

1 **Revisiting UK Delay and Disruption Protocol: Its Distinguished Features for Contract**

2 **Drafting**

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16

17 **Abstract**

18 Delay and Disruption Protocol was published by Society of Construction Law in 2002, United  
19 Kingdom. It has been well received by construction professionals for its guidance in solving  
20 delay and disruption issues. This research attempts (a) to compare the Protocol's core features  
21 with the existing references for the contracting parties, and (b) to determine the feasible use of  
22 the Protocol's distinguished features into Malaysian construction industry as a case study. The  
23 distinguished features were identified after reviewing and comparing the local contract forms and  
24 the Protocol. Subsequently, the questionnaire survey was carried out with local developers,  
25 contractors, and consultants based on an inductive reasoning approach. Statistical and variance  
26 analyses were conducted to determine the acceptance level of the Protocol's features. The results  
27 show that most of the features were agreed to by the respondents, for instance, the guidelines on  
28 float identification, concurrency identification, proper procedures on work program, and so on.  
29 The findings render useful information for future contract drafting by incorporating the  
30 guidelines into the local contract forms, particularly for commonwealth countries.

31

32 Key words: Delay time, Project delivery, Contract administration/Contract management,  
33 Claims, Variance analysis, Malaysia.

34

35 **Introduction**

36 In October 2002, Delay and Disruption Protocol was published by the Society of Construction  
37 Law and also contributed by other major professional bodies in the United Kingdom (UK). The  
38 Protocol has been designed as a code of practice and provides use guidance to common issues  
39 related to delay and compensation. The Protocol is not a contract document or meant to take  
40 precedent over the terms of a contract, but it rather recommends that the contracting parties  
41 consider adopting the procedures and guidelines while drafting the contract (Society of  
42 Construction Law 2002). The contracting parties should appreciate the principles of the Protocol  
43 and ensure the compatibility of the principles with other provisions in the contract.

44

45 Although some areas of the Protocol might be not well explained or are unclear (Scott et al. 2004;  
46 Ward 2011), the Protocol has received wide interest since 2002. In Australia, previous studies  
47 show that most of the principles of the Protocol are suitable for adoption in the construction  
48 industry (Ward 2005) and beneficial to contract administration (Ward et al. 2007). Moreover,  
49 most of the philosophies are also consistent with Americans' established practices in dealing  
50 delay and disruption claims (Carmichael and Murray 2006; Lowe et al. 2006). The Protocol is a  
51 comprehensive tool that is able to solve many delay and disruption issues that arise in  
52 construction contracts, especially for recovering an extension of time and/or compensation  
53 (Knowles 2002; Rochester and Robertson 2003).

54

55 Nevertheless, delay is still a global phenomenon in all types of construction projects (Hegazy  
56 and Menesi 2008; Doloi et al. 2012; Mohamid et al. 2012; Alsehaimi et al. 2013; Gündüz et al.  
57 2013). Malaysian construction industry has not escaped from the plague of delay problems.  
58 About 17.3% out of 417 government projects in public sector were categorized as “sick” projects,  
59 which are defined as projects were having more than a 3-month of delay or are abandoned  
60 (Murali and Yau 2006). A fair allocation of contract risks is one of the simple rules to avoid  
61 delayed projects (Steen 1994). Unfortunately, it is found out that none of Malaysian contract  
62 forms provides a clear guidance for the delay and disruption issues. The forms state only the  
63 general procedures and entitlement for EOT, for example, under the Clause 23.0 and 24.0 in  
64 Pertubuhan Arkitek Malaysia (PAM) Contract 2006, Clause 24.0 and 31.0 in Construction  
65 Industry Development Board (CIDB), Clause 43.0 and 44.0 Public Works Department (PWD)

66 203A form (Rev.2007), Clause 43 and 44 in Institution of Engineers, Malaysia Form of Contract  
67 for Civil Engineering Works (IEM.CE) 2011. It will cause the parties certain contractual  
68 disagreements, especially in applying different approaches in dealing with the delay and  
69 disruption issues, because the contract forms are the existing references and information that are  
70 commonly referred to by the parties. A comprehensive guidance is necessary as a means to  
71 minimize the effects of delay from the current practice. However, there are no universally  
72 agreed-upon methods in administering the issues (Ward 2005). Yet, the Protocol has been  
73 revisited and adopted in this research as it is recognized as a preferred method in tackling the  
74 problems (Gorse et al. 2006).

