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นายโจแอล เซซาเรียส วี รีเยส

สถาบันวิทยบริการ

จุฬาลงกรณ์มหาวิทยาลัย

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สาขาวิชาวิศวกรรมโยธา ภาควิชาวิศวกรรมโยธา

คณะวิศวกรรมศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย

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EVALUATION OF GOVERNMENT CONSTRUCTION CONTRACT
AND CONTRACTORS' RISK PHILOSOPHIES IN THE PHILIPPINES

Mr. Joel Cesarius V. Reyes

สถาบันวิทยบริการ
จุฬาลงกรณ์มหาวิทยาลัย

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ผู้วิจัยที่ผ่านมาได้เริ่มได้ให้ความสำคัญกับการบริหารความเสี่ยง โดยศึกษาปัจจัยความเสี่ยงใน
ผู้ประกอบการก่อสร้างส่วนต่างๆ งานวิจัยนี้ศึกษารูปแบบของปัจจัยเสี่ยงของผู้รับเหมาก่อสร้างในประเทศ
ฟิลิปปินส์ โดยวัตถุประสงค์เพื่อแสดงให้เห็นถึงการตัดสินใจ และจุดยืนของผู้รับเหมาในเรื่องปัจจัยเสี่ยง และ
งานวิจัยนี้ยังได้เสนอข้อปรับปรุงสัญญาจ้างก่อสร้างมาตรฐานของประเทศฟิลิปปินส์

ในงานวิจัยนี้ได้ทำการศึกษาความรับรู้ปัจจัยเสี่ยงที่สำคัญของผู้รับเหมาก่อสร้าง เพื่อที่จะระบุปัจจัยความ
เสี่ยงที่สำคัญ งานวิจัยนี้ได้รวบรวมความเสี่ยงในการก่อสร้างมา 26 ปัจจัย จากผลงานวิจัยที่ผ่านมานำมาทำการ
สำรวจกับผู้รับเหมาระดับใหญ่ในประเทศฟิลิปปินส์ จากการวิจัยพบว่าปัจจัยเสี่ยงเหล่านี้ได้รับการให้คะแนนใน
ระดับวิกฤติทั้งสิ้นนอกจากนั้นค่าคุ้มครอง (rebel tax) และการแทรกแซงทางการเมืองก็มีความสำคัญเช่นกัน
สำหรับแต่ละปัจจัยเสี่ยงนี้ได้ทำการสัมภาษณ์ผู้รับเหมาเพื่อระบุความพอใจ (preference) ของผู้รับเหมาในการรับ
ความเสี่ยงว่าสอดคล้องกับการกระจายความเสี่ยงในสัญญามาตรฐาน หรือสอดคล้อง กับหลักการกระจายความ
เสี่ยงเพียงใด กรณีที่มีความไม่สอดคล้องเป็นการแสดงถึงโอกาสการเกิดข้อขัดแย้ง ซึ่งมีความจำเป็นต้องศึกษาให้
ละเอียดมากขึ้น ได้พบว่ามี 15 ปัจจัยเสี่ยง จากทั้งหมด 28 ปัจจัยเสี่ยงมีความไม่สอดคล้องนี้ ซึ่งได้ทำการวิจัยเพื่อหา
ข้อสรุปในการกระจายความเสี่ยงที่เหมาะสม ในงานวิจัยนี้ได้นำเสนอการกระจายความเสี่ยงระหว่างผู้รับเหมากับผู้
ว่าจ้างเพื่อเป็นการปรับปรุงสัญญามาตรฐานให้เหมาะสมมากขึ้น

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สาขาวิชาวิศวกรรมโยธา
ปีการศึกษา 2551

ลายมือชื่อนิติกร.....

ลายมือชื่อ. ที่ปรึกษาวิทยานิพนธ์หลัก.....

