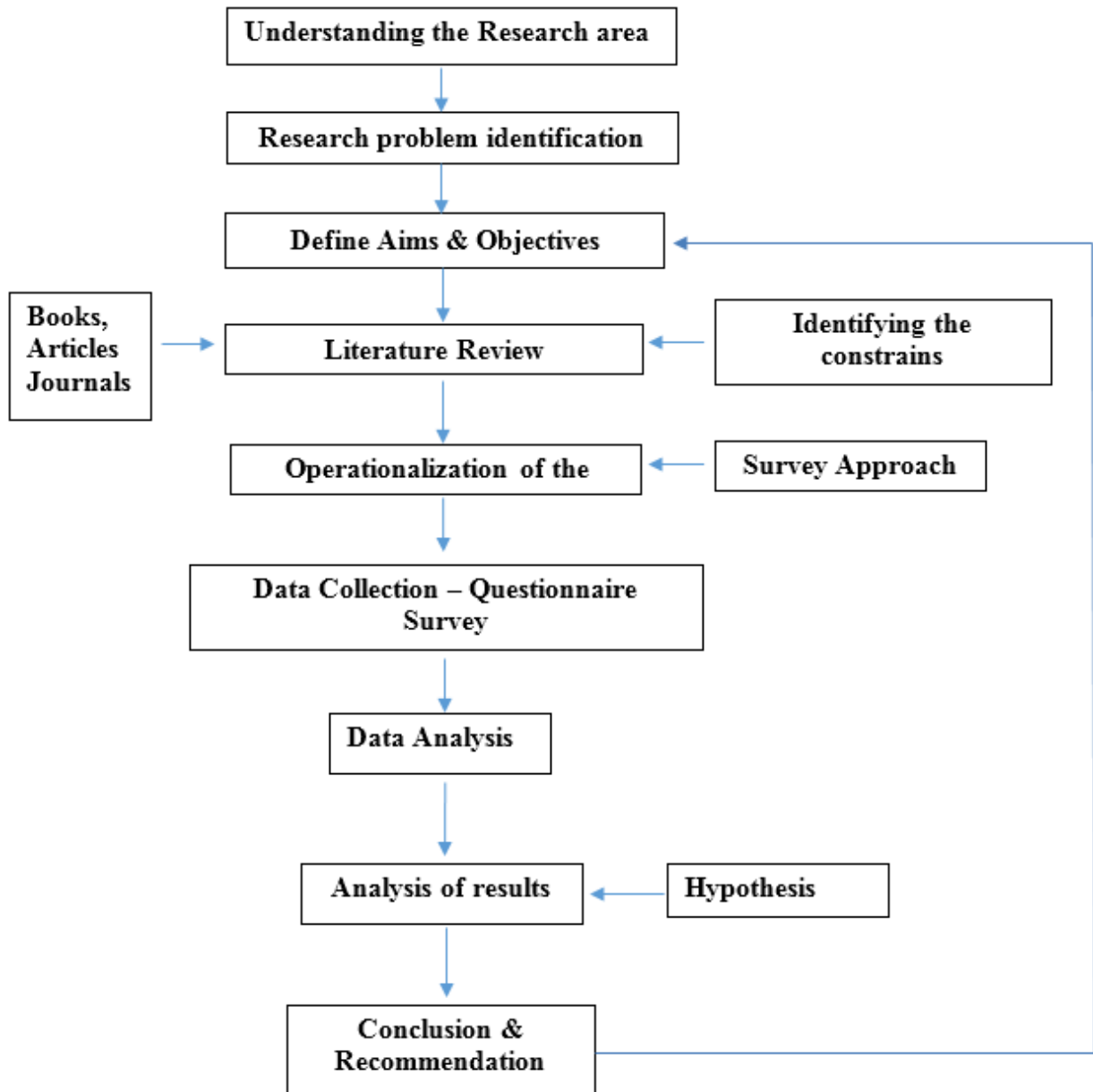
Figure 3.2: Flow of research methodology

3.3 Research Philosophy

Research philosophy is the simple belief or view that guides the researcher (Padilla-Díaz, 2015). Constraints which affect the preference and effectiveness of arbitration in the construction sector were identified by the literature review. There is a lack of research that has been accompanied based on Sri Lankan perspective and five mostly reviewed constraints in past researches was chosen in this research.

3.4 Research approach

There are two kinds of research methods which are known as quantitative researches and qualitative researches (Malhotra, 2010). Qualitative process can be considered as the method which supports collecting illustration and strengthen the extensive clarifications that are relevant to the research (Savin-Baden & Howell-Major, 2013). As a result of this method of data gathering is utilized to determine preference and the perceptions of various persons depend on the analysis (Williams, 2007). Quantitative technique is the way that underscores the statistical and arithmetic evaluation of amalgamating information using quizzes or evaluations and transforming those into arithmetic values (Williams, 2007). The quantitative method goes ahead to collect details by analyzing the links. Besides, it was applied in past studies to determine the end verdict (Carter & Hurtado, 2007).

This study is applicable to quantitative research technique. Investigator has accumulated the statistics through a questionnaire survey that impact the choice of arbitration methods in entities in local construction sector.

Collecting accurate data through a questionnaire is a complex process (Wilson, 2013). Even though there are numerous advantages of having a questionnaire survey (Gillham, 2008). Some of the advantages of a questionnaire survey are, a time saving process as data will be collected rapidly, low cost method of collecting data, anonymity for respondents and a convenient process, analyzing of data is straightforward (Bryman, 2006).

3.4.1 Justification on choosing a questionnaire survey on this research

Survey research, case studies and experiments are the three research methods that can be compared together and select the best method in accordance with the research problem (Williams, 2007). Case study examines a phenomenon in its usual situation while controlling the time and the scope (Nardi, 2015).

When the researcher examines a phenomenon to observe the effect of independent variables on dependent variable by manipulating the independent variables in a controlled background, experiment is the most appropriate research method. Experiments are suitable for studies involving comparatively limited and well-defined conceptions (Nardi, 2015).

In contract, survey research examines a phenomenon in an extensive diversity of normal settings Martin (2006). The researcher has given a precise model of the expectable associations and relationships. In identifying and managing dynamic factors, survey approach collect information through the questionnaire assessment in a summarized and accurate manner

It was identified survey research as the most applicable method in following circumstances, Martin (2006).

- When Control of independent and dependent variables is impossible

- More suitable for gathering information in a better scope than understand generally on "what is happening"? How and why is it happening"?

- The phenomena of interest occur in current times or in the recent past.

- Describing the features of a bulky population.

- Analysis is more flexible as numerous queries can be asked on a given subject

- Standardized questions make studies more accurate

Survey method has been chosen in this study as the most appropriate method as this study has following characteristics which go counterpart with survey approach.

- Research problem state the question of what are the vital factor affect in choosing arbitration as a method of ADR

- Result of the study can be obtained quantitatively.

- Can define the variables of the study clearly.

3.5 Research Technique

3.5.1 Data collection technique

3.5.1.1 Population and sample selection

The population comprises of individuals with similar features (Malhotra, 2010). The study was conducted by using the construction professionals in the local building sector as a population. Since the research was designed on the construction industry target population was also chosen within the construction industry. Quantity Surveyors, Engineers, Architects are the individuals who mainly deals with disputes directly where some of the disputes may occur due to their own mistakes. Hence they should have a thorough idea of dispute resolution and arbitration as a final mode of resolving disputes. But in this research individuals who come from a legal background have been unconcerned due to the reason that their decision may be biased based on their knowledge and preference on what they frequently practiced or familiar with as they are directly involved in the law sector. Hence this research has examined the preference of technical people such as Architects, Engineers and Quantity Surveyors who are directly dealing with disputes not in the law sector but in the construction sector where they may tend to resolve disputes without being bias for any dispute resolving method.

