# 5. CONCLUSIONS AND RECOMMENDATIONS

## 5.1. Introduction

This study was aimed to identify the most appropriate method/s for analysing concurrency in construction delay claims in Sri Lankan Construction Industry. To achieve the aim and objectives of the research comprehensive literature reviewed, data were collected through preliminary survey and detailed survey. Subsequently collected data were analysed and discussed the findings in previous chapter "Research Findings and Data Analysis". However this chapter attempts to take out conclusions and recommendations from the analysis and discussion performed in the previous chapter.

## 5.2. Conclusions

Construction delay claims are inevitable in most projects in the construction industry. It is rarely seen that a project completed without any adjustment on the completion time. Concurrent delay claims are the most disputed issue in the industry. It has implications concerning the awarding of liquidated damages and the granting of extensions of time. As such this research was carried out to explore the way of handling concurrency in construction delay claims in Sri Lankan construction industry.



At the beginning of the study a background study was conducted to establish the research problem, aim and objectives of the study. It was further verified through preliminary survey and identified that the research problem of the study was common among most of the professionals who deal with construction delay claims. Under literature survey concurrency in construction delay claims was streamed out through causes of delays, effects of delays, types of delays and analyzing delays. Further literature review was contributed in achieving first objective of the research of analyzing case laws and identifying existing concurrent delay analysis methods namely Apportionment, the 'but for' test, the dominant cause approach, 'Malmaison' approach and first-in-line approach.

The second and third objectives of this research were to identify the occurrence and degree of consideration of concurrent delays in Sri Lankan Construction Industry and Identify the Sri Lankan professionals' opinion towards concurrent delays respectively. These were achieved through the detailed questionnaire survey and interviews with experts. To get the opinion towards concurrent delays respondents were asked to rank 10 statements about concurrent delays ranging 1(strongly disagree) to 5 (strongly agree). Agreement levels were further calculated as Disagree, Neutral and Agree as shown in Table 4.1 for the purpose of interpreting. It is prevalent that concurrency is the most complex and problematic element in construction delay claims which is also proven through the survey with the agreement percentage of 100%. Moreover, all the respondents that is 100% were agreed to the statements that "many Standard forms of contract are silent as far as concurrent delays concerned" and "Clear guidance on the most suitable approaches for dealing with concurrent delays is very important to avoid complexity and disputes". In contrast respondents also agreed with the statement of "SCL "Delay and Disruption Protocol" in 2002, gives clear guidance to parties when dealing with concurrent delays". The reason behind the contrary as per the experts is not referring SCL protocol in most of the contracts. Most of the respondents have identified that in Sri Lankan construction industry concurrent delays are occurring frequently but professionals of contractors and consultants in Sri Lankan construction industry are highlighting it occasionally when defending delay claims.



In attaining 4$^{th}$ objective the detailed questionnaire survey helped in finding out awareness, usage, success and applicability of above mentioned methods related to the Sri Lankan context. The RII was used as a tool to rank the significance and importance level of methods in each category. It is interesting to note that according to the results of survey "Malmaison" approach got first rank in all the categories of awareness, usage, success and applicability whereas "First in line" approach got least. It is also necessary to mention that only 9 respondents were revealed other method for analyzing concurrent delays and "use of common sense" is the method stated by all of them.

Similar to the result of detailed questionnaire survey, both the experts (Expert A and B) also recommended "Malmaison" approach as most suitable method of analyzing

concurrent delays in Sri Lankan construction industry accomplishing 5th objective. Further the experts explained the merits of the "Malmaison" approach highlighting;

- The "Malmaison" Approach is the most preferred method to treat concurrent delays under English Law.
- The "Malmaison" Approach is go in line with "Prevention Principle" which is a long established English common law doctrine.
- SCL Protocol (2002) is also followed "Malmaison" Approach
- Reduced unnecessary disputes

To complete the accomplishment of final objective, barriers for application of concurrent delay analysis were identified through preliminary survey and their restriction level investigated through detailed questionnaire survey. When analyzing any type of delay updated programme, quality, accuracy and adequacy of documents, potential impact of delay and familiarity with approaches are vital. Hence following were identified as barriers with high restriction level for using concurrent delay analysis methods.



