Selection Criteria and the Related Sub-Criteria for the Selection of Standard Form of Contract for Construction Projects in Sarawak

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Abstract - Construction contract refers to an agreement which in enforced by law; standard form is printed form of contract to define responsibilities to various parties involved to complete the construction works. Malaysian construction industry relies essentially on a number of standard forms namely the JKR Sarawak Form of Contract, PWD 203A, PAM, IEM and CIDB forms to execute its construction projects. However, with the number of choices available and without a clear selection guide, selection of an appropriate standard form for the particular projects has hinged on the familiarity of the form users with the particular form. This study aims to identify the selection criteria that can be used for standard form selection. The study form looks into the current practice and how decisions are made to select the appropriate standard form. Selection criteria are identified and this research carried out verification works with local construction industry players via questionnaire survey method. Results from questionnaire survey also indicated that standard forms are usually predetermined by the client in tender stage. It is also shown that some of the respondents have limited exposure to certain standard forms of contract. With the selection criteria identified, it is hopeful that a selection guideline can be developed.

***Keywords*:** Standard-forms, construction-contract, selection-criteria

I. INTRODUCTION

A contract is an enforceable agreement, which comes into effect when autonomous and definite parties come into consensus with the intention to create legal relations. According to the Contracts Act 1950, Section 2, an agreement is formed when an acceptance is expressed in pursuant to an offer/proposal made with the element of consideration i.e. a mutual exchange of something in value [9]. Similarly, construction contracts abide by this tenet. As every construction project is unique, contracts may be drafted from scratch, i.e. "bespoke" forms, especially for mega projects like the KLIA project and the Petronas Twin Towers; but it is time and cost consuming to draft a set of brand new of general conditions each time. Hence the more common practice is to use standard forms of construction contracts (hereinafter referred to as Standard Forms), [8] is the norm in the construction industry as there is no wish to start the complex and expensive exercise of form drafting. Standard forms of contract are drafted based on the principles that every project has common requirements.

This has led to a pool of standard forms of contract available in the local construction industry. In Malaysia, the most common available standard forms are as follows:

i. Public Works Department or Jabatan Kerja Raya (PWD);
ii. Pertubuhan Arkitek Malaysia (PAM);
iii. Construction Industry Development Board (CIDB); and
iv. The Institute of Engineers, Malaysia (IEM);

The names of the standard forms are generally based on their acronym followed by the series and/or the year they are produced.

These standard forms basically cover all the different type and nature of construction works and the procurement route used are usually the traditional general contracting method. Notwithstanding, under the same series of forms, certain forms also cover other procurement routes.

For example, the PWD DBT is meant for Design Build and Turnkey projects, whilst the PWD 203N is meant for nominating subcontractors. For the purposes of this study, only standard forms with the traditional general contracting will be discussed. The following local standard forms will be tenet of this paper's discussion:

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i. Standard Form of Contract to be used where Bills of Quantities Form Part of the Contract, PWD Form 203A (Rev. 2007) often referred as PWD 203A -2007
ii. JKR Sarawak Standard Form of Contract 2006
iii. Agreement and Conditions of PAM Contract 2006 (with Quantities) often referred as PAM 2006
iv. IEM Standard Conditions of Contract for Works mainly of Civil Engineering Construction 1/89 often referred as IEM 89
v. CIDB Standard Form of Contract for Building Works – 2000 Edition commonly referred as CIDB 2000

In addition to the above local standard forms, the *Federation Internationale des Ingénieurs-Conseils* (FIDIC), the International F*édé*ration of Consulting Engineers, also produces their own standard form; 1999 FIDIC Conditions of Contract for Construction (FIDIC form). Internationally, however, there are numerous other forms which have been produced but only the FIDIC form will be discussed here. The FIDIC form is chosen due to its recognition in the international arena, but most importantly it is the preferred form for World Bank and Asian Development Bank funded projects in Malaysia [9].

II. PROBLEM STATEMENT

Choosing an inappropriate standard form of contract for a project will often mean that objectives in terms of time, cost and quality are not fully realized and the likelihood of disputes will increase [10]. And it is noted that contractual relations are structured with contract documents and therefore, the contract, especially the standard forms of contract, is pivotal. In view that Malaysia has quite many alternatives of standard forms available to the construction industry, while it is advantageous that there are choices available, as the number of forms and their related revisions grow, it gets harder to pick the most suitable standard form.

Form selection is almost always done based on the client's and its respective agents' familiarity with the particular forms, instead of selecting based on a predetermined criteria and study of the characteristics of projects and its procurement route. Hence, selection from the large selection of currently available forms by stakeholders is dangerously hinged on the 'familiarity factor' and an unsubstantiated reliance on the 'one-we-always-use'.