75

76 Therefore, the research objectives are (a) to identify the distinguished features of the Protocol by  
77 comparing with the existing references, namely the local contract forms, and (b) to determine the  
78 feasible use of the distinguished features into Malaysian construction industry. The outcome of  
79 the research can be formed as guidance by incorporating the features into local contract forms,  
80 which is a novel contractual approach in dealing with the delay and disruption issues in Malaysia.  
81 As a result, it would prevent or reduce the conflicts because of the delay and disruption issues by  
82 complying with the procedures and guidelines as provided in the contract form. To international  
83 context, the revisiting of the Protocol would render a new insight in terms of its suitability and  
84 practicality from a broader end-users perspective, which is different from the previous feasibility  
85 study in Australia using qualitative analysis and “top-down” approach from the perspectives of  
86 contract drafters or legal professions (Ward, 2005). Subsequently, it creates awareness about the  
87 possibility of applying the important features of the Protocol into their standard contract form.  
88 This is particularly applicable to commonwealth countries, which are practicing common law  
89 jurisdictions.

90

### 91 **The Local Contract Forms and the Protocol**

92 Construction projects are required to complete tasks on time, within a specific budget and quality  
93 (Olawale and Sun 2013). Extension of time (EOT) is an important contractual feature for both  
94 contractor and employer. It is because a successful claim of EOT would discharge the contractor  
95 from paying liquidated damages; whereas to the employer, it would prevent time from being  
96 rendered “at large” (Chong and Leong 2012). Furthermore, delay will result in additional cost.

97 Hence compensation is another disputed area, where the granting of an EOT does not  
98 automatically lead to an entitlement of compensation.

99

100 The literature review proceeds with the existing references and common tool in dealing on the  
101 delay and disruption issues. The local standard forms of contracts were investigated. Four  
102 professional institutions produce standard forms of construction contracts in Malaysia, such as:

103 (a) The Institution of Engineers, Malaysia (“IEM.CE 2011”).

104 (b) Malaysian Institute of Architects or Pertubuhan Arkitek Malaysia (“PAM 2006”).

105 (c) Construction Industry Development Board (“CIDB 2000”).

106 (d) Public Works Department (“PWD 203A 2010”).

107 The selection of the standard form of contract depends on the categories of work and types of  
108 clients. The contract forms have quite a number of clauses providing for delay and disruption  
109 issues. However, most of them have quite similar provisions such as application of EOT,  
110 requirements of notices and documentation, claimable delay events for EOT, loss and/or expense  
111 or cost incurred, and other related clauses governing delay and disruption issues like valuation of  
112 variations and work program.

113

114 On the other hand, Delay and Disruption Protocol has four main sections. Guidance Section1 has  
115 a comprehensive analysis and explanations relating to the matters of delay and compensation.

116 The main section of the Protocol is referred to in this research. Subsequently, the features of the  
117 Protocol have been clarified in a more understandable sentence that is used as the contents in the  
118 questionnaire survey. The features were compared with the contract provisions in the contract  
119 form to identify the distinguished features of the Protocol. Table 1 shows the result of  
120 comparison between the core features of the Protocol with the Malaysian standard forms of  
121 contracts.

122

### 123 **Research Approach**

124 The primary data of this research were collected through interviews and questionnaire surveys.

125 The semi-structured interviews were undertaken using a one-to-one basis to validate the contents  
126 and structure of the questionnaire before sending it out to respondents who were involved in  
127 contract administration. The questionnaire survey was adopted using the inductive reasoning

128 approach because the principles of the Protocol have been well developed in UK by experts from  
129 various backgrounds and recognized as useful guidance in the United States and Australia.  
130 Therefore, the ‘bottom-up’ approach was applied to obtain a broader view from the end-users’  
131 perspective, instead of re-examining the principles again by the contract drafters or legal experts.  
132 It would attain a more generalized conclusion as required in the research.

