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APPLICATION OF CONTRACTORS' RISK PREFERENCE ON THE EVALUATION OF THE PHILIPPINE GOVERNMENT STANDARD CONTRACT

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ABSTRACT: Construction contracts involve the allocation or distribution of the risks inherent to a construction project between or among contracting parties. However, it has been a common practice that only one party drafts the contract due to practical reasons and particular policies of various organizations. Interviews were conducted on some local contractors to gain their meaningful insights and standpoints on the allocation of each risk. These results were compared with the actual risk allocation using the Philippine government standard contract and risk principles from the literature to determine if their considered opinions provide a plausible alternative. A sample application of this evaluation is presented for construction-related risks and risk allocation recommendations are provided in the end.

Keywords: Risk allocation; Construction contracts; Philippine construction

1. INTRODUCTION

Researchers of late have started to realize the significance of investigating the construction practitioners' risk philosophies in risk management. The practice of risk management methodologies needs to consider the potential impacts of the risk perception and preference of the management personnel because they are only as good as the person who will use a statistical tool or input information [1]. The results from these tools and techniques not only can be influenced, but the risk response is still highly dependent on the decision maker.

In view of this, this research identified the Filipino contractors' attitudes towards various risks to aid future risk management studies. A consideration of the contractors' risk allocation preferences, in particular, was used on this study as it evaluated the standard government construction contract of the Philippines.

2. RISK ALLOCATION PREFERENCE

According to Ward *et al* [2], the willingness to bear a risk is significant. This willingness must be based on a general attitude to risk, an adequate perception of project risk, a real ability to bear the consequences of a risk eventuating, and a real ability to manage the associated uncertainty. It is suggested that just as risk philosophies of individuals affect the decisions made in their lives away from their professional careers, their perceptions and experiences of risk can affect their professional decisions. Willingness based on need to obtain work and a false perception of the risk/return tradeoffs may lead to

unfavorable responses from the contractor to offset the effects. If forced to accept the risk, they will just find ways and means to offset the incurred burden. Excessive claims and disputes can be expected, and malicious consumption of resources follows afterwards.

Additionally, in East Asian countries, it has been held that the contractual fairness is not questioned to maintain good business relationships for future projects [3]. Traditionally and culturally, the personalities are more reserved relative to the Western counterparts. With consideration to this observation and the typical behavior of overlooking the importance of risk management techniques by project participants, the preparation of a "good" standard contract becomes more essential. As the recognition of the role of construction industry in economic development is realized at the present, people should attach importance to the improvement of the business environment and industry.

3. GPPB GENERAL CONDITIONS OF CONTRACT

In the Philippines, the provisions of Republic Act 9184 shall apply to the procurement of all goods, infrastructure projects, and consulting services. Under its Implementing Rules and Regulations, the Government Procurement Policy Board (GPPB) was established to protect the national interest in all matters of public procurement. This government agency prepares the Philippine Bidding Documents, and as a part thereof uses a standard General Conditions of Contract (GCC). The details in the GCC are of mandatory use for all the procurement of Works by

all the branches, agencies, departments, bureaus, offices, or instrumentalities of the GOP, and should be complete and shall not be altered. The procedures and practices presented in this document have been developed through broad experience, and are used in projects that are financed in whole or in part by the GOP, the Asian Development Bank (ADB), the Japan Bank for International Cooperation (JBIC), or the World Bank (WB) in accordance with the provisions of the latest editions of:

- a. Implementing Rules and Regulations Part A (IRR-A) of Republic Act 9184 (R.A. 9184)
- b. Guidelines for Procurement under Asian Development Bank Loans
- c. Guidelines for Procurement under JBIC ODA Loans
- d. Guidelines: Procurement under IBRD Loans and IDA Credits

Only International Competitive Bidding (ICB) projects funded specially by ADB, JBIC or WB can use its respective standard bidding documents in lieu of the PBDs. Procurements funded partly or fully by these International Financing Institutions shall follow the procedures specified under the loan or grant agreement. For application of procurement methods needed to address peculiar situations, concerned parties are advised to consult the GPPB.