Definition of sampling is the choice of selecting some unidentified scenarios out of the participant crowd (Kothari, 2004). Sampling techniques present various ways to reduce the breadth of details needed for research (Alvi, 2016). There are 2 ways of sampling. One is probability sampling, known as the liking of selecting out of the population that is similar to most scenarios (Alvi, 2016). Another one is non-probability sampling (Alvi, 2016). Kothari (2004) declares that the design of sampling

is a scheme of choosing a sample out of an accessible population. Correspondingly, during the research professionals are chosen with use of probability sampling techniques.

Since the local construction outfits are comprised of a large number of professionals, for the study, limited number of professionals employed in construction companies are chosen. They also had prior exposure relevant to arbitration in the Sri Lankan building sector. The sample was consisted of 93 participants, who are Engineers, Architects and Quantity Surveyors, employed in local construction sector. To choose the sample out of the population the researcher chose the employees from local construction companies.

As a common norm in accordance with the sample size of the investigation, sample needs to be larger than 30 and below 500 (Thakur, 1993). A group of 93 persons talking to professionals who are employed in local construction sector was selected for this study. The assisting structure was linked to identify suitable participants for the questionnaire examination.

- Employees with engagement in dispute settlement within the sector.
- Professionals with adequate know-how and exposure relevant to local and overseas construction scenarios.
- Employees who possess outstanding expertise and involved in arbitration process.

3.5.1.2 Collection of data

By defining the questionnaire survey with regard to collect facts, the study utilized primary and secondary data gathering methods in a unique way. Preliminary data gathering and secondary data gathering are 2 ways of data sourcing methods adopted during this study.

Primary data collection

Primary data use to collect information which satisfied the aim and objectives of a research (Hox & Boeije, 2005). Questionnaire survey was used in this research to collect primary data.

Secondary data collection

Secondary data is collected from journals, conference paper, books, online magazines, websites and previous research thesis and any other relevant publications relevant to the research problem and dimensions.

The literature review is mainly a drafted assessment performed by citing books, journal articles, conference papers and unpublished dissertations with the goal of in-depth exploration relevant to the scope of the study (Cronin, Ryan & Coughlan 2008). As a result, it may fulfill the prior intentions of the research (Cronin, Ryan & Coughlan 2008).

As objectives of the research are formulated into particular questions presented during the survey, the questions asked during the survey must be in compliance with the aim, research presumption and objectives. The framework for questionnaire formulation is demonstrated below (Malhotra, 2010).

- Study the theoretical framework
- Preparing the questions
- Carry out pilot experiment
- Questionnaire printing
- Giving out questionnaire

This study, a distinctive questionnaire was designed in sections 01 and 02 expecting to gather the preliminary data. Section 1 consisted of generic inquiries which was expected to obtain the basic details of the responders. Section 2 was planned to study the belief on arbitration process as an alternate dispute resolution process applied within local building sector Questionnaires were circulated amidst professionals to obtain the answers which 93 questionnaire copies were dispersed between the employees, who are employed in local construction sector. Further, the feedbacks of

participants have been plotted in 5 points Likert Scale as 1-"Very low degree of agreement", 2-"Low degree of agreement", 3-"Agree", 4-"High degree of agreement", and 5-"Very high degree of agreement".

3.6 Data analysis technique

Statistics collected during survey are summarized using graphical statistical methods. Surveys have used 1 - 5 Likert Scales. Mean and the standard deviation for each question according to the ratings given by the candidates has been calculated. Besides, a numerical computation is conducted to find out the standard deviation and mean of the data collected with help of the scale. The question facilitates participants to choose the right answer, showcasing the varying centers of attention in the agreement and contrasts. A hypothesis testing was conducted to determine the correlation between the critical constraints and the preference of arbitration. The gathered data would be evaluated with use of a software (SPSS).

3.7 Conceptual framework

Following conceptual framework was drafted to examine the consequences of arbitration processes within private sector construction activities. This is used in developing the hypothesis in hypothesis testing.
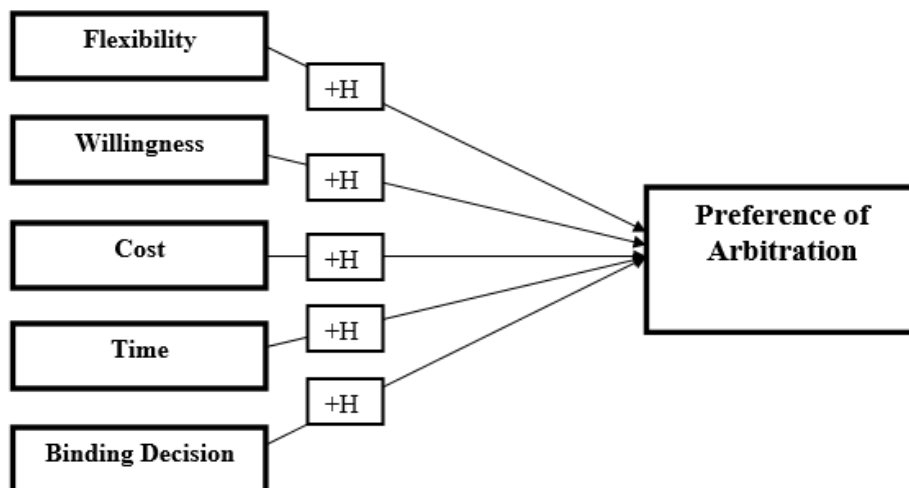
Figure 3.3: Conceptual framework of the research

3.8 Hypothesis development

Assumptions

Tested variables are,

- linearly related

- Bivariate normally distributed

In this analysis, one-tailed significance test has been done to examine the relationship between the critical constraints and the preference and effectiveness of arbitration.

In line with past research observations, the theorem has built with objective of permitting the evaluation to assess restriction of dispute settlement and choice of arbitration methods with respect to local building sector.

$+H_{1a}=$ This demonstrates a negative connection in between flexibility and arbitration choice.

$+H_{1b}=$ This demonstrates a positive connection in between flexibility and choice of arbitration.

$+H_{2a}=$ Theorem demonstrates a negative connection in between willingness and choice of arbitration.

$+H_{2b}=$ Theorem demonstrates a positive connection in between willingness and choice of arbitration.

$+H_{3a}=$ Theorem demonstrates a negative connection in between cost and choice of arbitration.

$+H_{3b}=$ Theorem demonstrates a positive connection in between cost and choice of arbitration.

$+H_{4a}=$ Theorem demonstrates a negative connection in between time and choice of arbitration.

$+H_{4b}=$ Theorem demonstrates a positive connection in between time and choice of arbitration.

$+H_{5a}=$ Theorem demonstrates a negative connection in between binding decision and choice of arbitration.

$+H_{5b}=$ Theorem demonstrates a positive connection in between binding decisions and choice of arbitration.

3.9 Operationalization

Reliability of dimensions was determined using Cronbach's alpha method and correlation between two varibales was determined by calculating Pearson Correlation coefficient.

3.9.1 Reliability of dimensions

Reliability is contemplated regarding the repercussions of having adequate stability of scales. Stability, inter-observer stability, internal reliability are 3 distinguishable basics that can be observed (Bryman & Bell, 2003). All evidence is recognized with each other and they could be analyzed using Cronbach's alpha. In a case where impact of Cronbach's alpha method is 0.6 or higher than, it deduces a sufficient level of internal reliability (Bryman & Bell, 2003).

Cronbach's alpha is defined as a fraction of internal stability which deduces how elements figured out mutually as a group. An extreme approximation of alpha does not decide which the measure is nondimensional. Nonetheless, assess internal stability, require to showcase that scale being mentioned is nondimensional, additional examinations could be achieved. Cronbach's alpha can be interpreted as coefficient of reliability (stability) but genuinely it cannot be considered as a factual test.