133

134 Close-ended questions were designed with a logical sequence for having a proper discussion  
135 flow. Open-ended questions were not applied in this research because they were validated and  
136 verified by local experts and to avoid confusion in data analysis. The questionnaire surveys were  
137 divided into two sections. The first section focused on the background of the respondent, such as  
138 organization of employment, position, years of experience handling contract matters, and  
139 education qualification.

140

141 On the other hand, the second section of the questionnaire focused on the questions regarding the  
142 feasible use of the Protocol in the Malaysian construction industry. Seventeen (17) questions  
143 were set in this section, where the questions were derived from the comparison between the  
144 Protocol’s principles with the local contract forms. They were the distinguished features that  
145 indentified from the comparison. However, the methods of delay analysis were not included as  
146 one of the questions because the methods were applied only on a case-by-case basis and time  
147 impact analysis was not well used in practice (Scott et al. 2004). So, this section was excluded  
148 from the questionnaire in order to avoid confusion.

149

150 A five-point Likert scale ranging from -2 (Strongly disagree) to 2 (Strongly agree) was adopted  
151 to assess the seventeen features. Subsequently, the analyzed results were separated into three  
152 categories (Chong and Rosli 2010), such as:

- 153 • The average scores of -2.0 to -0.5 are categorized as ‘Disagree’
- 154 • The average scores of -0.5 to 0.5 are categorized as ‘Undecided/Neutral’
- 155 • The average scores of 0.5 to 2.0 are categorized as ‘Agree’

156

157

158

159 **Results and Analysis**

160

161 ***Semi-Structured Interview***

162 A semi-structured interview was conducted before distributing the questionnaire. The interview  
163 was mainly to verify the contents and completeness of the questionnaire. Two experts were  
164 interviewed, namely Expert A and Expert B. Their names were not revealed to preserve  
165 confidentiality. Expert A has been working in the construction industry more than twenty-five  
166 years. He was a contract manager in a well-known public-listed company. He is very familiar  
167 with the Malaysia standard contract forms, and currently he also serves as an arbitrator in the  
168 Malaysian Institute of Arbitrators. On the other hand, Expert B is a professional engineer and  
169 also a practicing lawyer. He has more than twenty years working experience in the construction  
170 industry. He is an expert in construction law.

171

172 As a result, minor changes were carried out after the interview with regard to the language used  
173 and structure of the sentences. No addition or omission was made to the seventeen questions.

174 Overall, the interview with the two experts achieved the followings:

- 175 1. The questions were set based on the research aim and objectives.  
176 2. The questions were clarified into a more understandable manner for the construction  
177 personnel involved in contract administration.

178

179 ***Questionnaire Survey***

180 More than seven hundred sets of questionnaires were sent out to three types of organizations:  
181 developers, contractors and consultant firms. The questionnaires were posted in numerous  
182 rounds to different locations in Malaysia from October 2011 until April 2012. The research  
183 targeted at least thirty sets of valid questionnaires from each organization as to the statistical  
184 analysis concerned. Because of expected low response rates, some questionnaires were  
185 distributed by hand especially at the end of the data-collection process. Eventually, ninety valid  
186 questionnaires were collected, and each organization was represented by thirty respondents. The  
187 thirty sets of respondents were sufficient to carry out a statistical analysis based on central limit  
188 theorem (Mann 2005), as the sample size was considered sufficiently large to model the sample  
189 mean.

190 Forty one respondents, the majority of the participants, were quantity surveyors or contract  
191 executives. The rest of respondents consisted of sixteen architects, fourteen engineers, eleven  
192 project managers and eight contract managers. The majority group (62 respondents) have more  
193 than five years working experience in contract administration.

194

### 195 *Statistical and Variance Analyses*

196 Two statistical tests, the reliability test and the normality test, were carried out at the beginning  
197 of the analysis. The reliability test analyzes the internal coefficient of the seventeen dependent  
198 variables (the features) based on Cronbach's Alpha test. The intercorrelation among the variables  
199 scores 0.712, which is above 0.7 of the acceptable threshold value. It can be concluded that the  
200 variables are acceptable in terms of internal consistency. Second, because the 5-point Likert  
201 scale was used in this research, the data may not satisfy the normality assumption. The normality  
202 test was carried out using the Kolmogorov-Smirnov and Shapiro-Wilk analyses. The significant  
203 values show 0.000 or 0.001 for all the variables, which indicates a deviation from normality  
204 (significant value of  $p < 0.05$ ). Therefore, non-parametric tests were conducted for the subsequent  
205 statistical tests.