4. DATA COLLECTION

To be objective on the risks to be considered in this study, the risk types were obtained from literature on the

works of Kangari [4], Ahmed *et al.*[5], Rahman & Kumarasamy [6], Kartam N. & Kartam S. [7], Andi [8], and Hameed & Woo [9]. A pilot study was also conducted by to identify risk types relevant to the Philippine construction industry. Overall, There was a total of 28 construction risks, where 26 risks are from literature and 2 risks namely, Rebel Tax and Political Intervention, were put forward in the pilot study.

After the identification of the relevant risk items, the list of local contractors was obtained from the accredited companies under the Philippine Contractors Accreditation Board (PCAB). To ensure the respondents' sufficient professional qualifications, work experience and educational background, only contractors belonging to AAA and AA categories of the Philippine Construction Accreditation Board (PCAB) from January 2008 were interviewed. 16 contractors coming from different provinces were interviewed to have an equal representation of the different localities in the Philippines.

5. RESULTS

For the descriptive discussion of the results, the author classified the risk items based on the essential qualities relevant to them. This classification suits and assists the presentation of the interview results on risk allocation preference. Fig. 1 shows the different categories.

This paper only presents the Filipino contractors' risk allocation preferences for the construction-related risks.

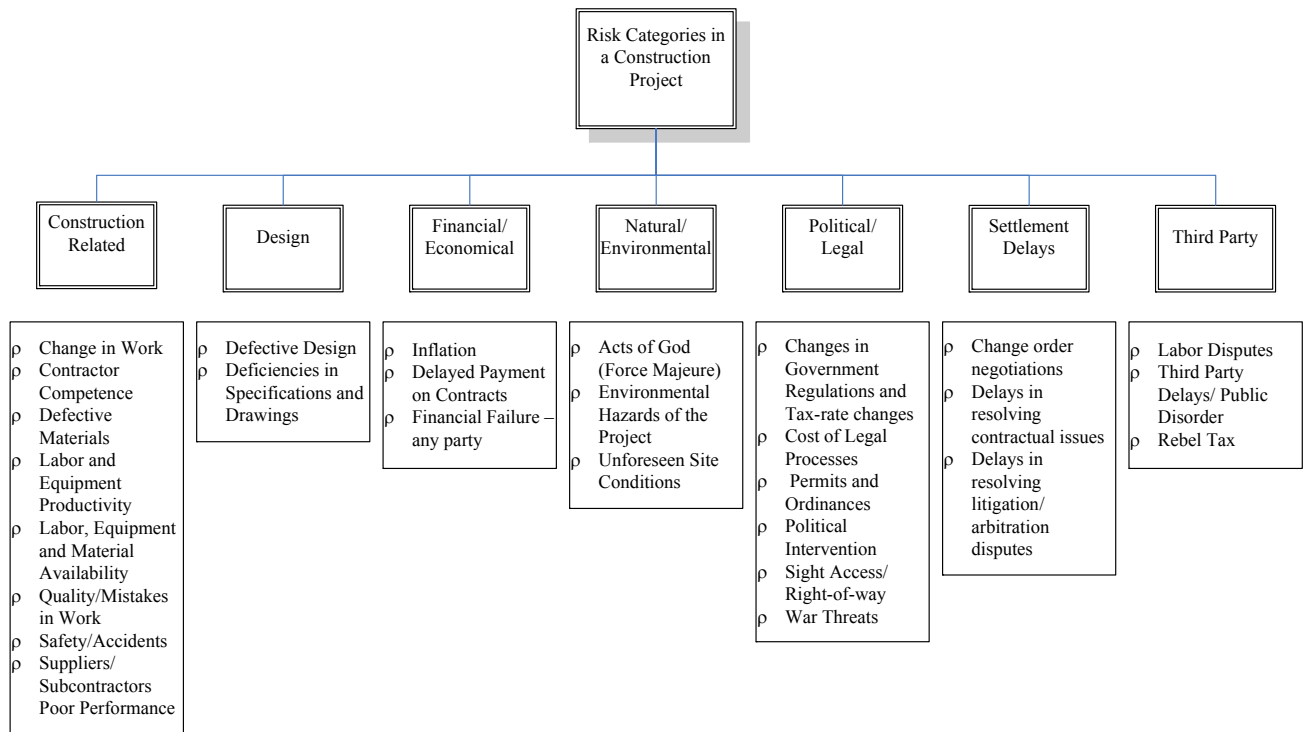


Figure 1. Construction Risk Categories

5.1 Construction-related risks – Risk Allocation Preference

The risks under the construction related category pertain to events that affect or relate to the efficiency of labor, equipment, materials, contractor and subcontractor. While some might argue that these risks are clearly under a contractor's responsibility, the interview confirmed that this quick presumption sometimes disaccords with the contractor's opinion. The risk of *Contractor Competence*, as a good example, was commonly transferred to the owner by the respondents. The respondents interpreted this risk event with a higher regard on the pre-construction stage of screening the contractors than the incompetence of the contractor on performing a given work during construction stage. After passing the rigorous process of prequalification, most contractors exempt themselves of any liability if it turned out that they are incompetent or incapable to finish the contract. As a business entity, contractors now and then need to seek contracts for their survival and they believe it is the owner's obligation to be careful on whom they deal with. One respondent also claimed that construction practitioners in the Philippines are generally competent and the competitiveness in the industry makes it unlikely for an utterly incompetent contractor to sneak in especially on large projects. Additionally, the criticality of this risk is proportionate with the project size and impacts can be more manageable in small projects. The system on screening the contractors as well as monitoring their performance is part of the owner's responsibility, as stated by the respondents.