Hinging selection of forms on familiarity has another innate problem, that is, not only are stakeholders generally unwilling to deviate from their usual, they tend to bring their experience and practice from their usual form into the administration of a new contract that calls for a different set of forms. This could result in situations on the site being improperly managed, which could also turn into disputes and conflicts; delays and cost-blowouts.

Often, selection of procurement strategies, including the selection of standard forms to be used, is strongly centred on the Client's choice. Without any form of participation from the other contracting party, the culture of 'protecting the employer' has started to take root in Malaysian construction contracting. Resultantly usage of such standard form in itself has already deviated from the natural principle of justice of forms-as-agreed-documents as there is a lack of equitable participation from each the principal parties, especially the builder 'contracted' by the client to construct the project.

In short, the introduction of new and the constant revisions of existing standard forms of contract in construction are seemingly futile and increasingly litigious. Therefore, it is important to have the proper selection guideline in order to form good contractual relations that can be effectively and efficiently administered, reducing the time and money that is used to resolve disputes. The aim of this paper is to establish the selection criteria for the standard form of contract to be used for form selection.

III. METHODOLOGY

As the data to be measured is specific and can be accurately measured in the form of numbers and analysed with statistical procedures, quantitative research method is chosen. A structured questionnaire survey is designed and carried out with respondents who are related to the decision making in selecting the standard forms of contract such as client, engineers, architects, quantity surveyors and contract administrator. The respondents will be asked about their level of agreement to the criteria selected and ranked it importance according to 1 as the most important to 7 as the least important.

A total of one hundred (100) copies of the questionnaire distributed to various construction related companies within one (1) month period over the state of Sarawak and forty six (46) responded. From the returned copies, thirteen (13) copies are found to be incomplete. Only thirty three (33) copies were completed which gives the response rate of 33%. The amount of the questionnaires collected is valid to reflect the views and opinions from the local construction industry, as a statement by [6], indicates that 25-35% of distributed questionnaire are expected to be usable.

IV. RESULTS AND DISCUSSIONS

Based on the literature [1], [4] and [10], seven (7) criteria were identified to be relevant to standard forms selection. They are weighted and ranked by the respondents and agreed in the following descending order 1) Nature of Work, 2)Procurement Method, 3) Finance, 4) Time, 5) Quality, 6) Risk Allocation and 7) Role of Distribution. The individual weight of each criterion is calculated and the result of the calculation is shown in Table 1.

Table 1: Individual Criteria Weights and Ranking for Each Criterion

Criteria	Points (out of 919)	Calculation	Weight (%)	Ranking
Procurement Method	106	$\frac{106}{919} X\ 100\%$	11.53	2
Nature of Work	85	$\frac{85}{919} X\ 100\%$	9.25	1
Time	128	$\frac{128}{919} X\ 100\%$	13.93	4
Finance	112	$\frac{112}{919} X\ 100\%$	12.19	3
Quality	144	$\frac{144}{919} X\ 100\%$	15.67	5
Risk Allocation	150	$\frac{150}{919} X\ 100\%$	16.32	6
Role of Distribution	194	$\frac{194}{919} X\ 100\%$	21.11	7
Total	919	Total	100	

The following shows the respondent's agreement to the sub-criteria of each of the selection criteria to further understand how the selection criterion affects the final selection of the standard form. Table 2 shows the number of respondents agreeing to sub-criteria of procurement method as a selection criteria.

Table 2: Number of Respondents Agreeing To Sub-Criteria of Procurement Method As A Selection Criteria.

Rating Scale		Level of Agreement				
Procurement Method		**1**	**2**	**3**	**4**	**5**
1	The types of the procurement method influence the choice in selecting the appropriate standard form.	1	3	6	20	3
2	The source of design, whether generated by Employer or contractor, will affect the choice of contract form selection.	1	10	7	12	3
3	The price basis (tender methods and tender documents) during the procurement stage will influence the contract form selection.	2	7	7	10	6
4	The plan of work of the project (e.g. pre design, design, pre-construction and construction stages) will affect the contract form selection.	1	4	13	11	4
5	Types of contract (e.g. lump sum, cost reimbursement, measurement etc) will affect the choice of selection in the contract form.	1	2	3	17	9

Most respondents agreed that types of contract will affect the choice of selection in the contract form. Besides, types of the procurement method influence the choice in selecting the appropriate contract form. The price basis during the procurement stage has certain influence in the contract form selection. Some respondents agreed that the source of design and the plan of work of the project will affect the contract form selection.