3.9.2 Pearson correlations

To calculate the Pearson correlation coefficient, the relation between the chosen variables should be linear (Benesty, Chen, Huang & Cohen, 2009). So drawing a scatter plot of variables in order to check the linearity is the first step of this analysis part (Benesty et al., 2009).

The scatter plot reveals the information on scale of the relationship and the relationship direction where it describes whether the relationship between one variable to the other is positive or negative and fairly strong, moderate strong or strong (Adler & Parmryd, 2010). If the scatter plot is near to the straight line, the strength of the relationship or the association is higher (Adler & Parmryd, 2010).

When there is a positive relationship between the variables an upward slope on a scatterplot will be shown and when there is a negative relationship there can be identified a downward slope (Adler & Parmryd, 2010). When there is a strong relationship between the two variable the data points fall closer to the line (Adler & Parmryd, 2010).

Pearson correlation is a statistical measurement of the relationship between two continuous variables which is known as the finest technique as it is created on the covariance method (Nahler, 2009). The degree of correlation can be defined depending on the value of the coefficient (Nahler, 2009).

The person correlation has calculated at the significant level of 0.00

Table 3.1: Operationalization Table

Concept	Variable	Item / Indicator	Measure	Questions
Critical Limitations	Flexibility	• Disputed sides have control over format content and arbitration procedure • Sides can refer the documents related to issue. • Stakeholder participation is enabled • Process is flexible compared to legal actions.	5-point - likert scale	H1.1, 1.2, 1.3, 1.4

Concept	Variable	Item / Indicator	Measure	Questions
	Willingness	• Dispute settlement process is an acceptable process. • Process is just to both sides. • Specialists in the field are designated as arbitrators. • Involvement in culture and work ethics is high.	5-point - likert scale	H2.1, 2.2, 2.3, 2.4
	Cost	• Opponent's legal expense to be paid by losing party base on the agreement • Expenses of arbitration arrangements to be incurred by both sides. • Indirect expenses of dispute resolution procedure are reduced. • When considering opportunity costs and idling costs, the total cost of arbitration is lower compared to litigation.	5-point - Likert scale	H3.1, 3.2, 3.3, 3.4
	Time	• Disputes are processed faster manner. • At the beginning of the arbitration process the documents submissions are planned. • Complete exercise takes short duration. • Can obtain a decision quickly	5-point - Likert scale	H4.1, 4.2, 4.3, 4.4

Concept	Variable	Item / Indicator	Measure	Questions
	Binding decision	• Verdict is legally obliged. • The ruling could be enacted in courts • Once the verdict is given other options are limited. • Arbitrator has the authority to compel the sides to go for granted judgment.	5-point - Likert scale	H5.1, 5.2, 5.3, 5.4
	Choice of arbitration	• Arbitration could be recommended for dispute settlement. • Satisfied with arbitration. • If dispute occurred, I would prefer move with arbitration. • Performance of present arbitration methods is at satisfactory level. • I recommend arbitration as a good ADR process.	5-point - Likert scale	H6.1, 6.2, 6.3, 6.4, 6.5

3.10 Summary

Summary part is used to describe and facilitate groundwork for research activity and methodology that was utilized in conducting the research. The review was performed to become aware of the research scope, process applied on background review, literature study, design of research and data gathering methods. Further, the evaluation of methodical process of research design, integrating data and the process of applying those theorems during the research procedure was used with clarifications of above mentioned techniques

DATA ANALYSIS

4.1 Introduction

This chapter demonstrates the relevant information traced through the responses of the professionals involved in the survey who are actively participating in local construction projects, and in order to evaluate the vital elements that impact the choice of arbitration methods in entities in local construction sector. Presentation of data built on information given for a questionnaire on the choice of arbitration methods in the Sri Lankan building sector. The practical evaluations of analysis of correlation and theorem testing are used to inspect the evaluation of positivity or negativity of chosen elements that impact the choice of arbitration methods, by using of SPSS 24.0 and MS Excel.

4.2 Questionnaire Survey

Questionnaire survay is an effective and a faster technique of collecting data from a large number of personals (Taherdoost, 2016). It is the most significant part of the data collection in this research. In the questionnaire survey series of detailed questions was presented to chosen professionals to collect opinions on prefference and efffectiveness of arbitration.

4.2.1 Objectives of questionnaire survey

Eventually, the section 1 of the survey examine sexuality, age, academic background, profession and collaboration during arbitration activity by participants. The section 2 of the survey collects data based on four proclamations associated with dimension relevant to critical constraints to determine the relationship of critical constraints to the preference of arbitration.

4.2.2 Gender of the individuals

Table 4.1: Gender distribution

Gender	Occurrence	Percentage (%)
Male	49	52.70
Female	44	47.30
Total	93	100.00

Table 4.1 showcase gender breakdown of the survey respondents. It consist of 49 males and 44 female professionals. As demonstrated in the Table 4.1, males account for 52.7% and females account for rest or 47.3%.

4.2.3 Age of the individuals

Table 4.2: Age limits

Age category (Years)	Occurrence	Percentage (%)
20-29	17	18.70
30-39	32	34.30
40-49	24	25.70
50-59	16	17.20
60-69	4	4.20
Total	93	100.00

Table 4.2 shows the age categories of survey participants. The majority of persons fell into age gap of 30 - 39 years. The smallest set of participants was at age bracket of 60 - 69. Among total participants for the survey, 4 persons fell into age category 60 - 69. 17 persons were placed in age gap of 20 to 29, and 32 persons were fell into 30 - 39 age category. Age brackets of 40 - 49 and 50 - 59 were consisted of 24 persons, 16 persons respectively.

Age limits of participants have demonstrated as percentages also. Age category 20 -29 was having a figure of 18.7%. Also 34.3% of persons fell into age category of 30 – 39. Additionally 25.7% of participants were included in the age gap of 40 – 49. The age

bracket 50 – 59 consisted of 17.2% of persons and 60 – 69 category was consisted of 4.2% of participants.

4.2.4 Educational level of the individuals

Table 4.3: Educational level of the participants

Qualification level	Occurrence	Percentage (%)
NCT	20	21.50
HND	27	29.00
B.Sc.	19	20.40
M.Sc. / MBA	24	25.80
PhD	3	3.30
Total	93	100.00

Table 4.3 indicates the level of academic qualification of 93 persons. According to Table 5, 20 participants have educated until NCT level. Highest category of the respondents was fallen into to HND level. The figure was 27, which convert into percentage of 29 %. The 19 persons from 93 were from B.Sc. background and 24 persons have studied up to M.Sc. level. Three participants were Ph.D. holders.

Table 4.3 also demonstrates the breakdown of level of education of the respondents in the chosen sample. As per given statistics 21.5% of persons possess NCT educational background and 29% of persons possess HND qualification. 20.4% of participants possess B.Sc. Also 25.8% of participants were having M.Sc. qualification. 3.3% of participants had a Ph.D. qualification.

4.2.5 Occupational details

Table 4.4: Occupational details of participants

	Occurrence	Percentage (%)
Government sector	44	47.30
Own firm	9	9.70
Private sector	35	37.70
Retired from work	5	5.30
Total	93	100.00

Table 4.4 shows occupational data of the persons. As per data collected through the 93 persons, 44 persons are employed in government firms and 9 persons work in their firm or entity. There are 5 retired persons and 35 participants are working in private sector.

Work details of persons are demonstrated in Table 6. When the data is considered for a review, 47.3% of persons are employed in Government. Sector and 9.7% of persons employed at their firm. Considerable amount of persons 35.00% are employed in private sector. Besides percentage of retired participants consists of 5.3%.