Some contractors exert that putting the liability to the owner also deters bid collusion. The committee sees this as an opportunity to extort from contractors or grant special favors to contractors affiliated to them. Conversely, contractors as well may initiate the endowment and persuade honorable officials in order to win contracts. Two respondents cited the system on awarding of some contracts in the Philippines to be flawed and full of anomalies. Accountability on the government side will be stressed further if the consequences be borne by the owner.

In view of the sentiments above, the respondents accept the risks of *Suppliers/Subcontractors Poor Performance* so long as they are free to choose what parts of the work can be subcontracted. Just as they deem the owner's prequalification committee should be held liable, the contractors are solely responsible if they elect to subcontract certain aspects of the work. The acts and negligence of subcontractors are assumed by the main contractor since there is no contractual agreement between the owner and a lower-tier subcontractor. The respondents asserted that they also conduct their own prequalification on their subcontractors to guarantee their competence and performance. The performance of the basic work is usually carried out by main contractors with the less risky and less critical passed to the subcontractors. On the practice of restricting what parts of the work may be subcontracted to give the owners some sense of control on this risk, the contractors flatly opposed this

exercise. As contractors, they want as much as possible to have the freedom to act without externally imposed restraints.

The use of subcontractors is an application of the overall allocation principle of transferring risk to those best able to manage it. Each chosen subcontractor can be engaged to complete a certain aspect of the project for which it has the right expertise and experience, and can price cheaper than the head contractor. The head contractor who nominates certain and allowable parts of the work retains overall responsibility for the subcontractors' work. Also, suppliers must be selected with criteria that could identify which provider is proven and who is also prepared to back up the component with suitable warranties, including replacement, repair and, if necessary, monetary compensation.

The respondents are also quick to exempt themselves of acknowledging the risks on dealing with nominated suppliers/ subcontractors. Two respondents pointed out those owners particularly in the government who nominate suppliers and subcontractors associated with them. One respondent also mentioned that he could accept a shared risk allocation given that there must be extenuating circumstances for assigning the lower-tier contractor to perform a particular portion of the works. In addition, one contractor raised the prevalence of multi-level subcontracting on various contracts in the Philippines as a cause of some problems particularly when lowest-tier subcontractors cut corners and sacrifice quality. As with the general contractor, a subcontractor who assigns a portion of his duties to another retains full responsibility for the sufficiency of the other's work, which ultimately will fall again to the general contractor.

