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APPENDIX A: INTERVIEW GUIDE FOR PRELIMINARY INTERVIEWS

PERSONAL INFORMATION

- a) Name of the Company :
- b) Name of the Interviewer :
- c) Designation :
- d) Experience :
- e) Date :

GENERAL INTRODUCTION

A) Research Title

The most appropriate delay analysis techniques to analyse the delay in road construction projects in Sri Lanka

B) Research Objectives

- To identify the various types of delay analysis techniques (DAT) used in road construction projects and to verify their advantages and disadvantages.
- To determine the extent of application of DAT in road construction projects in Sri Lanka.
- To determine the problems of application of DAT in road construction projects in Sri Lanka.
- To identify the criteria for selecting a suitable Delay Analysis Technique in road construction projects in Sri Lanka.
- To propose the most appropriate Delay Analysis Technique to analyse the delays in road construction projects in Sri Lanka.

C) Interview Questions

Q.1. The following delay analysis techniques have been identified as the most applicable delay analysis techniques in other countries in the world to analyze the delay in road construction projects. Are they applicable in Sri Lankan context also?

1. As planned v as built
2. Impacted as planned
3. Collapsed as built
4. Window analysis
5. Time impact analysis

Q.2. The following criteria were identified as important in selecting a DAT to analyze the delays in a road construction projects. Would you like to suggest any other criteria which are important for the same?

Criteria / Factors identified from the literature survey	Criteria / Factors identified from the preliminary interviews
<ul style="list-style-type: none"> • Time consumed by the DAT for the analysis • Cost of using the DAT • Inputs of the experts needed for the DAT • Complexity of the DAT when it is used • Reliability of the selected DAT • Accuracy of the selected DAT • Acceptability of the selected DAT by the tribunals and courts 	

Q.3. What were the problems you have faced in using delay analysis techniques for delay analysis in road construction projects in Sri Lanka?

APPENDIX B: DETAILED QUESTIONNAIRE

The most appropriate delay analysis technique (DAT) to analyze delays in road construction Projects in Sri Lanka

Dear Sir / Madam,

Dissertation – M.Sc. in Construction Law and Dispute Resolution

I am following a M.Sc. course on Construction Law and Dispute Resolution at the Department of Building Economics at University of Moratuwa. In order to fulfil the requirements of this degree program, I am required to undertake a research and produce a dissertation. The topic I have chosen is “**The most appropriate delay analysis technique to analyze the delays in road construction Projects in Sri Lanka**”

I would be grateful if you could complete the attached questionnaire within your busy work schedule. Five DATs have been identified for my study and a brief description of the each DAT has been attached hereto. **The information provided by you will be treated with strict confidence, it will be used only for the purpose of fulfilling requirement for module dissertation in the above course and there would not be specific references to any individual or an organization.**

Thank you.

Yours faithfully,

EMK Ekanayake
M.Sc. Student
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Faculty of Architecture
University of Moratuwa

QUESTIONNAIRE SURVEY

The most appropriate Delay Analysis Techniques (DAT) to analyze the delays in road projects (over Rs 500 MN) in Sri Lanka

This information given by you will be used only for the Academic purposes.

(Please "X" your answers in appropriate cages)

		1. Employer	2. Consultant	3. Contractor						
1	For whom you are working ?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
2	The number of road projects that you have worked in Sri Lanka	<input type="text"/>								
3	Your Experience in years	<input type="text"/>								
4	Please fill the followings									
	Name of the project	Contract value of the project	Whether project delayed		Did the Contractor claim EOT		Was EOT granted to the Contractor		Were DATs used for analyzing delays	
			Yes	No	Yes	No	Yes	No	Yes	No
P1										
P2										
P3										
P4										
P5										
P6										
P7										
P8										
5. If DATs are used in above projects what are they?										
	(Name of the projects are same as above no need to write again)	As Planned v As Built	Impacted As planned	Window analysis	Time impact analysis	Collapsed As built				
P1										
P2										
P3										
P4										
P5										
P6										
P7										
P8										