4.2.6 Involvement in arbitration process

Table 4.5: Involvement in arbitration process

	Occurrences	Percentage (%)
Only possess academic knowhow	12	13.00
Engaged in arbitration work (Experience in drafting declaration of claim, drafting of defence statement…etc.):	61	65.60
Engaged in arbitration and represented an entity:	15	16.10
Worked as an arbitrator:	5	5.30
Total:	93	100.00

Table 4.5 indicates the engagement in arbitration activities. 12 survey participants have not engaged in arbitration activity, while 61 responders have engaged in arbitration

work (Experience in drafting declaration of claim, drafting of defense statement etc.). Among all responders 5 have acted as arbitrators. Also 15 responders have engaged in arbitration and appeared for their respective entity.

Table 5 demonstrates the breakdown of density of responders who are engaged in the arbitration activities. As per the figure most of responders have engaged in arbitration activities (Drafting of declaration of claim, drafting of defense statement, etc.) and it is 65.6%. 13.0% of responders haven't engaged in arbitration exercise and 5.3% of survey participants have employed as an arbitrator. 16.1% of participants engaged in arbitration and appeared on behalf of an entity.

4.3 Reliability statistics of dimensions

Following table 4.6 explains the reliability statistics of dimensions using Cronbach's Alpha

Table 4.6: Reliability statistics of dimensions

Reliability Statistics		
	Cronbach's Alpha	**Number of Proclamation**
Flexibility	0.7040	4-nos.
Willingness	0.7500	4-nos.
Cost	0.7130	4-nos.
Time	0.8060	4-nos
Binding Decision	0.7360	4-nos.
Preference of Arbitration	0.7520	5-nos.

According to figures in Table 4.6 "Choice for arbitration" aspect "flexibility" is reasonably evaluated by the 4 decrees. The coefficient of alpha of four expressions is 0.7042. As the factual alpha value is significant compared to (0.6 <) it emphasizes the factors possess average high reliability.

According to values demonstrated in the Table 4.6, "Choice for arbitration" aspect "willingness" is reasonably evaluated by the 4 decrees. The coefficient of alpha for all four statements is 0.7506. As the factual alpha value is significant compared to (0.6 <) it suggests that statements demonstrate generally high reliability.

According to figures in Table 4.6 leading restriction cost is decided through four statements. Coefficient of alpha for four statements is 0.7134 and as it is more significant than (0.60 <) it suggests that the statements possess typically strong reliability.

Time, the element of restriction of dispute settlement is roughly approximated by 4 declarations. The coefficient of alpha of four statements is 0.8062 and it suggests, the statements indicate high reliability.

Binding decision, the element of restriction of dispute settlement is also roughly approximated by 4 declarations. Coefficient of alpha for four statements is 0.7360 and it suggests that the statements possess typically strong reliability.

Arbitration choice is legally approximated by the five statements where coefficient of alpha of those statements is 0.7527 and suggests that the statements have normally excessive reliability.

All five scales had a Cronbach's alpha value larger than 0.6, Due to this the scales chosen for survey could be assured as reliable.

4.4 Analysis of dimensions for key limitations, which impacts the choice of arbitration methods in construction sector

4.4.1. Flexibility

Simple statistics of flexibility

Flexibility elaborates degree of adaptability in procedures & lack of presence of rigid guidelines or instructions featured in arbitration and to examine whether the operation of arbitration has resilience to adopt in line with the requirements of the sides.

Four proclamations presented in the questionnaire survey, associated with dimension of flexibility to arbitration are illustrated in Table 8. The standard deviation and the mean of the ratings out of five Likert Scale given by the participants was calculated.

Table 4.7: Simple statistics of flexibility

	Proclamation	Mean	Standard deviation
H1.1	Disputed sides have control over format content and arbitration procedure	4.100	0.756
H1.2	Sides can refer the documents related to issue	4.160	0.867
H1.3	Stake Stakeholder participation is enabled	4.155	0.823
H1.4	Process is flexible compared to legal actions	4.010	0.851
	Total	16.43	3.297

According to collected details through survey, it is exhibited through measurable mean in table 4.7 is 4.100 for H1.1. It demonstrates that the majority of participants agreed with H1.1 statement, which underscores that arbitration possess capability to manage its constituents and procedure to be conducted relevant to the factor "flexibility".

Most of the participants consented to the decree H1.2 "Sides can refer the documents related to issue". The mean approximated figure for H1.2 decree is 4.16, which indicate higher portion of participants accepts the chance given to go through the documents relevant to issue.

"Stakeholder participation is facilitated." Most participants accept this affirmation and this notion is indicated by measurable mean figure of 4.155 against statement H1.3.

The statement H1.4 demonstrates "Process is adaptable than litigation" Most participants are pleased with H1.4 proclamation. Value of measurable mean esteem is 4.01 with respect to the statement. It suggests that considerable set of participants agree along with the rule.

The figures indicate that the mean of the scales given by the participants for all the 4 questions are above 4. Therefore, it can be defined that there is a positive relationship between the flexibility and the choice of arbitration.

4.4.2. Willingness

Simple statistics of willingness

Willingness can be treated as a major factor to attain a satisfying settlement. The evaluation has relied on desire to settlement demonstrated by sides involved in arbitration.

Following 4 statements demonstrate the dimension willingness.

Table 4.8: Simple statistics of willingness

	Proclamation	Mean	Standard deviation
H2.1	Dispute settlement process is an acceptable process	4.170	0.7420
H2.2	Pro Process is just to both sides	4.225	0.7513
H2.3	Specialists in the field are designated as arbitrators	4.240	0.7433
H2.4	Involvement in culture and work ethics is high	4.326	0.7941
	Total	16.96	3.0307

Statement H2.1 indicates that process of arbitration is within an allowable limit. Major set of participants agree on this statement, which is indicated through the measurable mean esteem figure of, 4.17.

H2.2 points out the declaration "Process is just for two sides". This notion is indicated through the outcomes of this analysis which the calculated mean is 4.225. This hints bulk of the participants welcomed and agreed that arbitration is just for both sides. It would impact the choice of arbitration.

The statement H2.3 demonstrates "Specialists in specific sector designated as arbitrators". The calculated mean for the decree is 4.24, which suggests the reliability of the arbitrators.

The affirmation H2.4 demonstrates "Culture and work ethics inclusion in settlement procedure is considerably strong." The calculated mean is 4.326. Thus it suggests that the majority section of participants agreed along with this statement.

The figures indicates that the mean of the scales given by the participants for all the 4 questions is above 4 and hence it can be defined that there is a highly positive relationship between the willingness and the choice of arbitration.

4.4.3 Cost

Simple statistics of cost

Low cost of settlement activity and expenses incurred relevant to third side is favored by opponents generally. This evaluation is formulated on the ground of comparative costs involved in arbitration operation. The expense of conflict settlement comprises direct expenses (payments and fees paid to employees), indirect expenses (payments and overheads of internal lawyers, organization's employees, who need to collect details and work as witnesses) and invisible expenses (low productivity, setbacks, poor quality that cause conflicts in the development activity).

Table 4.9: Simple statistics of cost

	Proclamation	Mean	Standard deviation
H3.1	Opponent's legal expense to be paid by losing party base on the agreement	4.085	0.815
H3.2	Expenses of arbitration arrangements to be incurred by both sides.	4.031	0.871
H3.3	Indirect expenses of dispute resolution procedure are reduced	4.024	0.909
H3.4	When considering opportunity costs and idling costs, the total cost of arbitration is lower compared to litigation.	4.030	0.902
	Total	16.17	3.497

H3.1 demonstrates the notion "If side loses in settlement as per contract they must pay for opposed party's legal expenses". A lot of survey participants have believed the notion. It is displayed through measurable mean esteem figure 4.085.

Bulk of the responders have approved H3.2 statement, "Expenses of activities need to be incurred by involved sides". Further, this scenario is indicated through measurable mean approximation figure of 4.031.

The statement "Indirect expenses of the settlement procedure is reduced" is proclaimed through the H3.3. The theorem indicates a measurable mean approximation figure of 4.024, it gives the notion that most of the participants have agreed with the aforesaid utterance.