Defective Materials, Labor and Equipment Productivity, and Labor, Equipment and Material Availability are other risk items under the construction related category that contractors consistently agreed to bear. Contractors are aware that they were hired because of their knowledge and expertise especially on the technical aspect of the works including labor, materials and equipment. The competitiveness of the contractor also banks to a great extent on these aspects in order to win contracts from other bidders. Operational and strategic planning of construction companies must look at opportunities and potential options to adapt their existing resources with the project requirements. A respondent stated that contractors must be accountable to the estimates he pledges on his bid and perform with his own risk analysis on the final facility as described in the plans and specifications. Some contractors admit that the problems encountered on these risk items are caused by the lack of efficiency on their part with practices such as keeping equipments beyond their service life and reducing maintenance costs as low as possible.

Then again, certain circumstances, as stated by some respondents, can complicate the allocation of these risk items despite the initial acknowledgement. Widespread shortages seldom happen but give rise to a multitude of problems especially with large projects. This event could provide challenging considerations especially for cases

proven to be reasonably unforeseeable, which the respondents wish they could get shared risk allocation. Materials and equipments supplied or specified in the contract by the owner that in turn are discovered deficient are also risks passed on to the owner. Similar to the opinions about nominated subcontractors, the choice was not done by the contractors' independent choosing and the respondents prefer contracts to have minimal impositions affording them more freedom on project execution.

With the attention on project execution, the risk factors of *Quality/Mistakes in Work* and *Safety/Accidents* got mixed and discerning reactions from the respondents. Most respondents believe that they are straightforwardly the primary responsibility of contractors, while some interestingly preferred certain involvement by the owner although they more often than not end up shouldering the ramifications of these events.

Notable views from the contractors basically pine for the specification of quality and safety requirements in the design and contract documentation. Quality requirements are desired to be clear, verifiable and monitored, so that all parties in the project can understand the requirements for conformance. The respondents pointed out their own personal aversion, as a business enterprise, for mistakes or failures that result in rectification costs and impaired facility operations. Owners should initiate good quality control and seek out contractors who maintain such standards to avoid rework and long term problems. Safety during the construction project can also be influenced in large part by decisions made during the planning and

design process. Some designs or construction plans are inherently difficult and dangerous to implement, whereas, comparable plans may considerably reduce the possibility of accidents. A respondent mentioned that both parties could have their own quality and safety inspectors during the construction process to ensure agreement of subjective views on quality and safety. Safety provisions should be standardized on contracts because contractors even admittedly tend to be negligent on this aspect in order to present a more competitive bid. Another respondent, in addition, found out only recently that standard safety regulations by the government existed since the 1970s, but a strict implementation can hardly be seen.

To end with this category, the *Changes in Work* was easily assigned by the respondents to whoever initiated the variations. However, the respondents maintained that owners usually originate change orders. When contractors initiate some changes, it is commonly an introduction of new ideas or suggestion of new work methods for improved productivity.

5.1 Risk Allocation Preference Summary

Table 1 presents the summary of the risk allocation preferences. When answering the preferred risk allocation, some risks appear self-evident and were instantly assigned to either the owner or contractor. On the other hand, the respondents on some risks cite the case by case nature of these risks.