- Poorly updated programmes
- Lapses and omissions in documents
- Absence in acceptable quality in documentation
- Absence of potential impacts of delays
- Lack of knowledge in Case Laws
- Lack of familiarity with the approaches
- Lack of adequate project information
- Lack of awareness of concurrent delays

To conclude, it is expected that the findings of this research will assist the Sri Lankan construction industry professionals for consideration of concurrency in construction delay claims and employ most appropriate method to analyse concurrent delays. Following recommendations are also necessary to establish a good concurrent delay claim practice in Sri Lanka Construction Industry.

### 5.3. Recommendations

The analysis of questionnaire survey and final expert survey derived recommendations for establishing a good concurrent delay claim practice in Sri Lanka Construction Industry.

- Professionals who handle construction delay claims are advised to enhance knowledge of case law for successful evaluation of concurrent delay by avoiding criticisms.
- As "SCL "Delay and Disruption Protocol" in 2002 gives guidance to parties when dealing with concurrent delays. So, i
- t is suggested to refer the protocol in the Contracts and it is necessary to be familiar with the protocol by construction professionals as a guideline.
- As most of the present Contracts only require a programme to be submitted for the consent of the Engineer, there is no specific reference or method of preparing the programme. As a result most of the programmes submitted by the contractors are not included essential information and not in proper quality. Therefore, it is recommended to include a specification describing the method of preparing the work programme in the Contracts.
- It is paramount important to have a proper updated work programme at any given of time to evaluate the concurrency. It is necessary to guide construction practitioners to keep updating the programme periodically.
- Claim documentation is also very important in analyzing concurrent delays. So it is recommended to ensure the completeness and timeliness of those documents specially claim notice.
- Educate project team in keeping all the daily site records accurately.

### 5.4. Further Research

This research was carried out to find out suitable method for assessing concurrency in construction delay claims. While carrying out the research, researcher came across following areas to be required further research.

- A study on investigating applicability of Malmaison approach in assessing concurrency in construction delay claims in practical nature in the perspective of Contractor and Consultant separately.
- Suitability of the SCL Protocol's proposed method for dealing with concurrency, for adoption and use on Sri Lankan construction projects.

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***Case Law***

1. Balfour Beatty Building v Chestermount Properties [1993] 62 BLR 1
2. City Inn Ltd v Shepherd Construction Ltd [2008] 8 BLR 269 (CSOH); [2010] BLR 473 (CSIH)
3. De Beers UK v Atos Origin IT Services UK Limited [2010] EWHC 3276
4. Henry Boot Construction (UK) Ltd v Malmaison Hotel (Manchester) Ltd [1999] 70 Con LR 32.
5. H Fairweather v Borough of Wandsworth[1987] 39 BLR 106
6. Multiplex v Honeywell [2007] BLR 195
7. Peak Construction v McKinney Foundations [1970] 1 BLR 111
8. Percy Bilton v GLC [1982] 20 BLR 1 (HL)
9. SMK Cabinets v Hili Modern Electric (pvt) Ltd [1984]VR 391
10. Trollope & Colls v North West Metropolitan Regional Hospital [1973] 9 BLR 60
11. Walter Lilly v MacKay [2012] BLR 503

## APPENDIX A

**Summary of previous studies on Delay Analysis Techniques**

| Reference | Methods identified through the Literature survey | Methods developed/considered for the survey | Remarks |
|---|---|---|---|
| Alkass, Mazerolle and Harris (1996) | • Global impact technique<br>• Net impact technique<br>• Adjusted as-built CPM technique<br>• `but for' or collapsing technique<br>• Snapshot technique<br>• Time impact technique | Isolated Delay Type (IDT) | This system could assist in improving the process of delay analysis, thus reducing the cost of claims preparation. |
| Bordoli and Baldwin (1998) | **Basic methods** : entropy method, as-built bar chart method and scatter diagram<br><br>**Critical path analysis methods** : as-built network method, as-built subtracting impacts method, baseline adding impacts method, window analysis method and isolated delay type | Developed a technique based on the critical path planning method | This method is a clear, straightforward step-by-step approach to calculate the expected delay in the completion of the project. |