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Researchers of late have started to realize the significance in risk management of investigating the construction practitioners' risk philosophies. This study examined the risk philosophies of Filipino contractors with the aim of representing their judgements and standpoints as this study review the standard construction contract of the Philippines.

The contractors' risk perceptions as regards criticality were initially identified to determine which risk factors are crucial and worth investigating. Twenty-six construction risks obtained from literature were included in the survey distributed to top local contractors. These risks eventually got critical ratings by the respondents and, in addition to this list, Rebel Tax and Political Intervention were put forward as other risks that could be relevant to the local industry. For all of these risks, the risk allocation preferences of the contractors were identified through interviews to confirm if they are in agreement with the actual risk allocation of the standard contract as well as risk principles. A deviation of one or every subject from each other was observed for some risk items suggesting that it is a potential cause of disputes and a more critical evaluation is necessary. Fifteen out of the twenty-eight risks were found to have these conflicts and were further evaluated objectively to determine the appropriate risk allocation to implement. Recommendations with justifications on which party/parties should bear the risks were provided in order to improve the contract implementation, especially when the risk event occurs.

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Student's signature.....

Advisor's signature

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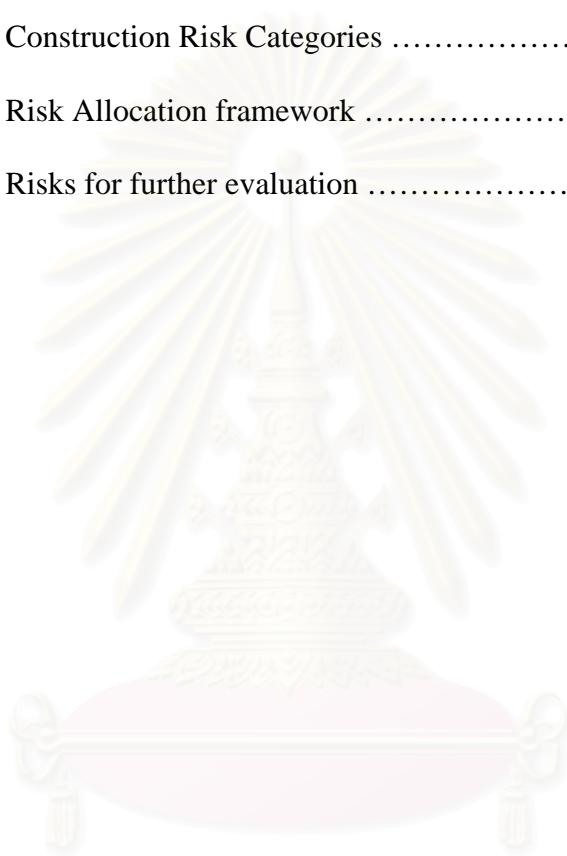
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CHAPTER I

INTRODUCTION

1.1 Background of the Study

Risk allocation in the construction industry is established by the construction contract. It involves the allocation or distribution of the risks inherent to a construction project between or among contracting parties. If done effectively, risk transfer does not grossly or inequitably allocate all risk to one party, but instead places risk upon parties according to their ability to control and insure against risk. Additionally, 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 contract serves as a framework of the rules between the parties and establishes which party has assumed or negated a particular risk in connection with the project.

On the other hand, the complexity and competitiveness of a construction venture makes construction practitioners indifferent and disinclined to risk management practices. Experience and intuition are regarded as a more practical and reliable tool on coping with risks especially with traditional contractors (Bajaj, Oluwoye, & Lenard, 1997; Zaghoul & Hartman, 2003). The fairness in contractual risk allocation is seldom challenged in order to preserve good relationships, or just because of the mere lack of concern with risks. Attempts at coordinating risk analysis management between all of the project participants have not been traditionally formalized because of the complexities and technicalities it entails.

Recognition of the serious consequences of such attitudes is realized when expensive delays, litigation and even bankruptcy eventually turns out. While it is hoped that more practitioners will take advantage of risk management techniques sooner than later, one way to deal with these issues is to have a standard contract that is fairly allocated from the outset.