Table 1. Summary of the findings of the interviews on risk allocation preference

Owner (+)	Owner	Owner (-)	Shared	Contractor (-)	Contractor	Contractor (+)
1. Defective design	3. Changes in government regulations and tax-rate changes	10. Acts of God (force majeure)	13. Change order negotiation	22. Rebel Tax	23. Labor, equipment and material availability	25. Defective materials
2. Delayed payment on contracts	4. Change in Work	11. Inflation	14. Cost of legal processes		24. Safety/accidents	26. Labor and equipment productivity
	5. Contractor competence	12. Third party delays/public disorder	15. Delays in resolving contractual issues			27. Labor or disputes
	6. Deficiencies in specifications and drawings		16. Delays in resolving litigation/arbitration disputes			28. Suppliers/subcontractors poor performance
	7. Permits					

	and ordinances		17. Environmental hazards of the project			
	8. Sight access/right of way		18. Financial failure – any party			
	9. Unforeseen site conditions		19. Political Intervention			
			20. Quality/mistakes on Work			
			21. War Threats			

Contractor (+) / Owner (+) - unanimously allocated the risk to this party

Contractor / Owner - allocated the risk to this party with some small conditions

Contractor (-) / Owner (-) - allocated the risk to this party with reservations and considerations; the other party usually plays some role on risk mitigation

Shared - either both parties share the allocation of risk or the contractors are undecided due to its case by case nature

Some risks also require a certain level of participation from both parties for a more efficient risk management and assigning a risk completely on a particular party may miss on these roles. It was decided to divide an allocation to a party into three according to the degree of willingness – i.e. (C+), (C) and (C-). For example, Contractor (C+) stands for a risk allocation preference wherein the responses obtained from the interviewees were consistently and directly assigned to the contractor. The researcher assigned the risks to a particular degree based on the predominant outlook felt from the actual interview.

6. RISK ALLOCATION ANALYSIS

This research purposely decided on arranging interviews with the contractors to obtain not only the preferred risk allocation, but also the actual experience and practices taking place with these risks. The knowledge of the existent and customary responses characterizes acceptable courses of action done in past projects. The discussions with the contractors can also be interpreted as a substitute to the negotiation procedure on the drafting of a contract, which is one of the issues this research wishes to address.

To validate the opinions of the contractors in improving the present Philippine standard contract, risk allocation principles were also obtained from the literature as an objective basis. If the prevailing response obtained from the respondents concurs with the suggestions of the risk principle, it follows that the particular risk allocation can

promote favorable outcomes and conditions once the risk eventuates. After the comparison of the risk principles and the contractors’ risk preference for a particular risk, the risk allocations on different risks using the Philippine standard contract were identified whether they are in agreement with the foregoing references. The evaluation drawn from these three subjects must yield identical outcomes before concluding that the particular risk allocation is appropriate. A deviation of one or every subject from each other can be observed for some risk items suggests that a more critical evaluation is necessary before stating what the most suitable means to put into practice. This procedure is presented on Fig. 2 where the flowchart includes a decision node to determine if a further review is necessary. If the application of risk principle, contractor’s risk allocation preference and allocation of GPPB’s GCCs indicate similar means of risk allocation, it follows that the present risk allocation can be considered appropriate. The contractors can be expected to perform and respond accordingly once the risk type happens and its consequences materialize. The approval and support of the risk principle selected from the literature firms up the risk allocation suggested by the contractors. The risk principle chose wide-ranging guidelines and the determination made can be considered suitable.

5.1 Risk Allocation Principles

In 1973, Max Abrahamson presented one of the widely known and esteemed principles in risk allocation [10].

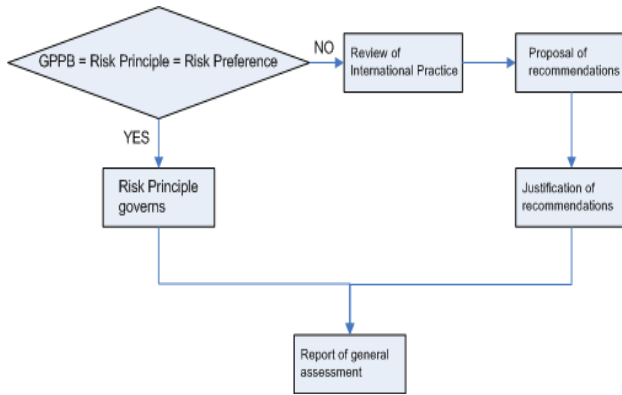


Figure 2. Risk Allocation Framework

The party should be responsible for the risk in any of the following cases:

- if it is in his control, i.e., if it comes about it will due to willful misconduct or lack of reasonable efficiency or care,
- if he can cover a risk by insurance and allow for the premium in settling his charges, and it is most convenient and practicable for the risk to be dealt with in this way,
- if the preponderant economic benefit of running the risk accrues to him,
- if it is in the interests of efficiency to place the risk on him,
- if, when the risk eventuates, the loss happens to fall on him in the first instance, and there is no reason under

any of the above headings to transfer the loss to another , or it is impracticable to do so.

Although this research regards Max Abrahamson’s principle as the most appropriate and comprehensive among the principles found in literature, the guidelines it presents are still unproven to be absolute and applicable in all situations. The complexity of the construction process draws in a lot of factors affecting actual circumstances, like a risk factor, and the application of all-inclusive principles do not always yield applicable solutions. The application and outcomes from the use of risk principles cannot be taken to be correct without further thought if a thorough assessment is desired. If the prevailing response obtained from the respondents concurs with the suggestions of the risk principle, it follows that the particular risk allocation can promote favorable outcomes and conditions during the project execution, especially when the risk eventuates.

5.2 Consideration of Various Risk Allocation Issues

The summary of the application of risk principles and risk preference of Filipino contractors together with evaluation of how the GPPB’s GCCs treated this risk and the corresponding clauses are presented in Table 2. Fifteen out of the twenty-eight risks were found to demonstrate conflict between the analysis of the risk principles, contractor’s risk allocation preference and allocation of GPPB’s GCCs. These risks are: *Contractor Competence, Quality/Mistakes in Work, Inflation, Delayed Payment on Contracts, Acts of God (Force Majeure), Environmental Hazards of the Project, Costs of*

Table 2. Risk Allocation Summary

Risk Types	Risk Principle	Risk Preference	GPPB GCCs	Relevant Clauses	Remarks
I. Construction Related					
1. Change in Work	Owner	Owner (O)	Owner	Sub-Clause 27.1 Sub-Clause 42.2	
2. Contractor Competence	Contractor	Owner (O)	Contractor	Sub-Clause 6.1 Sub-Clause 34.1	for further review
3. Defective Materials	Contractor	Contractor (C+)	Contractor	Sub-Clause 36.3	
4. Labor and Equipment Productivity	Contractor	Contractor (C+)	Contractor	Sub-Clause 6.1	
5. Labor, Equipment and Material Availability	Contractor	Contractor (C)	Contractor	Sub-Clause 15.4 b Sub-Clause 16.1 a Sub-Clause 46.2 b	
6. Quality/Mistakes in Work	Contractor	Shared	Contractor	Sub-Clause 12.1	for further review
7. Safety/Accidents	Contractor	Contractor (C)	Contractor	Sub-Clause 6.3 Sub-Clause 12.1 Sub-Clause 14.1	
8. Suppliers/Subcontractors Poor Performance	Contractor	Contractor (C+)	Contractor	Sub-Clause 8.1	
II. Design					
9. Defective Design	Owner	Owner (O+)	Owner	Sub-Clause 13.1 b Sub-Clause 17.1 Sub-Clause 12.3	
10. Deficiencies in Specifications and Drawings	Owner	Owner (O-)	Owner	Sub-Clause 1.25 Sub-Clause 10.1	
III. Financial/Economical					
11. Inflation	Shared	Owner (O-)	Shared	Sub-Clause 47.1	for further review
12. Delayed Payment on Contracts	Owner	Owner (O+)	Contractor	Sub-Clause 17.3 d Sub-Clause 39.3 Sub-Clause 44.2 e	for further review
13. Financial Failure-any party	Shared	Shared	Shared	Sub-Clause 17.1 Sub-Clause 17.3	
IV. Natural/Environmental					