| Reference | Methods identified through the Literature survey | Methods developed/considered for the survey | Remarks |
|---|---|---|---|
| Bubshait and Cunningham (1998) | • As Planned Method<br>• As-Built Method<br>• Modified As- Built Method<br>• Float Allocation Method<br>• Concurrent Delay Method | Considered only<br>• As Planned Method<br>• As-Built Method<br>• Modified As- Built Method | The result of the study reveals that outcome of the delay analysis is not predictable and one method may not be used over another in all Situations. |
| Singh and Trivedi (2012) | | Developed a schedule delay assessment model using Fuzzy Logic Toolbox of MATLAB Program | It provides a simple way to get a definite conclusion based upon vague, imprecise or missing input information. |
| Kim (2009) | • Contemporaneous Period Analysis (CPA)<br>• "But-for" Method | Resource-constrained Critical Path Method (RCPM) | This method analyzes the problems arise when CPA and but-for methods are performed on the basis of the resource constrained scheduling techniques and shows how the RCPM can be utilized for those delay analysis. |

| Reference | Methods identified through the Literature survey | Methods developed/considered for the survey | Remarks |
|---|---|---|---|
| Barry (2009) | • Impacted as-planned method<br>• Time impact analysis method<br>• Collapsed as-built or 'but-for' analysis method<br>• Snapshot/windows/time slice analysis method<br>• As-planned versus as-built windows analysis method. | • Impacted as-planned method<br>• Time impact analysis method<br>• Collapsed as-built or 'but-for' analysis method<br>• Snapshot/windows/time slice analysis method<br>• As-planned versus as-built windows analysis method. | This paper provides some general clarity to those commonly used delay analysis techniques, what they do, what they do not do, and when they may appropriately be applied |
| Lee and Diekmann (2011) | • As-planned versus as-built<br>• Impacted as-planned<br>• Collapsed as-built or but-for<br>• Windows analysis | Developed a modified method for delay analysis;<br><br>DAP (Delay Analysis considering Production rate) | This method is a feasible choice for delay calculation in case of production changes over activity progress because it calculates the sub- phase productivity and the learning effects very objectively. |

| Reference | Methods identified through the Literature survey | Methods developed/considered for the survey | Remarks |
|---|---|---|---|
| Braimah (2013) | • As-planned vs. As-built<br>• Impacted as-planned<br>• As-planned but for<br>• Collapsed as-built<br>• Window analysis<br>• Time impact analysis | Considered the most common techniques:<br>• As-planned vs. As-built<br>• Impacted as-planned<br>• As-planned but for<br>• Collapsed as-built<br>• Window analysis<br>• Time impact analysis | The study discussed the key relevant issues often not addressed by the techniques and their improvement needs. |
| Ng, Skitmore, Deng and Nadeem (2004) | • Global impact technique<br>• Net impact technique<br>• 'but for' or collapsing technique<br>• Apportionment delay technique<br>• Snapshot technique<br>• Isolated delay technique<br>• Time impact technique | • Global impact technique<br>• Net impact technique<br>• 'but for' or collapsing technique<br>• Apportionment delay technique<br>• Snapshot technique<br>• Isolated delay technique<br>• Time impact technique | Two improvements are proposed to make seven existing techniques suitable for use in schedule compression:<br>• to incorporate the scrutiny of delay types<br>• to apply Excusable Delays |

| Reference | Methods identified through the Literature survey | Methods developed/considered for the survey | Remarks |
|---|---|---|---|
| Menesi (2007) | • As-Planned Versus As-Built Comparison<br>• Impacted As-Planned Method (What-If approach)<br>• Collapsed As-Built Method (but-for method)<br>• Contemporaneous Period Analysis Method (window analysis) | Modified Daily Windows Analysis (MDWA) and prototype computer software for a Modified Daily Windows Analysis (MDWA) | This model takes into consideration multiple baseline updates and accurately apportions delays and accelerations among the project parties. |
| Hegazy (2012) | • As-planned vs. as-built schedule analysis method<br>• Impacted as-planned schedule analysis method<br>• Collapsed as-built schedule analysis method<br>• Time impact analysis method (Windows Analysis) | | The research discussed the delay claims in the construction industry in UAE and the approach for choosing delay analysis methodology. |
| Dayi (2010) | Non-CPM Based Techniques: S-curve Global impact technique and Net impact<br><br>CPM Based Techniques: As-planned versus as-built, Impacted as- planned, Collapsed as-built, Window analysis and Time impact analysis. | Impacts of construction schedule delays on the duration of the case study project were analyzed using Time Impact Analysis method | This method is the best technique for determining amount of time extension caused by construction schedule delays and clearly present the situation of construction on the updated dates. |