In the Philippines, the Government Procurement Policy Board (GPPB) was created for the purpose of protecting national interest in all matters affecting public procurement having due regard to the country's regional and international obligations. One of the tasks of GPPB is formulating and amending, whenever necessary, the implementing rules and regulations and corresponding standard bidding forms. The bidding documents for all procurement are divided into two parts. The first part includes Invitation to Apply for Eligibility and to Bid, Eligibility Documents (ED) and Eligibility Data Sheet. The second part includes Instructions to Bidders (ITB), Bid Data Sheet, General Conditions of Contract (GCC) and Special Conditions of Contract, Specifications, Bill of Quantities and Forms and Qualification Information. Of all these documents, only ED, ITB and GCC are intended to be used unchanged.

Under one of the principles of GPPB, namely Public Monitoring, it encourages qualified and eligible civil society organizations such as an academic institution to observe and monitor the procurement process and contract implementation (Government Procurement Policy Board, 2008). The second and latest edition of bidding documents was issued on May 2005 and regular reviews are still being made for the development of generic procurement manuals and standard bidding forms. The absence of the contractor's judgment and participation during the

formulation of GCC puts some reservations on the objectivity of the contract, particularly risk allocation. In actual contract implementation, attitudes of apathy and lack of motivation to review the contractual risk allocation leaves an inequitable contract overlooked. This research investigated the risk perception of the Philippine contractors and examined their risk preferences with respect to the critical risks identified. The use of risk allocation principles and other international standard forms of contract on a comparative basis provides guidelines for improvement on the present GCC towards a smoother contract transaction in the future.

1.2 Problem Statement

One of the paramount flaws of the present agreement is the absence or utter lack of consultation of stakeholders, including Filipino contractors, themselves. Although it is typical in the construction industry for one party to prepare a contract, this flaw contravenes the very essence of the contracting process which is to create an understanding on the legal rights and obligations between the owner and the contractor.

In addition to this, there has been a propensity among construction practitioners to amend several of the contract clauses in the standard forms of main contract – making it easy to include onerous contract terms on unsuspecting contractors. The apportionment of risk is rarely questioned and contractors are reluctant to challenge contract provisions sometimes because of the dire need to obtain a project. Once the risk eventuates and a contractor finds himself in a disadvantage, it is likely for a contractor, as a business enterprise, to devise schemes in recovering the losses incurred from the risk event. The contractor may file for

claims that could later result to disputes, and such incidents are also unfavorable to the owner. On the other hand, an inappropriate allocation of a risk can work directly against the owner if the risk is allocated to him but can be borne more efficiently by the contractor. The contract if not reviewed will later on come upon these problems and hamper the development of the project.

Lastly, the knowledge on the Filipino contractors' risk philosophies, particularly on risk perception and risk preference, has yet to be ascertained. The application of risk philosophies on the design of risk management tools is valuable since decision-making still lies on the personal attitudes and beliefs of the construction practitioners.

1.3 Objectives

This research identified the risk perception and preferences of Philippine construction contractors, and examined the nature of risks involved when using the GCC of GPPB. The aim of this research is to serve as the channel for the Filipino contractors to raise their judgment regarding the nature and treatment of different risks in construction projects. Specifically, the particular objectives are:

- to present and rank the perceptions of Filipino construction contractors on the importance of different construction risks;
- to identify the contractors' view on actual and expected allocations of the risk;
- to serve as the channel for the contractors to give their statements of position and opinion on the procurement procedures and GCC;

- to conduct a fundamental review of the GCC regarding the allocation and management of risks in the procurement of Philippine government construction projects.

1.4 Scopes and Limitations

Faced with a large number of risks, the risks to be identified in a particular analysis should be critical; otherwise the exercise is a waste of resources (Bajaj, Oluwoye, & Lenard, 1997). On this note, the study relied on survey results and existing literature in identifying the critical risk items to be analyzed.