H3.4 statement demonstrates the as "Total expenses (opportunity cost, cost of idling) of arbitration is lower compared to legal action." The aforesaid decree has in accordance with majority of the participants and it is underscored by the measurable mean approximation figure of 4.03 for statement.

The figures indicate that the mean of the scales given by the participants for all the 4 questions regarding the cost to the preference of arbitration are above 4. Therefore, it can be defined as there is a highly positive relationship between the cost and the choice of arbitration.

4.4.4 Time

Simple statistics of time

Time is treated as key decisive element in construction sector dispute settlement through arbitration process. This particular evaluation depend on the settlement speed achieved through each approach. Speed is determined through the gauge of time incurred to ascertain a problem.

Following 4 statements demonstrate the dimension time.

Table 4.10: Simple statistics of time

	Proclamation	Mean	Standard deviation
H4.1	Disputes are processed faster manner.	4.038	0.8043
H4.2	At the beginning of the arbitration process the documents submissions are planned	3.945	0.8610
H4.3	Complete exercise takes short duration.	4.114	0.7801
H4.4	Can obtain a decision quickly	3.922	0.8340
	Total	16.019	3.2794

The H4.1 statement, "Dispute is addressed in a faster manner" demonstrates a calculated mean esteem figure of 4.038. It indicates that considerable section of the responders fell in line with this statement. Survey participants feel that their dispute could be solved swiftly manner in arbitration process while contrasted to legal actions.

Most of the responders agreed with H4.2 statement, "Submission duration of documents are planned when the arbitration process starts.", because the calculated mean esteem figure of the statement is 3.945. As submissions are planned it makes it possible for the arbitration to decide on time.

H4.3 statements "Complete exercise takes short duration", that indicates the calculated mean esteem value 4.114. It indicates that majority of participants have agreed with the statement when contrasted to legal proceedings, arbitration takes lower time duration.

Large section of the responders agreed with the statement H4.4 ¨Obtain settlement during a short duration." The calculated mean esteem value of the decree is 3.922, this shows that the majority of responders are in accordance with H4.4 statement.

The figures indicate that the mean of the scales given by the participants for 2 questions regarding the time to the preference of arbitration are above 4 and the scale stands very near to 4 for other 2 questions also. Therefore, it can be defined that there is also a positive relationship between the time and the choice of arbitration.

4.4.5 Binding decision

Simple statistics of binding decision

In general, the binding decision of a conflict could see in 2 aspects. They are temporary binding decisions (until move into next phase of settlement verdict in case of disagreement, afterward the granted judgment must enact) and permanently obliged decision (the granted judgment is the ultimate verdict). In local jurisdictions enactment is an arbitration aspect.

Table 4.11: Simple statistics of binding decision

	Proclamation	Mean	Standard deviation
H5.1	Verdict is legally obliged.	3.971	0.8588
H5.2	The ruling could be enacted in courts	4.031	0.8680
H5.3	Once the verdict is given other options are limited.	3.884	0.9282
H5.4	Arbitrator has the authority to compel the sides to go for granted judgment	4.037	0.8821
	Total	15.923	3.5371

The statement H5.1 demonstrates "Verdict is legally obliged." The calculated mean esteem figure is 3.971 for the above decree that underscores the most respondents have agreed on the statement.

The H5.2 statements demonstrate "Verdict could be enacted in courts when ruling was given." This decree demonstrates a measurable mean esteem figure of 4.031. The calculated mean value shows the highest portion of responders have agreed with the statement since it produces legal point to reward.

Most responders recognize the H5.3 affirmation "Once the verdict is given opportunity of reaching out other options are limited." This point is emphasized all over the results of the study as the measurable mean esteem figure for the statement is 3.884.

The decree H5.4 displays that arbitration possesses the authority to compel the sides to move with the earliest verdict. Throughout the examined values calculated mean for the decree is 4.037. Therefore, it recommends that a larger part of respondents fall in line with the statement.

The figures indicate that the mean of the scales given by the participants for 2 questions regarding the binding decision to the preference of arbitration are above 4 and the scale stands very near to 4 for other 2 questions also. Therefore, it can be defined that there is also a positive relationship between the binding decision and the choice of arbitration.

4.4.6 Preference of arbitration

Simple statistics for preference of arbitration

The proclamations are indicated in Table 4.12 and point out the "Choice of arbitration", which relies on crucial restrictions.

Table 4.12: Simple statistics for choice of arbitration

	Proclamation	Mean	Standard deviation
H6.1	Arbitration could be recommended for dispute settlement	4.110	0.774
H6.2	Satisfied with arbitration.	4.020	0.817
H6.3	If dispute occurred, I would prefer move with arbitration	4.031	0.747
H6.4	Performance of present arbitration methods is at satisfactory level	4.139	0.794
H6.5	I recommend arbitration as a good ADR process	4.070	0.753
	Total	20.37	3.885

According to analyzed exploration data, majority of the persons have fallen in line with the statement which recommends the participants will validate arbitration for

dispute settlement. Further the calculated mean esteem score of H6.1 statement is 4.11. Most of the responders validated arbitration settlement for disputes.

The calculated mean esteem value for H6.2 is 4.02 that indicates the sizeable fraction of participants agreed with the statement. The declaration H6.2 demonstrates that responders are happy with arbitration. This underscores the choice of arbitration amidst the professionals.

Statement H6.3 stands for "I will prefer to carry on with arbitration activity when dispute happened". As demonstrated through the survey study, calculated mean esteem figure of statement is 4.031. It assists that large number of survey participants agreed with above statement.

Statement H6.4 stands for "I am happy with the present performance of arbitration methods". Higher no. of responders fell in line with this decree which was indicated by the calculated mean esteem figure of 4.139.

This recommends fact, that a substantial amount of clients have faith in the present arbitration methods used in the local industry. The statement H6.5 indicates that responder's treats arbitration as a satisfactory ADR method. Majority of survey participants agreed to H6.5 statement. Measurable mean esteem figure of 4.07 was indicated by it.

4.5 Hypotheses testing

The scatter plots of variables with reference to the preference of arbitration and the calculation of Pearson Coefficient is presented as follows:

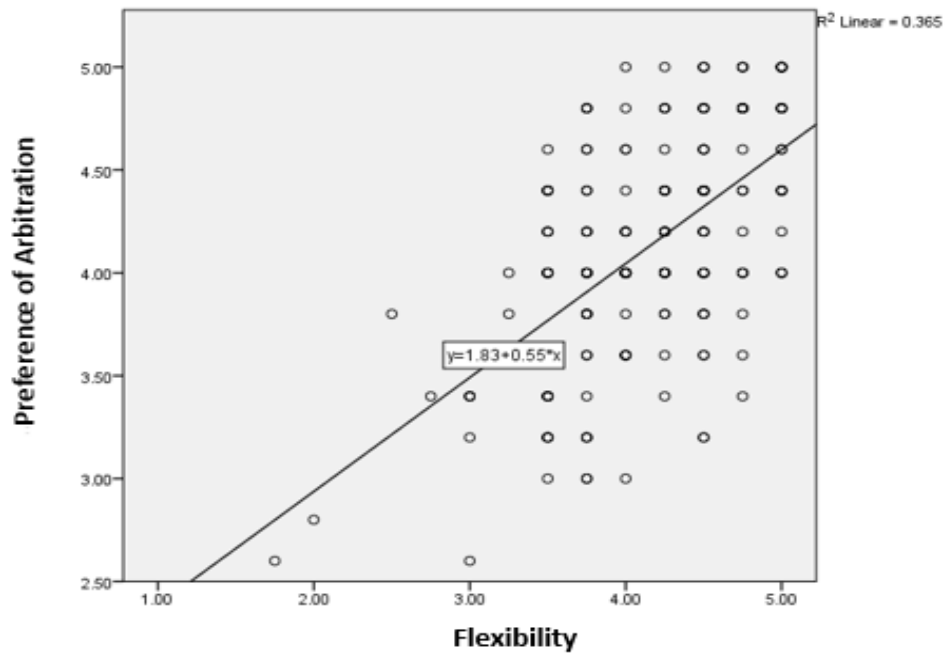### 4.5.1 Flexibility and preference for arbitration

Figure 4.1: Flexibility and choice for arbitration

The scatter plot shows that there is a linear relationship between flexibility and the choice of arbitration where most of the data gathered to the higher upper, right side of the plotted graph. Since there is an upward slope the relationship between flexibility and the choice of arbitration is positive while there is a strong relationship between these two variables as the scatter plot is near to the straight line.