| Reference | Methods identified through the Literature survey | Methods developed/considered for the survey | Remarks |
|---|---|---|---|
| Yang and Kao (2009) | • Reams' systematic approach<br>• Global impact technique<br>• Net impact technique<br>• Snapshot technique<br>• Isolated delay type<br>• After-the-fact and modified CPM schedule<br>• Dollar-to-time relationship<br>• Bar chart analysis<br>• CPM update review<br>• As-planned versus as- built analysis<br>• Linear schedule analysis<br>• B&B's delay analysis method<br>• Impacted as-planned method<br>• But-for<br>• Modified but-for<br>• Apportionment delay method<br>• Windows analysis<br>• Total float management | Compares in detail three process-based dynamic analysis methods;<br>• Snapshot analysis method<br>• Windows analysis method<br>• Isolated delay type method<br><br>Proposed six suggestions to develop an ideal delay analysis method. | An ideal delay analysis method contributes to a fair and accurate delay analysis<br><br>It fixes several defects suffered by available delay analysis methods |

## APPENDIX B

## Sample Questionnaire

Dear Sir / Madam,

**Dissertation – MSc in Construction Law and Dispute Resolution post graduate degree programme.**

I am a Post graduate student of Department of Building Economics, University of Moratuwa, undertaking the Master of Science in Construction Law and Dispute Resolution. A Research under the supervision of Dr. Gayani Karunasena on "**Methods for Analysing Concurrent Delays in Sri Lankan Construction Industry**" is carrying out for the fulfilment of my Master of Science Degree.

Objectives of the study

1. Analysing case law regarding concurrent delays and investigate methods for analysing concurrent delays.
2. Identify the occurrence and degree of consideration of concurrent delays in Sri Lankan Construction Industry.
3. Identify the Sri Lankan professionals' opinion towards concurrent delays.
4. Identify the methods for analysing concurrent delays and their applicability to Sri Lankan Construction Industry.
5. Identify compatible method/s for analysing concurrency in construction delay claims in Sri Lankan construction industry and barriers for their application.



The information from this questionnaire survey will only be used for fulfilling the above requirement and I would like to thank for the information given and time you have dedicated to my research. If you are interested to know the outcome of this research, it would be my pleasure to share it with you.

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**METHODS FOR ANALYSING CONCURRENT DELAYS**

**IN SRI LANKAN CONSTRUCTION INDUSTRY**

**QUESTIONNAIRE SURVEY**

**Definition of 'Concurrent Delays':-**"The occurrence of two or more delay events at the same time, one is an employer risk event, other is a contractor risk event and the effects of which are felt at the same time"

**Section A: General Information about the Respondent**

| | | | | | | |
|---|---|---|---|---|---|---|
| Name (optional) | | | | | | |
| Organization (optional) | | | | | | |
| Type of organization | Contractor | | Client | | Consultant | |
| Profession | | | | | | |
| Years of experience in Construction Industry | | | | | | |
| Having experience in handling Delay Claims | | Yes | | | No | |
| If yes,<br>No of Delay Claims Handled (approximately) | | | | | | |

**Section B: Respondent's opinion towards Concurrent Delays**

| 1 | **Please indicate your level of agreement towards the following statements related to the concurrent delays** | | | | | |
|---|---|---|---|---|---|---|
| | **Statement** | **Strongly Disagree** | **Disagree** | **Neutral** | **Agree** | **Strongly Agree** |
| 1 | Concurrency is the most complex and problematic element in construction delay claims | 1 | 2 | 3 | 4 | 5 |
| 2 | A Contractor can use concurrency to defend against a liquidated damages claim. | 1 | 2 | 3 | 4 | 5 |
| 3 | Contractor will be generally entitled to an extension of time where there are concurrent delays | 1 | 2 | 3 | 4 | 5 |
| 4 | Many concurrent delays cause disputes among parties | 1 | 2 | 3 | 4 | 5 |
| 5 | Many Standard forms of contract are silent as far as concurrent delays concerned. | 1 | 2 | 3 | 4 | 5 |
| 6 | Case law regarding concurrent delays gives assistance to avoid criticism when handling concurrent delays. | 1 | 2 | 3 | 4 | 5 |
| 7 | Clear guidance on the most suitable approaches for dealing with concurrent delays is very important to avoid complexity and disputes | 1 | 2 | 3 | 4 | 5 |
| 8 | When assessing concurrent delays, knowledge regarding case law is essential. | 1 | 2 | 3 | 4 | 5 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 9 | SCL “Delay and Disruption Protocol” in 2002, gives clear guidance to parties when dealing with concurrent delays | 1 | 2 | 3 | 4 | 5 |
| 10 | The way of handling concurrent delays should be included in all the construction contracts | 1 | 2 | 3 | 4 | 5 |