Table 3 shows the number of respondents agreeing to sub-criteria of nature of works as a selection criteria.

Table 3: Number of Respondents Agreeing To Sub-Criteria of Nature of Works As A Selection Criteria.

Rating Scale		Level of Agreement				
Nature of Work		**1**	**2**	**3**	**4**	**5**
1	The size of the project will influence the contract form selection.	1	4	6	18	4
2	Types of project (project engineering or building based) will influence the contract form selection.	1	7	3	12	6
3	Types of work involved (e.g. specialist installations or construction techniques) will influence the contract form selection.	1	7	7	13	5
4	The level of complexity of the project will influence in selecting the contract form.	1	5	5	16	6

Most of the respondents agreed the size of the project, the level of complexity of the project, types of project and types of work involved will influence the contract form selection. Table 4 shows the number of respondents agreeing to sub-criteria of Time as a selection criteria.

Table 4: Number of Respondents Agreeing To Sub-Criteria of Time As A Selection Criteria.

Rating Scale		**Level of Agreement**				
Time		**1**	**2**	**3**	**4**	**5**
1	The duration of project completion has substantial influence on contract form selection.	2	13	7	7	4
2	The contract provision in establishing an entitlement to the extension of time (EOT) will influence the contract form selection.	2	14	7	7	3
3	The procedures of dealing with delay will influence the contract form selection.	3	15	8	6	1
4	The procedures of preparation and submission of certificate of non-completion will influence the contract form selection.	2	15	10	6	0
5	The existing of right on the suspension of work provided in the contract will influence the contract form selection.	2	11	7	12	1

Most respondents agreed that the existing of right on the suspension of work provided in the contract has certain influence in the contract form selection compared to others components. In terms of duration of project completion and the contract provision in establishing an entitlement to the extension of time (EOT), however they don't really influence the selection of the contract form. Besides, majority respondents disagreed that the procedures of dealing with delay and the procedures of preparation and submission of certificate of non-completion will influence the contract form selection. Table 5 shows the number of respondents agreeing to sub-criteria of Finance as a selection criteria.

Table 5: Number of Respondents Agreeing To Sub-Criteria of Finance As A Selection Criteria.

Rating Scale		**Level of Agreement**				
Finance		**1**	**2**	**3**	**4**	**5**
1	The cost certainty of the construction works has a very much influence in selecting the appropriate contract form.	2	6	13	9	3
2	The procedure of payment mentioned in the contract form will influence the contract form selection.	3	7	9	13	1
3	The procedure of dealing with cost uncertainty such as guarantees, reputation, payment currency and etc. will influence the contract form selection.	2	8	9	11	2
4	The procedure of claiming for the compensation of a project will influence the contract form selection.	2	12	8	9	2
5	The market factors such as availability of contractors, economy affects and procurement advice has an inevitable influence in selecting the appropriate contract form.	2	10	10	9	2

Most respondents agreed that the procedure of payment mentioned in the contract form will influence the contract form selection. However, in terms of cost certainty, the procedure of dealing with cost uncertainty, the procedure of claiming for the compensation and market factors, most of the respondents assumed that they don't really considered in the selection of contract form. Table 6 shows the number of respondents agreeing to sub-criteria of Quality as a selection criteria.

Table 6: Number of Respondents Agreeing To Sub-Criteria of Quality As A Selection Criteria.

Rating Scale		**Level of Agreement**				
Quality		**1**	**2**	**3**	**4**	**5**
1	The quality requirement of the project will influence the contract form selection.	4	4	13	11	1
2	The contractor's reputation affects the selection of an appropriate contract form.	5	16	8	2	2
3	The aesthetics and confidence in design affects the selection of an appropriate contract form.	3	11	11	6	2
4	The defects liability period of the project has very much influence in selecting the appropriate contract form.	3	13	10	6	1
5	The quality assessment of the project determines the choice of contract form to use.	3	9	16	4	1
6	The methods of construction, quality of finishes and standards of workmanship determine the choice of contract form to be used.	5	9	11	7	1

Most of the respondents do not agreed that the contractor's reputation affects the selection of an appropriate contract form. Besides that, they also disagreed the defects liability period of the project and the aesthetics and confidence in design will affect the selection of an appropriate contract form. In terms of the quality assessment of the project, the methods of construction, quality of finishes and standards of workmanship, most of the respondents remain neutral to its influence in selecting the appropriate contract form. Table 7 shows the number of respondents agreeing to sub-criteria of Risk Allocation as a selection criteria.

Table 7: Number of Respondents Agreeing To Sub-Criteria of Risk Allocation As A Selection Criteria.