206

207 To analyze the agreed-upon features of the Protocol, mean and standard deviations were adopted  
208 to calculate the average scores of agreement, whereas the non-parametric test of Kruskal Wallis  
209 was carried out to determine any different views among the organizations as shown in Table 2.  
210 This combined analysis categorizes and assesses the agreed-upon features from different  
211 background of the end-users. The p-value was used as an indicator. If the value is less than 0.05,  
212 it shows there is a different view among the organizations (Morgan et al. 2007).

213

214 The agreed-upon features that the mean score fall within 0.5–2.0 are as follow:

- 215 1. Float in contract: The contracting parties should ensure the float issue is addressed in  
216 their contracts.
- 217 2. Float identification: Accurate identification of float is only possible with the benefit of a  
218 proper program that has properly updated.

- 219 3. Concurrency analysis: Separate analysis should be carried out for the concurrent delay  
220 events. Analyses should be carried out for each event separately and strictly in the  
221 sequence in which they arose but the Employer Risk Event should be analyzed first.
- 222 4. Concurrency identification: Accurate identification of concurrency is possible only with  
223 the benefit of an updated program.
- 224 5. Valuation of variation: The contracting parties need to agree in advance for compensation  
225 on prolongation (cost) and disruption (time) before the execution of the variation.
- 226 6. Concurrency prolongation: The Contractor is only able to recover compensation if it  
227 could separate the additional costs caused by the Employer's Risk Events from those  
228 caused by the Contractor's Risk Events.
- 229 7. Interest: Interest pursuant to contract, the rate of interest can be agreed to in the contract  
230 and the circumstances in which it will be payable.
- 231 8. Acceleration payment: Payment for the acceleration should be based on the term of the  
232 contract. Otherwise, the basis of payment should be agreed-upon before the acceleration  
233 is commenced.
- 234 9. Form program: The form of the work program should be taken; it should be prepared  
235 using a critical path network.
- 236 10. Method statement: Interaction with the method statement, it should describe how to  
237 construct the works and the resources to be use.
- 238 11. Draft program: The time within which the Contractor should submit a draft program for  
239 acceptance; there should be a reasonable time for the Contractor to plan how the contract  
240 works properly.
- 241 12. Acceptance program: A mechanism for obtaining the acceptance of the Contract  
242 Administrator of the draft program; for example, providing the Contractor complies with  
243 the contract, he may construct the work in the manner he/she thinks appropriate.
- 244 13. Update Program: Requirements for updating and saving of the accepted program, the  
245 Contractor should update the actual progress on the accepted program, for example, of  
246 the actual start and finish dates of activities.

247

248 Meanwhile, the remaining features are fall within the neutral category, such as:



- 249 1. EOT application: The construction contract should contain a provision entitling the  
250 Contract Administrator on his/her own initiative to determine an EOT, even if the  
251 Contractor has not applied for one or has applied with insufficient information.
- 252 2. Float ownership: Ownership of float should be used up based on a first-come, first-served  
253 basis because no one actually owns it.
- 254 3. Compensation prolongation: The contract should contain an agreed-upon amount per day  
255 that can be applied to each day of prolongation by the Contractor. This is the reverse of  
256 the normal Employer's liquidated damages provisions.
- 257 4. Acceleration compensation: Where the acceleration is instructed and/or agreed, the  
258 Contractor is not entitled to claim compensation.

259

260 Based on these results, thirteen agreed-upon features are suitable for adoption and use in  
261 Malaysian construction industry. The features were rated with high agreement by the  
262 organizations probably because of the practicality and appropriateness of the features towards the  
263 delay and disruption issues in the local construction industry. On the other hand, four features  
264 were rated under the neutral category and none was categorized in the disagree category. This  
265 situation is not surprising as all the features were referred to the established and recognized  
266 guidance of the Protocol. In reality, some of the principles have already incorporated part and  
267 parcel into the local contract forms such as valuation of variations, mitigation of loss, delay  
268 analysis using work program and so on.