| **2** | **Your opinion towards Concurrent Delays in Sri Lankan construction industry** | | | | | |
|---|---|---|---|---|---|---|
| **Statement** | | **Never** | **Rarely** | **Sometimes** | **often** | **Always** |
| 1 | According to your experience to which extent concurrent delays are occurring in Sri Lankan construction projects | 1 | 2 | 3 | 4 | 5 |
| 2 | To which extent the professionals of contractors in Sri Lankan construction industry highlight concurrency when defending delay claims. | 1 | 2 | 3 | 4 | 5 |
| 3 | To which extent the professionals of clients in Sri Lankan construction industry highlight concurrency when defending delay claims. | 1 | 2 | 3 | 4 | 5 |

**Section C: Methods for dealing with concurrent delays**

| 1 | **Please indicate your level of awareness of each of the following methods for analysing concurrent delays** | | | | |
|---|---|---|---|---|---|
| **Methods for dealing with concurrent delays** | **Very Low 1** | **2** | **3** | **4** | **Very high 5** |
| **But for test**<br>It is based on a simple concept that the overrun would not have occurred 'but for' the event complained.( Here the claimant may seek to argue that delay is 'but for' the other parties delay) | 1 | 2 | 3 | 4 | 5 |
| **First in line approach**<br>The basis of this method is that where there are two events causing a delay, the event which took place first in time either by the contractor or by the employer is the cause of the whole delay. | 1 | 2 | 3 | 4 | 5 |
| **Dominant cause approach**<br>Under this approach, where there are two causes of delay, one is by the defendant and the other is by the claimant, the claimant will succeed if it can be established that the cause for which the defendant is responsible is the effective dominant cause. | 1 | 2 | 3 | 4 | 5 |
| **Apportionment**<br>Here, when you have two completing causes of delays, it is suggested that the overrun and its consequences should be 'apportioned' between the contractor and the employer on the basis to their relative causative potency. | 1 | 2 | 3 | 4 | 5 |

| | | | | | |
|---|---|---|---|---|---|
| **The 'Malmaison' approach**<br>If there are two concurrent delays, one which is a relevant event and the other not, then the contractor is entitled to an extension of time for the period of delay caused by the relevant delay without considering the concurrent effect of the other event | 1 | 2 | 3 | 4 | 5 |
| Any other method (Please specify) | 1 | 2 | 3 | 4 | 5 |

| **2** | **Please indicate the extent to which you use each of the following methods for analysing concurrent delays** | | | | |
|---|---|---|---|---|---|
| **Methods for dealing with concurrent delays** | **Very low 1** | **2** | **3** | **4** | **Very high 5** |
| But for test | 1 | 2 | 3 | 4 | 5 |
| First in line approach | 1 | 2 | 3 | 4 | 5 |
| Dominant cause approach | 1 | 2 | 3 | 4 | 5 |
| Apportionment | 1 | 2 | 3 | 4 | 5 |
| The 'Malmaison' approach | 1 | 2 | 3 | 4 | 5 |
| Any other method (Please specify) | 1 | 2 | 3 | 4 | 5 |

| 3 | **Please indicate the level of success of claims analysed by using each of the following methods for analysing concurrent delays** |
|---|---|

| **Methods for dealing with concurrent delays** | **Very Low 1** | **2** | **3** | **4** | **Very high 5** |
|---|---|---|---|---|---|
| But for test | 1 | 2 | 3 | 4 | 5 |
| First in line approach | 1 | 2 | 3 | 4 | 5 |
| Dominant cause approach | 1 | 2 | 3 | 4 | 5 |
| Apportionment | 1 | 2 | 3 | 4 | 5 |
| The 'Malmaison' approach | 1 | 2 | 3 | 4 | 5 |
| Any other method (Please specify) | 1 | 2 | 3 | 4 | 5 |



| 4 | **Please specify the level of applicability of following methods to Sri Lankan construction industry** |
|---|---|

| **Methods for dealing with concurrent delays** | **Level of applicability** | | | | |
|---|---|---|---|---|---|
| | **1** | **2** | **3** | **4** | **5** |
| But for test | 1 | 2 | 3 | 4 | 5 |
| First in line approach | 1 | 2 | 3 | 4 | 5 |
| Dominant cause approach | 1 | 2 | 3 | 4 | 5 |
| Apportionment | 1 | 2 | 3 | 4 | 5 |
| The 'Malmaison' approach | 1 | 2 | 3 | 4 | 5 |
| Any other method (Please specify) | 1 | 2 | 3 | 4 | 5 |