Table 1.13: Correlation between choice for arbitration and flexibility

		Flexibility
Choice for	Pearson correlation:-	$.603^{**}$
Arbitration	Significant (1- tailed)	.0

Figure: 4.1 indicates a positive connection between "choice for arbitration" and "flexibility".

H_{1a} - Demonstrate a negative relationship between flexibility and choice for arbitration

H_{1b} – Demonstrate a positive relationship between flexibility and choice for arbitration

As demonstrated in correlation analysis, critical esteem value is 0.0, that is lower than 0.05. Hence H_{1a} can be defined as a poor theory, due to this, it is declined, whereas H_{1b}

replacement forecasting is important. The H_{1b} theory is endorsed, since the figures (β=+0.603; $\rho > 0.0$) and results indicate existence of a strong positive relationship. Table: 14 demonstrate this outcome.

4.5.2 Willingness and choice of arbitration

Figure 4.2: Willingness and choice of arbitration

The scatter plot shows that there is a linear relationship between willingness and the choice of arbitration. Since there is an upward slope the relationship between willingness and the choice of arbitration is positive while there is a moderately strong relationship between these two variables as most of the scatter plot is near to the straight line without distributing extra away.

Table 4.14: Correlation between choice for arbitration and willingness

	Willingness	
Choice for	Pearson correlation	.56**
Arbitration	Significant (1- tailed)	.0

Figure 4.2 indicates the positive relationship between willingness and arbitration choice.

H_{2a} elaborate on non-availability of relationship between willingness and choice for arbitration

H_{2b} indicates a positive relationship between willingness and choice of arbitration.

As demonstrated in Table 15 the critical esteem value is 0.0. Because this figure is below 0.05, the wrong theorem H_{2a} is neglected, whereas H_{2b} replacement hypothesizing is sufficient. Besides H_{2b} notion is strengthened due to the immobilized figures ($\beta= +0.56$; $\rho > 0.0$), and the result indicates the existence of straight relationship between willingness and choice for arbitration. Table: 15 is used to illustrate this.

4.5.3 Cost and Preference for Arbitration

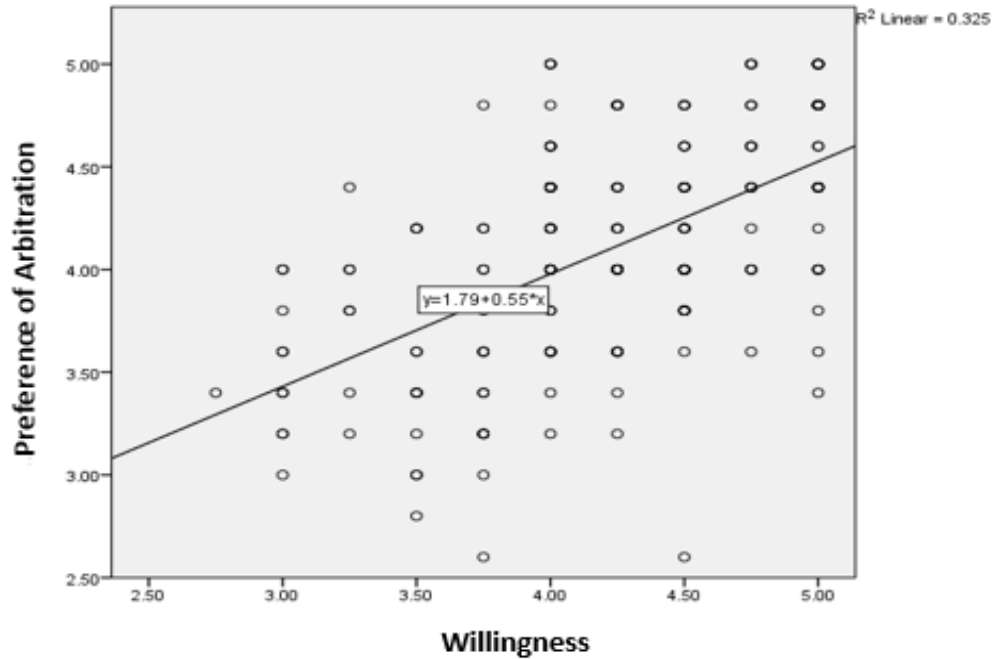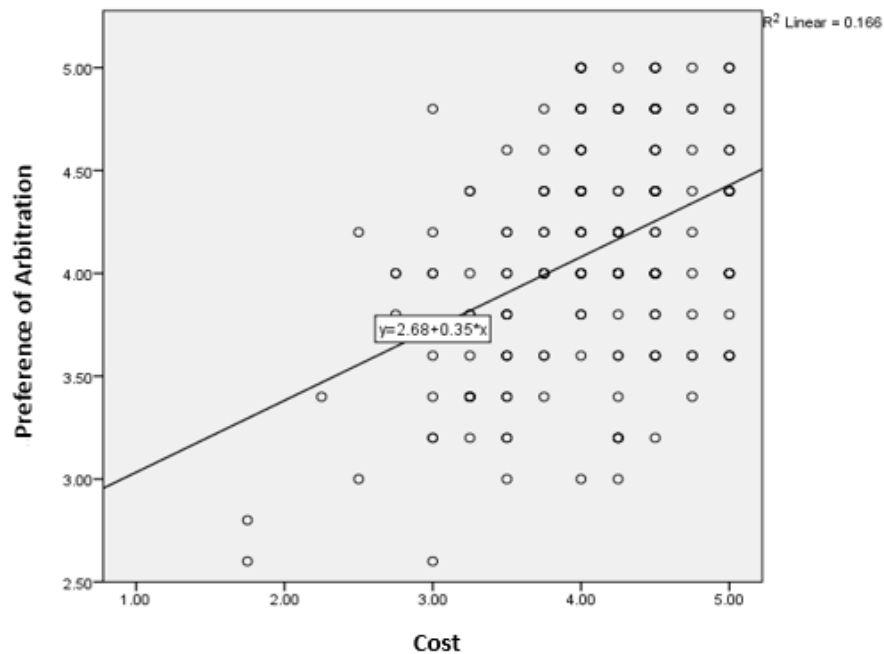*Figure 4.3: Cost and choice for arbitration*

The scatter plot shows that there is a linear relationship between cost and the choice of arbitration where most of the data gathered to the higher upper, right side of the plotted graph. Since there is an upward slope the relationship between cost and the choice of arbitration is positive while there is a strong relationship between these two variables as the scatter plot is near to the straight line.

Table 4.15: Correlation between cost and Preference for Arbitration

	Cost	
Preference for	Pearson Correlation	.406**
Arbitration	Significant (1- tailed)	.0

Figure 4.3 indicates positive relationship between cost and choice for arbitration

H_{3a} predicts, no relationship between cost and choice for arbitration

H_{3b} predicts, a positive relationship between cost and choice for arbitration

As significant esteem value is 0.0, which is lower than figure 0.05 underscore that 'H_{3a}' is a wrong theorem, hence it is neglected. In H_{3b}' substitute theorem is given. The explored facts (β=+0.406; $\rho > 0.0$), which emphasizes existence of a stable relationship between cost and arbitration choice and strengthened the theorem H_{3b}. This can be demonstrated through Table 16.