The survey respondents were limited only to the Filipino contractors. The proponent that can represent the owner includes all the branches and instrumentalities of the Government of the Philippines and their representation is not feasible with the constraints of this research. In addition, the researcher believes that the government was represented already since the GCC was issued by GPPB and its risk preference was unconsciously, or deliberately, contemplated in the formulation of the present standard forms of procurement.

The Philippine Bidding Documents (PBDs) that were reviewed on this research are intended as a model for admeasurements (unit prices or unit rates in a bill of quantities) types of Contract. Therefore, the different aspects of other procurement methods were not taken into consideration. This standard form is also 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. While other risks are

specific or more critical to a particular type of construction or project location, the risks considered on this research were initially extracted from the literature and they are deemed to be common on typical projects.

The researcher also does not intend to discuss in detail the technique of risk management. The attribute to be considered was focused on fairness on its allocation to the parties involved and did not emphasize on the attributes relating to clarity, conciseness, completeness, consistency, practicality, etc.

The effectiveness of adopting other standard forms of contracts was not validated and it is an assumption of the researcher that the knowledge of the contract drafters from around the world makes the provisions of these contracts feasible also for the Philippine construction industry. In any case, the international practices were used only as a guide to show what practicable procedures are accepted, but the recommendations provided were not based on the recognition of these practices by other bodies who drafted these standard forms.

Lastly, the purpose of the assessments, recommendations and other data on this research is to review the present standard contract to promote the public interest in receiving the best value in public works with its implementation. The different analysis of the Philippine standard contract as well as other international contracts referenced on this study are not meant to be used for legal interpretation of the their respective meaning.

1.5 Benefits of the Study

This study summarizes the findings and recommendations taking into consideration the opinions of the Filipino contractors regarding risk allocation. The evaluation of the GCC being issued by GPPB only aims to further improve the procurement of public works process. This study also serves as an outlet for the contractors to communicate their risk perception and preference, which was applied on this research and can be applied as well on future risk management undertakings. The respondents who chose to participate are considered to be concerned with the issue at hand, as it was explained during the data collection, and inputs are representative of the contract negotiation procedure that is ideal but impractical to always conduct. It is hoped that the guidelines provided will result to smooth contract implementation, especially when risk events occur.

It has long been held that risk allocation has a direct bearing on the total cost of a project. 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 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. Incorrect perception of how risk should be assigned has often resulted in owners paying more than necessary for many projects, due to bid contingencies and unanticipated involvement in dispute resolution by the owner's staff, consultants, and attorneys.

For the local contractors, a just and clear risk allocation will relieve them with having to recognize and anticipate contingencies for risks which may be unfairly allocated to the contractor. Those carefree and aggressive contractors will benefit as well confiding on the fact that the risk allocation is fairly allocated from the outset. They can also expect with a higher chance that a fair and reasonable profit lies ahead with the project. Realistic and fair risk allocation will only foster the type of professional relationship between the owner and the contractor.

The risk perception and preference results could also be used in future studies concerning risk management mainly in the Philippines. The distinctive risk philosophies of project participants have some bearing on their professional decisions in risk management and for that reason make these matters relevant (Greene, 2000).

All in all, these risk management procedures that this study can initiate only ensures the prudent use of construction funds; therefore, benefiting the public at large.