14. Acts of God (Force Majeure)	Shared	Owner (O-)	Owner	Sub-Clause 12.1 Sub-Clause 12.3 Sub-Clause 17.1 Clause 19 Sub-Clause 44.1 Sub-Clause 46.5	for further review
15. Environmental Hazards of the Project	Shared	Shared	Contractor	Sub-Clause 12.1	for further review
16. Unforeseen Site Conditions	Owner	Owner (O)	Owner	Sub-Clause 1.25 Sub-Clause 10.1 Sub-Clause 42.3	
V. Political/Legal					
17. Changes in Government Regulations and Tax-Rate Changes	Owner	Owner (O)	Owner	Sub-Clause 17.1 Sub-Clause 47.1	
18. Cost of Legal Processes	Shared	Shared	---		for further review
19. Permits and Ordinances	Shared	Owner (O)	Contractor	Sub-Clause 11.1	for further review
20. Political Intervention	Owner	Shared	---		for further review
21. Sight Access/Right-of-Way	Shared	Owner (O)	Shared	Sub-Clause 5.1 Sub-Clause 5.2 Sub-Clause 5.3 Sub-Clause 5.4 Sub-Clause 44.2 a	for further review
22. War Threats	Shared	Shared	Shared	Sub-Clause 19.2 Sub-Clause 16.1 b Sub-Clause 44.2 c	
VI. Settlement Delays					
23. Change Order Negotiations	Contractor	Shared	Contractor		for further review
24. Delays in Resolving Contractual Issues	Shared	Shared	Contractor		for further review
25. Delays in Resolving Litigation/Arbitration Disputes	Shared	Shared	Contractor	Sub-Clause 17.3 a Sub-Clause 17.3 g	for further review
VII. Third Party					
26. Labor Disputes	Contractor	Contractor (C+)	Contractor	Sub-Clause 12.1	
27. Third Party Delays/Public Disorder	Shared	Owner (O-)	Shared	Sub-Clause 12.1 Sub-Clause 14.1 d Sub-Clause 16.1 b Sub-Clause 44.2 c	for further review
28. Rebel Tax	Owner	Contractor (C-)	---		for further review

Legal Processes, Permits and Ordinances, Political Intervention, Site Access/Right-of-Way, Change Order Negotiations, Delays in Resolving Contractual Issues, Delays in Resolving Litigation/Arbitration Disputes, Third Party Delays/ Public Disorder, and Rebel Tax. Following the framework on Fig. 2, they were further evaluated objectively to determine the appropriate risk allocation mechanism to recommend.

Once more, this paper only presents the evaluation and recommendations of construction-related risks.

5.3 Further Evaluation-Construction-related risks

This category may right away imply for some that this is the contractor's part of the deal or consideration with the owner. However, as shown above, the prevalent risk preference of the contractors interviewed suggested that the risk items *Contractor Competence* and *Quality/Mistakes in Work* be allocated as the risk of the owner and shared, respectively. The GCC and risk principles agree that it shall be borne by the contractor. The contractors want the government to be accountable on their project roles particularly the prequalification/accreditation of contractors and project supervision.

Looking on the international practice, standard contracts are consistent on expressly assigning to the contractor the responsibility for the methods of construction, care of the works and goods. The contractor

shall also remedy defects and works rejected by the owner's representative, and owners may terminate the contract if the contractor abandons the work or repeatedly fails to continue the performance of his obligations. Another remarkable observation is the call for both parties to assign a competent representative aptly qualified to superintend the works in a spirit of trust and mutual cooperation.