269

270 Subsequently, the Kruskal–Wallis test shows two agreed-upon features with p-values smaller  
271 than the critical value of significance 0.05. They were under different group means, which had a  
272 different view among the three organizations. The features are (a) the form the program should  
273 be taken; it should be prepared using a critical path network and (b) the time within which the  
274 Contractor should submit a draft program for acceptance, meaning there should be a reasonable  
275 time for the Contractor to plan for the contract to work properly. Subsequently, there is a need to  
276 apply Mann-Whitney U test because the Kruskal-Wallis test is unable to determine which group  
277 against with another as to the features. Table 3 shows the result of the test. It reveals that the  
278 consultants and developers have different views. This scenario can be understood from the  
279 perspective that some of the consultants or developers have their own format and style for the

280 work program. On the other hand, the contractor usually complies with the requirements of the  
281 work program as determined by the consultant or developer, especially during the tendering  
282 stage.

283

## 284 **Discussion**

285 The research has answered some doubts over the feasibility of the Protocol in the Malaysian  
286 construction industry. Most of the distinguished features of the Protocol could be applied by  
287 referring to the data collected from the local practitioners. The work program features consider  
288 the most practical guidance to the Malaysian construction industry. It can be traced from the  
289 contract provisions that applied to the local contract forms, where different approaches and  
290 requirements have been used in different contract forms, for example, the purpose of preparing  
291 the work program, the requirements of the updated program, and other subsequent manners  
292 governing the work program. On the other hand, the neutral features should not be ignored  
293 because they are not rejected by the respondents. Probably, the respondents find the neutral  
294 features rather difficult to apply in the industry, for example, float ownership, which is required a  
295 clear definition as it will confuse the parties (Ward 2011). Nevertheless, the remaining neutral  
296 features require further investigations or fine-tuning before incorporating them into the contract.

297

298 Apart from that, the questions were designed in a generic manner in the questionnaire, which are  
299 features that could be used in any delay and disruption issues of a construction project. Some of  
300 the specific features from the Protocol are targeted for certain situations of the program used in  
301 the project, for instance, the delay analysis methods. There is none of the delay-analysis methods  
302 that could be acceptable for any given claim situations (Brimah and Ndekugri, 2009). The  
303 situations are difficult to predict as many uncertain variables affect activity durations (San  
304 Cristobal 2013). Therefore, the delay analysis methods were excluded from this questionnaire  
305 survey, namely collapse as-built, impacted as-planned, as-planned versus as-built and time-  
306 impact analysis. The delay analysis methods are not the scope of this research and subjected to  
307 further research and development. This is particularly true as the Protocol's retrospective time-  
308 impact analysis does not refer to as-built data in determining the alleged delaying event that is  
309 fundamentally different with the Americans' practices in deciding the entitlement to a time

310 extension, and also the impacted as-planned has been rejected almost unanimously by American  
311 courts and commentators (Lowe et al. 2006).

312

### 313 **Conclusion**

314 Standard form of contract is the common method to be referred to in solving contractual-related  
315 issues in the Malaysian construction industry. However, the contract form has limited  
316 information to the contracting parties, particularly on delay and disruption issues. There is a need  
317 to learn from other codes of practice or guidance to cope with the issues. Delay and Disruption  
318 Protocol was selected in this research. A comparative study was carried out between the local  
319 contract forms and the Protocol. Seventeen distinguished features were identified and used in the  
320 questionnaire survey to determine their feasibility of use in the industry using the inductive  
321 approach. The research has demonstrated that thirteen out of seventeen features of the Protocol  
322 were agreed upon by the construction personnel. The remaining features were categorized under  
323 a neutral category, and none was rejected by the respondents. In conclusion, the research renders  
324 an important insight to incorporate the agreed-upon features of the Protocol into the local  
325 standard form of contract as a practical and fair guidance in dealing with most of the delay and  
326 disruption issues.

327

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