Rating Scale		**Frequency**				
Risk Allocation		**1**	**2**	**3**	**4**	**5**
1	The risk management of a project taken has very much influence in selecting the appropriate contract form.	1	3	8	18	5
2	Responsibilities for managing and mitigating risks are important in choosing the appropriate contract form.	1	7	10	13	2
3	Allocation of risk among contractor and employer is an important factor in selecting the appropriate contract form.	1	5	11	13	3
4	Ability to recognize on the appropriate methodologies and approach to risk on a project has an inevitable influence in selecting the appropriate contract form.	2	3	11	16	1
5	Risk factors such as risk evaluation, risk sharing, risk transfer and risk control has an inevitable influence in selecting the appropriate contract form.	2	5	12	12	2

Most of the respondents agreed that the risk management of a project taken has very much influence in selecting the appropriate contract form. In terms of the responsibilities for managing and mitigating risk, the allocation of risk among contractor and employer, risk factors and the ability to recognize on the appropriate methodologies and approach to risk on a project, most respondents said that it has certain influence in selecting the suitable contract form. Table 8 shows the number of respondents agreeing to sub-criteria of Role Distribution as a selection criteria.

Table 8: Number of Respondents Agreeing To Sub-Criteria of Role Distribution As A Selection Criteria.

Rating Scale		**Level of Agreement**				
Role Distribution		**1**	**2**	**3**	**4**	**5**
1	The appropriate role distribution of the contract form will influence the contract form selection.	2	9	12	8	2
2	The clarity of the scope of work in the contract form is important in choosing the appropriate form.	3	3	9	15	3
3	The distribution of obligations and liabilities of the contract form will influence the contract form selection.	3	2	11	15	2
4	The awareness of the workability, limitations and drawbacks of the contract form will influence the contract form selection.	2	2	14	14	1
5	The stated right of the parties in the contract form will influence the contract form selection.	2	3	14	12	2

Most of the respondents agreed that the clarity of the scope of work and the distribution of obligations and liabilities of the contract form have its effect in choosing the standard form of contract. It is also the same for in terms of the awareness of the workability, limitations, drawbacks and the stated right of the parties in the contract form. However, most respondents remain neutral towards the appropriate role distribution of the contract form to its influence in the contract form selection.

V. CONCLUSIONS

The result presented here forms the ground work for the selection of standard form in Sarawak, which can be used to further develop a framework for selection of the standard form of contract for construction projects in Malaysia. Based on the questionnaire survey that was designed and executed to the local construction industry, seven criteria were verified by the industry respondents. They are ranked in descending order; (1) Nature of Work, (2) Procurement Method, (3) Finance, (4) Time, (5) Quality, (6) Risk Allocation, and (7) Role of Distribution. Sub-criteria were also identified and verified and weighted by the respondents to the survey. The paper has discussed on each of these sub-criteria and their relevancy to the identified selection criteria.

Most respondents think that the most important sub- criteria in the *Nature of Work* are the size and the level of complexity of the project in selecting the standard forms of contract. Subsequently, types of the project and types of work involved are also important in selecting the standard forms of contract. This is because in the local construction industry, the source of the

project, whether it is a state funded project or federal funded project, has its inevitable influence in selecting the standard form.

Types of contract used are the main concern component in the *Procurement Method*. Although each contract of the contract is unique, however they will still have points of similarity to other contracts. Therefore, it is important to identify the type of contract to be used. Types of procurement method are the second important component in selecting a form of contract. Procurement methods give the client a choice of various management structures, different contractual arrangements and varying degrees of client risk [10]. Therefore, it is important to know which procurement method to be used before selecting the most suitable standard form of contract. This component is followed closely by other components such as price basis, the source of design and the plan work of the project, which is also important in selecting the standard form.

In terms of the third most important criteria the *Finance*, the procedure of payment is considered as the most important component criteria from most of the respondents due to different standard forms of contract have different payment systems. However, the procedure of claiming for the compensation and market factors are not as important as the other components in selecting the standard form of contract in the local construction industry.

This paper presented the fundamental research of a whole research in establishing a systematic procurement framework which leads to standard form of contract selection. Without a proper guideline in selecting the appropriate standard form of contract, there is no structured approach to establishing the contractual relationship which is essential in every construction project. If usage of standard form of contract continues to hinge on the familiarity factor of the contract personnel who are to administer the contracts, the Malaysian construction industry runs the risk of having more revisions and increasing numbers of forms, which in turn, create a larger pool of forms in the existing numbers, making selection even harder. Problems with standard forms are held partly with the quality of the standard forms (i.e. content) but without solving the issues of form selection, continuous revisions and improvements will be futile as many times a less than appropriate form is selected.

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