As for this study's recommendations and justifications of risks under this category, they are as follows:

(1) The risk of default lies basically with the contractor. The contractor shall be responsible for the performance on site, whether directly employed or sub-contracted by the contractor. All the works must comply with contract documents.

a) Clearly, there are tremendous benefits in having a thorough procedure on prequalification and accreditation in assuring that a competent contractor wins the project. If a contractor realizes later in the project that he is incapable of delivering the project, the contracts termination clauses can rightly handle the situation and this conclusion is the utter responsibility of the contractor.

b) Notwithstanding the statement above, there may be situations in which an employer incurs liability when the project proves to be unexpectedly difficult or expensive to carry out because of misrepresentation. The risks of *Unforeseen Site Conditions and Deficiencies in*

Specifications and Drawings handle these cases accordingly.

c) Quality management, even if not owner driven, must be observed by responsible contractors. A positive attitude towards striving for higher quality and customer satisfaction must be encouraged of the contractors.

d) There is an aspect to quality that cannot be measured at all. This is subjective reaction to stimulation and is sympathetic with something in the observer's emotional make-up. Any failure on the part of the contractor to observe quality to the satisfaction of the contract administrator shall render the contractor liable. On cases dealing with scrupulous owners and unclear definition of work, the contractors just have to implement the best practice to be safe from redundant execution of the works. Hence, making *Quality/Mistakes in Work* a risk of the contractor.

e) Open and frequent communications among all parties of a construction project have proven to be an effective means for addressing and resolving issues before they become a problem. Accordingly, many owners require frequent and regularly scheduled face-to-face meetings of project participants who have decision-making authority. Such meetings are an inexpensive method of identifying and solving problems while they are still resolvable.

6. CONCLUSIONS

The results of the interview on the risk allocation preference of contractors indicated how they regard the different situations. These results were compared with the actual risk allocation using the GPPB contract, and risk principles from the literature, Max Abrahamson's principle in particular, to determine if their considered opinions provide a plausible alternative. If there is a disagreement between the analysis of the risk principles, the contractor's risk allocation preference and the allocation of GPPB's GCCs on a particular risk item, it may indicate that it is a potential cause of disputes in the future. Fifteen out of the twenty-eight risks were found to demonstrate this conflict and they were further evaluated objectively to determine the appropriate risk allocation mechanism to recommend.

After the assessment of the specific risks identified above, the general recommendations of this study are:

- Owner should pay interests to discourage *Delayed Payment on Contracts*;
- Owner should make clear that the risk of *Acts of God (Force Majeure)* are to borne by them;
- Owner should initiate preventive actions on the *Environmental Hazards of the Project* and be responsible for unforeseeable hazards, while the contractor should practice faithful execution of the works and avoid causing distress and disturbances in the surroundings;
- Owner should secure the *Permits and Site Access/Right-of-Way*;
- Owner should accept the risk of *Political Intervention*;
- Owner and contractor should share the consequences on the risks of *Change Order Negotiations, Delays in Resolving Contractual Issues, and Delays in Resolving*

Litigation/Arbitration Disputes and continue their respective obligations pending the dispute resolution;

- Owner should accept the risk consequences of *Third Party Delays/Public Disorder* and *Rebel Tax*, while the contractor should faithfully limit the damage and protect the security of the site.

The evaluation of the GCC being issued by GPPB only aims to further improve the procurement of public works process. If proper risk allocation is implemented, completion of the constructed project will satisfy the owner's expectations, as well as those of the rest of the construction team. The passing of too many risks to the contractor will result in either inflated tenders, or gross underpricing by short-sighted contractors who would not be able to cope if anything subsequently went wrong. The benefits of successful partnering relations includes avoidance of disputes, improved communication, increased quality and efficiency, on-time performance, improved long-term relationships, and a fair profit and prompt payment for the contractor. Effective risk management typically generates positive results on a project by improving project performance, increasing cost effectiveness and creating good working relationships between contracting parties.

The GCCs reviewed on this research are used on different types of construction projects and the risk apportionment was adjudged considering the general patterns of a construction project. This study does not cover private sector infrastructure or development projects, such as the build-operate-transfer scheme and its variants. There may be other significant factors for particular types of projects and some of the assessments may not apply to each project. In applying the general recommendations endorsed by this study, construction practitioners are advised to be aware on the grounds where they are based and reflect on the options available that will fit their project requirements.

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