**Section D: Barriers to use of concurrent delay analysing methods**

| 1 | **Please indicate the extent to which the following factors restrict the use of concurrent delay analysing methods in Sri Lankan Construction industry** | | | | |
|---|---|---|---|---|---|
| **Factors** | **Very Low 1** | **2** | **3** | **4** | **Very high 5** |
| Lack of awareness of concurrent delays | 1 | 2 | 3 | 4 | 5 |
| Lack of familiarity with the approaches | 1 | 2 | 3 | 4 | 5 |
| Difficulty in using approaches | 1 | 2 | 3 | 4 | 5 |
| High time consumption in using the approaches | 1 | 2 | 3 | 4 | 5 |
| Lack of skill for using approaches | 1 | 2 | 3 | 4 | 5 |
| Lack of adequate project information | 1 | 2 | 3 | 4 | 5 |
| Absence in acceptable quality in documentation | 1 | 2 | 3 | 4 | 5 |
| Lack of knowledge in Case Laws | 1 | 2 | 3 | 4 | 5 |
| absence of potential impacts of delays | 1 | 2 | 3 | 4 | 5 |
| lapses and omissions in documents | 1 | 2 | 3 | 4 | 5 |
| Lack of suitable programming software | 1 | 2 | 3 | 4 | 5 |
| Poorly updated programmes | 1 | 2 | 3 | 4 | 5 |
| Other (Please specify) | | | | | |



"THANK YOU FOR YOUR SUPPORT AND COOPERATION"

# APPENDIX C

## METHODS FOR ANALYSING CONCURRENT DELAYS IN SRI LANKAN CONSTRUCTION INDUSTRY

## STRUCTURED INTERVIEW QUESTIONS

1. 100% respondents were agreed to the statements that "many Standard forms of contract are silent as far as concurrent delays concerned" and "Clear guidance on the most suitable method for dealing with concurrent delays is very important to avoid complexity and disputes". Also most of them agreed to the statement that "SCL "Delay and Disruption Protocol" in 2002, gives clear guidance to parties when dealing with concurrent delays".
    a. What is your idea regarding the mismatch of result of above statements?
    b. What could be the precautions for that?

2. Can contractors use concurrency to defend against a liquidated damages claim?



3. More than 50% of respondents were impersonal to the statement of "a contractor can use concurrency to defend against a liquidated damages claim" and 81% agreed for the statement "Contractor will be generally entitled to an extension of time where there are concurrent delays". What is your opinion regarding this result?

4. Is the knowledge regarding case law is essential when handling concurrent delays?

5. "According to the survey results, though the concurrent delays are occurring often in Sri Lankan construction industry, most of the professionals in both consultant and contractor are sometimes highlighting the concurrency in defending delay claims" What is your opinion regarding this?

6. Every professional who responded to the other methods in the questionnaire have mentioned it as “Use of common sense”. What is your opinion regarding this?

7. Most of the professionals were identified that the “Malmaison” approach is the most successful and applicable method for analyzing concurrent delays. What would be the reasons behind this?

8. Which method do you think is the most suitable method for analysing concurrent delays in Sri Lankan Construction industry and What are the reasons for not recommending other methods?

9. Followings are the barriers for low usage of concurrent delay analyzing methods identified through the preliminary survey along with the ranks given according to their restriction level. What is your opinion regarding given ranks?

| Barrier | Rank |
|---|---|
| Poorly updated programmes | 1 |
| Lapses and omissions in documents | 2 |
| Absence in acceptable quality in documentation | 3 |
| Absence of potential impacts of delays | 4 |
| Lack of knowledge in Case Laws | 5 |
| Lack of familiarity with the approaches | 5 |
| Lack of adequate project information | 7 |
| Lack of awareness of concurrent delays | 8 |
| Difficulty in using approaches | 9 |
| Lack of skill for using approaches | 10 |
| Lack of suitable programming software | 11 |
| High time consumption in using the approaches | 12 |



10. What are the precautions we can have to establish a good concurrent delay claim practice in Sri Lanka Construction Industry?