6 According to your opinion rank the following problems which effects in using the delay analysis techniques												
1	Lack of knowledge of the Employer on DAT	0	1	2	3	4	5	6	7	8	9	10
2	Lack of knowledge of the Contractor on DAT	0	1	2	3	4	5	6	7	8	9	10
3	Lack of knowledge of the Consultants on DAT	0	1	2	3	4	5	6	7	8	9	10
4	Lack of Professionals to analyze EOT using DAT	0	1	2	3	4	5	6	7	8	9	10
5	Lack of facilities such as computers and software	0	1	2	3	4	5	6	7	8	9	10
6	Difficult to collect Data for DAT	0	1	2	3	4	5	6	7	8	9	10
7	Collected Data is not reliable	0	1	2	3	4	5	6	7	8	9	10

7 According to your opinion what is the importance of following scenarios in selecting a DAT?

Scenario	Relative importance										
	1	2	3	4	5	6	7	8	9	10	
Time taken for the analysis	1	2	3	4	5	6	7	8	9	10	
Cost for the analysis	1	2	3	4	5	6	7	8	9	10	
Workability of the technique	1	2	3	4	5	6	7	8	9	10	
Reliability of the technique	1	2	3	4	5	6	7	8	9	10	
Accuracy f the technique	1	2	3	4	5	6	7	8	9	10	
Acceptability of the technique by relevant parties	1	2	3	4	5	6	7	8	9	10	
Acceptability by courts and tribunals	1	2	3	4	5	6	7	8	9	10	
Complexity of the analysis	1	2	3	4	5	6	7	8	9	10	
Input of experts	1	2	3	4	5	6	7	8	9	10	

8 How do you grade the suitability of each DAT for criteria given below?

As Planned v as Built	Low	Moderate	High	Very High
Time taken for the analysis				
Cost for the analysis				
Workability of the technique				
Reliability of the technique				
Accuracy f the technique				
Acceptability of the technique by relevant parties				
Acceptability by courts and tribunals				
Complexity of the analysis				
Input of experts				

Impacted as planned	Low	Moderate	High	Very High
Time taken for the analysis				
Cost for the analysis				
Workability of the technique				
Reliability of the technique				
Accuracy of the technique				
Acceptability of the technique by relevant parties				
Acceptability by courts and tribunals				
Complexity of the analysis				
Input of experts				

Collapse as built	Low	Moderate	High	Very High
Time taken for the analysis				
Cost for the analysis				
Workability of the technique				
Reliability of the technique				
Accuracy of the technique				
Acceptability of the technique by relevant parties				
Acceptability by courts and tribunals				
Complexity of the analysis				
Input of experts				

Time impact analysis	Low	Moderate	High	Very High
Time taken for the analysis				
Cost for the analysis				
Workability of the technique				
Reliability of the technique				
Accuracy of the technique				
Acceptability of the technique by relevant parties				
Acceptability by courts and tribunals				
Complexity of the analysis				
Input of experts				

Window Analysis	Low	Moderate	High	Very High
Time taken for the analysis				
Cost for the analysis				
Workability of the technique				
Reliability of the technique				
Accuracy of the technique				
Acceptability of the technique by relevant parties				
Acceptability by courts and tribunals				
Complexity of the analysis				
Input of experts				

9	As per your opinion rank the following DATs according to the suitability of their usage in road projects in Sri Lanka .	
	As Planned v As Built	
	Impacted As planned	
	Window analysis	
	Time impact analysis	
	Collapsed As built	

APPENDIX C: INTERVIEW GUIDE FOR IN-DEPTH INTERVIEWS

PERSONAL INFORMATION

- f) Name of the Company :
- g) Name of the Interviewer :
- h) Designation :
- i) Experience :
- j) Date :

GENERAL INTRODUCTION

A) Research Title

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- To determine the problems of application of DAT in road construction projects in Sri Lanka.
- To identify the criteria for selecting a suitable Delay Analysis Technique in road construction projects in Sri Lanka.
- To propose the most appropriate Delay Analysis Technique to analyse the delays in road construction projects in Sri Lanka.