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CHAPTER II

LITERATURE REVIEW

2.1 Risk Concept

In entering into a contract, parties face a choice about how to deal with the risks inherent in the venture. Risk is a concept that denotes a potential negative impact to an asset or some characteristic of value that may arise from some present process or future event (Risk – Wikipedia, 2008). The term can be defined differently based on particular applications and fields of study such as health, law, project management, insurance, etc. In the context of construction industry, researchers have attempted to provide their risk definition that could best describe the peculiarity of the risks encountered with construction endeavors. Risk could be the exposure to the chance of occurrences of events adversely affecting project objectives as a consequence of uncertainty (Al-Bahar & Crandall, 1990). The risk and uncertainty in this way sets off situations where the decisions will be made on the basis of assumptions, expectations, estimates and forecasts (Ahmed, Ahmad, & De Saram, 1999). The lack of predictability in a decision or planning situation of such events/factors about structure outcome or consequences during the process of construction also describes a risk (Wang, Dulaimi, & Aguria, 2004). The importance of this concept cannot be downplayed as the frequent inability to meet deadlines and cost targets more often than not link to poor management of risks. The nature of a construction activity draws it to different

kinds of risks that determine the success of a project and in some cases the viability of an organization.

In spite of these issues about risk, it was investigated that contractors and owners tend to be indifferent with the practice of risk management in a project. Some practitioners have not fully appreciated the developments of this discipline despite the large body of knowledge supporting the subject. Project participants are only concerned with the risks apparent to them and willingly or unwillingly try to transfer the risk to the other party (Kim & Bajaj, 2000). The individual intuition, judgment, and experience gained from previous contracts are the sole basis for almost all project participants (Al-Tabtabai & Diekmann, 1992). Their approach to risk analysis and assessment compels for engineering judgment from a decision maker with adequate experience gained from similar projects. They are tied to the standard forms and their traditional methods of contracting – even though they do not deliver satisfactory results.

Moreover, the short and stiff deadlines imposed to bidders when submitting a bid hold them back from performing the appropriate risk management techniques. The bids do not get the proper evaluation and pricing of potential risk due to the inadequate time and information. The nature of competitive bidding and traditional contractual arrangements adds up to the pressure on bidders to keep their tender prices as low as possible. The contractors are forced to be exposed to great financial risks instead of undergoing an effective risk management resulting to equitable basis of payments (Thompson & Perry, 1992). Thus, many researches and evidences have showed that a combination of judgment and

experience with developed techniques such as mathematical models would be more appropriate.

2.1.1 Risk Types

Various studies have attempted to identify risks and a wide range of risk issues for specific types of project, location and contractual arrangements. The uniqueness of every project and the intrinsic dynamic environment of construction issue a challenge to a risk identification procedure.

The American Society of Civil Engineers (ASCE) has identified 23 risks when it evaluated the perceptions of risk importance and preferred allocation of U.S. contractors in 1979. The same questionnaire was utilized by Kangari in 1995 when he conducted a survey to identify the trends in the construction risk that will facilitate risk management. The questions were essentially the same with the risk descriptions from the 1979 survey, and regarded to be a comprehensive list of risks at that time of the survey. The only question that was not included on the later survey is Defensive Engineering that pertains to which party should bear the risk if the attempts at protection, or defensive engineering, to existing adjacent structures fail.

The risk items on these studies were adopted by Rahman and Kumaraswamy in 2002 when they collected data in Hong Kong and mainland China in comparing the perceptions on present risk allocation between contractors and clients. They combined their results with the risks used by Ahmed *et al.* (1999) to represent the Hong Kong perspective. However, a comparison of the

risks considered by Ahmed *et al.*(1999) to the survey of ASCE (1979) and Kangari (1995) would reveal that the only risk distinct is the Political Uncertainty in Hong Kong after July 1997 handover. This deals with the uncertainties that concerns the transfer of the sovereignty of Hong Kong from the United Kingdom to China occurred on July 1, 1997. Forty-one types of risks were finally taken into account by Rahman and Kumarasamy (2002) based on the opinions obtained from five experts during the pilot test of the questionnaire. A few risks were added to reflect recent cases and concerns specific to the Hong Kong construction industry.