4.4.4 Time and choice for Arbitration

Figure 4.4: Time and choice for arbitration

The scatter plot shows that there is a linear relationship between time and the choice of arbitration. Since there is an upward slope the relationship between time and the choice of arbitration is positive while there is a moderately strong relationship between these two variables as most of the scatter plot is near to the straight line without distributing extra away.

Table 4.16: Correlation between time and choice for arbitration

	Time	
Choice for	Pearson correlation:-	.822**
Arbitration	Significant (1- tailed)	.00

Figure 4.4 demonstrates the positive relationship between time and choice for arbitration.

H_{4a} Recommended that time factor is negatively connected along with the choice for arbitration.

H_{4b} Recommended that time factor is connected positively with choice for arbitration. Table 4.16 demonstrated that, the wrong theorem 'H_{4a}' is neglected and substitute

theorem 'H$_{4b}$' is permitted. The critical esteem value is 0.00 that is relatively smaller compared to 0.05. The theorem, 'H$_{4b}$' is strengthened by Pearson correlation, significant values (β=+0.822; $\rho > 0.0$), and the results indicates existence of solid positive relationship among Time and arbitration choice. Table: 17 illustrates these data are.

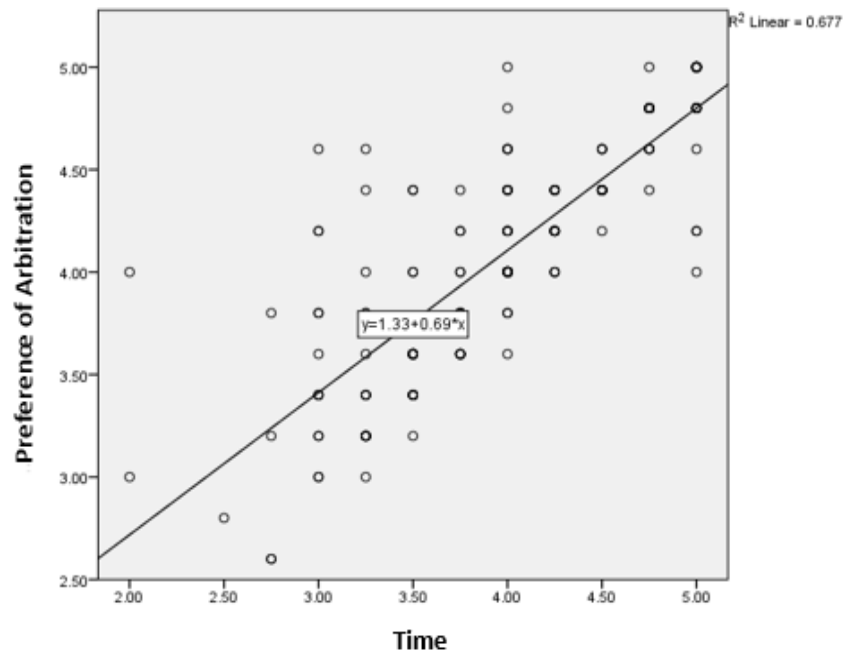### 4.4.5 Binding decision and choice for arbitration
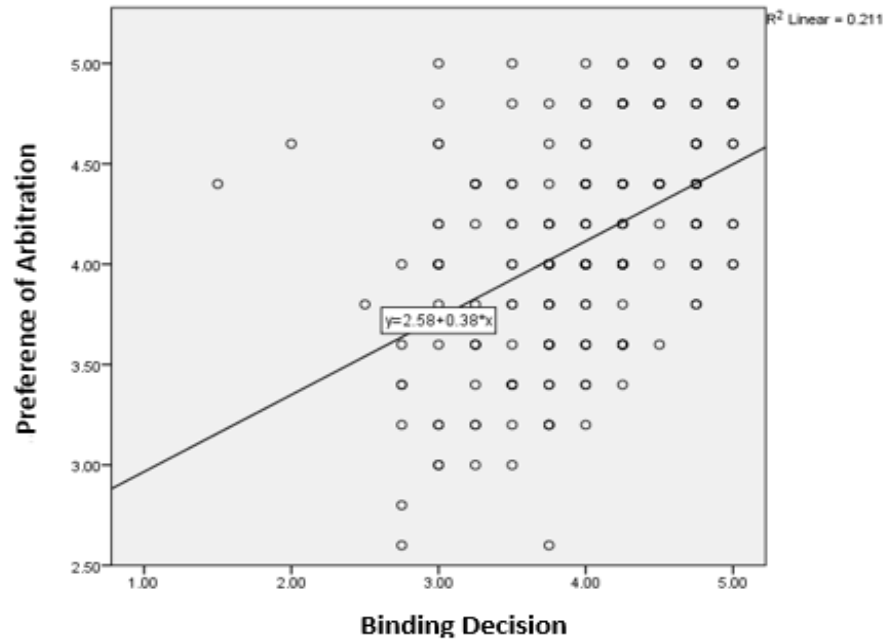
Figure 4.5: Binding decision and choice for arbitration

The scatter plot shows that there is a linear relationship between binding decision and the choice of arbitration where most of the data gathered to the higher upper, right side of the plotted graph. Since there is an upward slope the relationship between binding decision and the choice of arbitration is positive while there is a moderately strong relationship between these two variables as the scatter plot is near to the straight line without disbursing extra away.

Table 4.17: Correlation between binding decision and choice for arbitration

	Binding Decision	
Preference for	Pearson Correlation:-	.459**
Arbitration	Significant (1- tailed)	.0

Figure: 4.5 indicates positive relationship between binding decision and choice of arbitration.

H_{5a} explains binding decisions and choice of arbitration displays no relationship.

H_{5b} explains binding decision and choice of arbitration displays a positive relationship.

The critical esteem value is 0.00 that is relatively smaller compared to 0.05 and hence the wrong theorem ($H_{5a)}$) is neglected and then substitute theorem 'H_{5b}' is given. Above 'H_{5b}' theorem is strengthened by Pearson correlation, significant values ($\beta=+0.459$; $\rho > 0.0$). Results indicates existence of solid positive relationship between binding decision and arbitration choice

Table 4.18 Hypotheses testing summary

		Flexibility	Willingness	Cost	Time	Binding Decision	Choice of Arbitration
Correlations							
Flexibility	Pearson Correlation:	1					
	Significant (1- tailed)						
Willingness	Pearson Correlation:	.618**	1				
	Significant (1- tailed)	.0					
Cost	Pearson Correlation:	.504**	.528**	1			
	Significant (1- tailed)	.0	.0				
Time	Pearson Correlation:	.644**	.665**	.428**	1		
	Significant (1- tailed)	.00	.00	.00			
Binding Decision	Pearson Correlation:	.486**	.520**	.310**	.634**	1	
	Significant (1- tailed)	.00	.00	.00	.00		
Choice of Arbitration	**Pearson Correlation:**	.604**	.57**	.407**	.823**	.460**	1
	Significant	.00	.00	.00	.00	.00	
**. Correlation is significant at 0.01 level (1- tailed).							

Verified theorems are as follow

- +H_{1b} -Flexibility and arbitration choice
- +H_{2b} -Willingness and choice of arbitration
- +H_{3b} -Cost and arbitration choice
- +H_{4b} -Time and choice of arbitration
- +H_{5b} -Binding decision and arbitration choice

The above list indicates the summary of the theorems analyzed and there exist ten forecasts produced, also those replacement theorems were completely endorsed through the examined results.

Table 4.19: Model summary table

Model	R	R^2	Adjusted R^2	Standard Error of the Estimate
1	.834[a]	.696	.688	.30707

Predictors: (Constants), flexibility, cost, willingness, time, binding Decision.