Q.1. The following delay analysis techniques were identified during the preliminary interviews as the most suitable methods to analyze the delay in road construction projects. According to your understanding what are the advantages and disadvantages of them?

- As planned v as built
- Impacted as planned
- Collapsed as built
- Window analysis
- Time impact analysis

Q.2. The following are the problem that were identified during the literature review and preliminary interviews. In addition to those have you come across any other problems of using them in the major road construction projects in Sri Lanka?

Problems identified by the literature review	Problems identified by the preliminary interviews	Problems identified by the detail interviews
<ul style="list-style-type: none"> • A small number of professionals are involved in delay analysis • The ad hoc methods are used • The level of accuracy in evaluation of delay claims is very low. Accordingly parties to the contract have no confidence on the delay analysis process 	<ul style="list-style-type: none"> • Lack of professionals. • Lack of knowledge on delay analysis • Lack of facilities such as computer and software • Difficulties in collecting reliable information 	

Q.3. According to your experience what are the solutions that you could suggest to overcome the identified problems.

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APPENDIX D: CALCULATION OF RII FOR SELECTED CRITERIA

Respondents	Relative importance								
	Time taken for the analysis	Cost for the analysis	Workability of the technique	Reliability of the technique	Accuracy of the technique	Acceptability of the technique by relevant parties	Acceptability by courts and tribunals	Complexity of the analysis	Input of experts
1	4	4	6	9	10	10	10	6	8
2	3	2	5	8	9	9	10	7	9
3	4	5	7	9	8	7	10	8	7
4	2	2	6	8	9	8	9	10	9
5	5	4	5	8	8	9	10	8	7
6	6	7	9	9	10	10	10	10	9
7	1	1	5	9	9	9	9	8	7
8	3	4	6	10	10	10	10	9	6
9	2	2	3	6	8	10	10	8	7
10	6	6	7	8	8	10	10	9	6
11	7	4	8	8	7	10	10	7	7
12	4	6	6	7	7	9	9	5	5
13	3	5	6	8	8	10	10	6	8
14	6	7	9	8	10	8	9	7	6
15	7	5	8	7	9	7	8	4	5
16	8	6	7	7	10	9	10	7	8
17	7	7	8	8	9	10	9	8	9
18	6	5	7	8	7	9	10	8	7
19	8	8	6	6	6	8	8	5	10
20	4	3	2	5	6	10	10	8	7
21	5	4	6	6	7	8	10	6	5
22	7	8	8	7	9	10	9	8	9
23	6	8	7	8	7	9	10	8	7
24	8	5	6	5	6	8	8	5	10
25	4	9	2	5	6	9	10	8	7
26	5	4	6	8	7	8	9	6	5
27	4	6	7	9	8	7	10	8	7
28	3	2	6	8	9	8	9	10	9
29	5	4	7	8	8	10	10	8	10
30	6	7	9	9	10	10	10	10	8
31	1	1	4	9	9	9	9	9	6
32	6	9	2	5	6	9	10	8	7
33	5	7	6	8	7	8	9	6	5
34	4	6	7	9	8	7	10	8	7

Respondents	Relative importance								
	Time taken for the analysis	Cost for the analysis	Workability of the technique	Reliability of the technique	Accuracy of the technique	Acceptability of the technique by relevant parties	Acceptability by courts and tribunals	Complexity of the analysis	Input of experts
35	3	2	5	8	9	8	9	9	9
36	5	4	7	7	8	9	10	9	10
37	6	7	9	9	10	10	10	10	8
38	4	1	4	9	9	9	9	9	6
39	4	7	7	9	8	6	9	8	10
40	3	4	5	8	10	8	10	8	9
41	5	4	7	7	9	10	10	9	9
42	7	5	9	9	9	9	9	8	8
43	3	3	4	9	9	10	10	10	7
Sum	205	210	266	335	356	381	410	336	325
RII	0.477	0.488	0.619	0.779	0.828	0.886	0.953	0.781	0.756