In Kuwait, the attitudes of a typically large Kuwaiti construction contractor towards construction risk were presented by Kartam and Kartam (2000). The risk types were generated from different books, papers and consultation with key local experts who participated in the survey. It is noteworthy that the types of risks considered on this study are identical with the abovementioned studies done in U.S. and Hong Kong. Accuracy of project program and War threats are the two risk types from this study that were not included by its counterparts in U.S. and Hong Kong. However, it can be argued that these two risks can fall in one way or another to a risk already considered but expressed in a different wording (i.e. Accuracy of program can be deemed to be a part of Deficiencies in specifications and drawings, or Actual quantities of work). The sources as indicated by the researchers came from different references yet the identified types of risks express remarkably closely related meanings.

Furthermore, the risk types used on the above studies were also recognized by later studies done in Indonesia (Andi, 2006) and Pakistan (Hameed & Woo,

2007). Both studies have the same intention in mind, which is to gain a better understanding on the perceptions of construction contractors on the importance and allocation of risks in construction projects. These observations could denote that researchers from various backgrounds consider the risk items as the most relevant and wide-ranging risks when it comes to construction. The summary of the risk types adopted by the different surveys conducted to identify the contractor's risk allocation preferences are shown in Table 2.1.

Another research pertinent to this study but used different risk types was done by Wang, Dulaimi and Aguria in 2004. This study focused on the risk management in developing countries compiled and filtered the major risks to be encountered by international investors or contractors in developing countries. Twenty-eight risks were identified and classified using Hastak and Shaked's (2000) three-level (country, market and project) risk categorization. A survey was conducted with the investors and contractors who have experiences in the international construction projects in developing countries. The ranking of risks was based on the mean criticality index, which is the average index for each risk obtained by dividing the Total Criticality Index to the total number of respondents. The rating of 4-6 indicates a risk criticality between Critical and Very Much Critical. Table 2.2 shows that 22 out of 28 risks or 78% of these perceived risks were perceived very critical or critical. The top 11 critical risks are: Approval and Permit, Change in Law, Justice Reinforcement, Local Partner's Creditworthiness, Political Instability, Cost Overrun, Corruption, Inflation and Interest Rates, Government Policies, Government Influence on Disputes and Termination of JV.

Table 2.1 Summary of risk types used on different surveys

RISK TYPES	U.S. survey 1 1979	U.S. survey 2 1995	Hong Kong survey 1999	Kuwait survey 2000	Indonesia survey 2006	Pakistan survey 2007
Acts of God (force majeure)	✓	✓	✓	✓	✓	✓
Changes in work	✓	✓	✓	✓	✓	✓
Change order negotiations	✓	✓	✓	✓		✓
Changes in government regulations, and tax-rate changes	✓	✓	✓	✓	✓	✓
Contractor competence	✓	✓	✓	✓	✓	✓
Cost of legal processes			✓		✓	✓
Defective design	✓	✓	✓	✓	✓	✓
Defective materials	✓	✓	✓	✓	✓	✓
Defensive Engineering		✓				
Deficiencies in specifications and drawings	✓	✓	✓	✓	✓	✓
Delayed payment on contracts	✓	✓	✓	✓	✓	✓
Delays in resolving contractual issues		✓	✓		✓	✓
Delays in resolving litigation/arbitration disputes	✓		✓	✓	✓	✓
Environmental hazards of the project	✓		✓		✓	✓
Financial failure – any party	✓	✓	✓	✓	✓	✓
Inflation	✓	✓	✓	✓	✓	✓
Labor and equipment productivity	✓	✓	✓	✓	✓	✓
Labor disputes	✓	✓	✓	✓	✓	✓
Labor, equipment and material Availability	✓	✓	✓	✓	✓	✓
Permits and ordinances	✓	✓	✓	✓	✓	✓
Political uncertainty after July 1997 handover			✓			
Quality/mistakes on Work	✓	✓	✓	✓	✓	✓
Safety/accidents	✓	✓	✓	✓	✓	✓
Site access/right of way	✓	✓	✓	✓	✓	✓
Suppliers/subcontractors poor performance	✓		✓	✓	✓	✓
Third party delays/public disorder	✓	✓	✓	✓	✓	✓
Unforeseen site conditions	✓	✓	✓	✓	✓	✓
War threats				✓		✓