The over-all impact of ward variable on autonomous elements is ruled by 'R square value'. In "model summary table, it is indicated in the out of sorts model of the exploration review, 'R square' figure demonstrates coefficient of determination (Wang, Jiang, & Liu, 2017). As indicated in aforesaid table the esteemed figure is 0.696 (69.6%). Besides, 'R^2 value' must be larger than 25% for model fitness (Malhotra, 2010).

There is 69.6% of the general control of a minor variable on autonomous factors during the exploratory study. Aforesaid results reveal that estimation version of exploration analyzes befit with the precondition of appraised evaluation.

Industry specialists are suitable to settle the conflict by arbitration, as per their expertise and knowhow. Outcomes of questionnaire exposed and demonstrate the choice of arbitration among employees in local building sector.

4.5 Summary

The in-depth evaluation of determined crucial restrictions of arbitration processes relevant to the building outfits were achieved depending on primary and alternative data gathered via a questionnaire survey. Besides the typical perception on arbitration process of industry personal was found out and arbitration professional's recommendations for the improvement in methods were determined during the final stage of the evaluation.

CONCLUSIONS & RECOMMENDATIONS

5.1 Introduction

The conclusions of the research and recommendations will be presented in this chapter. Achievement of the four objectives and fulfilment of the aim of this study is summarized under conclusion. Suggestions for future research will also be presented in the latter part of the conclusion.

5.2 Conclusions

Behavioral, environmental factors and contractual problems lead construction projects to disputes. Most of the projects have a long term process which increases the risk of uncertainty and complexity and lead the project into disputes. It is impossible to foresee all the contingencies and resolve them in time. Efficient solving of disputes highly affects the success and the productivity of a construction process. This study addresses concerns on dispute solving and tendency of arbitration practices relevant to local construction industry.

This study employed to the quantitative research technique, where the statistics were accumulated through a questionnaire survey that impacts the choice of arbitration methods on entities in the local construction sector. The research aims at assessing the effectiveness and preference of arbitration in the Sri Lankan construction industry under a professional perspective. The research attained four objectives to fulfill the aim.

Achievement of the first objective

To observe the importance of arbitration as a dispute resolution method in Sri Lankan construction industry, the history of dispute resolution methods and ADR methods were examined and summarized by extracting the advantages and disadvantages of the methods involve in ADR. It was concluded that arbitration is the best practice in ADR

compared to other related methods due to the maximum advantages and minimum disadvantages it provides.

Achievement of the second objective

It was also identified by the literature review that there are constraints affecting the preference of arbitration in the construction industry where there is a lack of research has been accompanied based on Sri Lankan perspective. Accordingly, five mostly reviewed constraints in past researches were chosen as critical constraints in this research which fulfilled the second objective of this study.

Achievement of the third objective

To evaluate leading critical constraints against the preference of arbitration using statistical analysis, questionnaire survey obtained 93 responses and the responses have been plotted in 5 points likert Scale. Mean and the standard deviation were calculated according to collected data. A hypothesis testing was conducted to determine the preference of arbitration as a method of ADR, by professionals in Sri Lanka. Studied the linearity of the variables with response to preference of arbitration and Pearson Correlation was calculated. The degree of correlation was defined depending on the value of the coefficient.

Achievement of the fourth objective

The preference and effectiveness of arbitration as a method of ADR by professionals in Sri Lanka by was determined analyzing the collected data. The outcome of the data analysis confirmed that there is a linear relationship and also a strong positive relationship of the following facts:

1). Flexibility to preference and effectiveness of arbitration,

2). willingness to preference and effectiveness of arbitration,

3. The cost to preference and effectiveness of arbitration time

4). Preference and effectiveness of arbitration,

5). Binding decision to preference and effectiveness of arbitration

Above results indicate that professionals prefer to follow arbitration compared to other ADR method to resolve disputes in construction industry in Sri Lanka. From the findings of data analysis it was identified that the professionals consider arbitration as an effective way of resolving disputes as a final mode of dispute resolution.

5.3 Recommendations

There is a strong positive relationship of all the five constraints to the preference of arbitration. As a result, experts can consider the identified important constrains when selecting arbitration as a method of ADR in a project. The study further recommends to examine the standards of critical constraints relevant to the project thoroughly and organize the practice of arbitration in local entities related to the construction sector disputes in line with these constraints.

5.4 Suggestions for future research

Academics and practitioners in other countries have performed different studies on relevant factor areas. However, in local context collaborative research shall be carried out in dispute resolution, related in construction sector. Furthermore, studies on this scope could be performed under following areas which are essential for the local construction industry.

➢Study the varying perspectives and views of customers, specialists and contractors on present construction arbitration.
➢ Study the preference and effectiveness of arbitrators regarding the perspective of Arbitrators.

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APPENDIX A: Blank Questionnaire

General (Optional)

Respondent name:

Organization name:

Respondent designation:

Working experience with ADR:

Guidance to fill questionnaire

SECTION 1: Intend to elicit the background information of the respondent.

General Information

Mark (x) in the appropriate box

Q1	**Gender**	Male	Female
Q2	Age (Years)	20 - 29	
		30 - 39	
		40 - 49	
		50 - 59	
		60 - 69	
Q3	Education Level	NCT	
		HND	
		B.Sc.	

		M.Sc. / MBA	
		PhD	
		Others	
Q4	Occupation	Government	
		Own business	
		Private	
		Retired	
Q5	Involvement in arbitration process	Not engaged (Academic knowhow only)	
		Engaged in arbitration activity (Experience in preparation of claim statements, defense statements …etc.)	
		Engaged in arbitration and represented the specific entity.	
		Worked as an Arbitor	

SECTION 2: designed to identify the choice of arbitration method as an alternate dispute resolution process applied in local building sector.

Please mention your view and perception relevant to the following features of arbitration.

Utility Factor	Explanation
1	**Very low** degree of agreement
2	**Low degree** of agreement
3	**Agree**
4	**High degree** of agreement
5	**Very high** degree of agreement

Arbitration practice according to Sri Lankan construction industry

H1- Flexibility

	Determine how far do you agree with each of the below statement	1	2	3	4	5
1.1	Disputed sides have control over format content and arbitration procedure					
1.2	Sides can refer the documents related to issue					
1.3	Stakeholder participation is enabled					
1.4	Process is flexible compared to legal actions.					

H2- Willingness

	Determine how far do you agree with each of the below statement	1	2	3	4	5
2.1	Dispute settlement process is an acceptable process					
2.2	Process is just to both sides.					
2.3	Specialists in the field are designated as arbitrators.					
2.4	Involvement in culture and work ethics is high.					

H3- Cost

	Determine how far do you agree with each of the below statement	1	2	3	4	5
3.1	Opponent's legal expense to be paid by losing party base on the agreement					
3.2	Expenses of arbitration arrangements to be incurred by both sides.					
3.3	Indirect expenses of dispute resolution procedure are reduced					
3.4	When considering opportunity costs and idling costs, the total cost of arbitration is lower compared to litigation.					

H4 – Time

	Determine how far do you agree with each of the below statement	1	2	3	4	5
4.1	Disputes are processed faster manner.					
4.2	At the beginning of the arbitration process the documents submissions are planned					
4.3	Complete exercise takes short duration.					
4.4	Can obtain a decision quickly					

H5- Binding Decision

	Determine how far do you agree with each of the below statement	1	2	3	4	5
5.1	Verdict is legally obliged.					
5.2	The ruling could be enacted in courts					
5.3	Once the verdict is given other options are limited.					
5.4	Arbitrator has the authority to compel the sides to go for granted judgment.					

H6- Preference of Arbitration

	Determine how far do you agree with each of the below statement	1	2	3	4	5
6.1	Arbitration could be recommended for dispute settlement					
6.2	Satisfied with arbitration.					
6.3	If dispute occurred, I would prefer move with arbitration					
6.4	Performance of present arbitration methods is at satisfactory level					
6.5	I recommend arbitration as a good ADR process					