A review was also done in 2004 concerning the significant changes in construction contracts during the past 10 to 20 years. The new trend observed contract clauses imposed some problems and increased risks in construction contracts. Two of the present arrangements that had some issues are force

Table 2.2. Risk level criticality and mean criticality index (Wang, Dulaimi, & Aguria, 2004)

Level Types of Risks	Risk rank	Criticality Index
Level I: country level		
Approval and permit	1	5.85
Change in law	2	5.21
Justice reinforcement	2	5.21
Government influence on disputes	10	4.56
Corruption	7	4.77
Expropriation	19	4.40
Quota allocation	22	4.06
Political instability	5	4.85
Government policies	9	4.60
Cultural differences	25	3.68
Environmental protection	28	3.42
Public image	26	3.56
Force majeure	23	3.97
Level II: market level		
Human resource	20	4.18
Local partner's creditworthiness	4	4.97
Corporate fraud	12	4.55
Termination of Joint Venture (JV)	10	4.56
Foreign exchange and convertibility	14	4.53
Inflation and interest rates	8	4.63
Market demand	13	4.58
Competition	18	4.50
Level III: project level		
Cost overrun	5	4.85
Improper design	16	4.52
Low construction productivity	21	4.11
Site safety	24	3.95
Improper quality control	18	4.47
Improper project management	16	4.52
Intellectual property protection	27	3.45

majeure clauses and differing site conditions clauses. Although improper design/ differing site conditions and force majeure was found to be on the 16th and 23rd, respectively, among the 28 risks considered in the research of Wang *et al.*, these kind of risks have a high degree of uncertainty and can carry a very large impact on a project's cost and duration. Force majeure clauses today usually grant no time extensions and force the contractor to accelerate without compensation. The cost of keeping the idle equipments and other overhead will all be borne by the contractor. The differing site condition clauses observed were found to be disadvantageous for both parties as the contractors are asked to price the unforeseeable events and the owner's cost for the project will increase with an uncertain amount (Shumway, Richard, & Ritti, 2004).

It was also described in another study the differences between developed and developing countries that should be of interest to any contractor. The problems in developing countries are more pressing than those confronting their counterparts (Jaselskis, Edward, & Talukhaba, 1998). These countries hold more exposure to risks such as government/political stability, shortages of adequately trained craftsmen, difficulty in acquiring needed materials, and lack of adequate infrastructure such as roads, bridges, and power generation facilities. Local contractors cannot maintain and develop permanent supervisory staff and skilled laborers, nor can they establish an appropriate fleet of basic equipment. Insufficient infrastructures results to traffic congestions and road deterioration affecting the delivery of materials and personnel to the construction site.

2.2 Risk Perception and Preference

To determine the relative importance of a particular risk in a project, a common approach is to draw the criteria of probability and impact together (Zhi, 1995). A formula that can be used to estimate the importance of a risk item is:

$$R = P \times I$$

where:

R = risk rating [0, 1]

P = probability or degree of likelihood [0, 1]

I = impact or capacity to create a powerful effect [0, 1]

The higher the risk rating, the more attention the risk merits. For instance, force majeure. According to the FIDIC conditions of contract, a force majeure is an exceptional event or circumstance: (a) which is beyond a Party's control, (b) which such Party could not reasonably have provided against before entering into a Contract, (c) which, having arisen, such Party could not reasonably have avoided or overcome, and (d) which is not substantially attributable to other party. It is clear that its characteristics make the probability or likelihood hard to predict with any precision. On the other hand, events like earthquake or war could have devastating impacts to a project. Therefore, in order to assess a risk factor, it is necessary to not only assess its probability, but its capacity to create a powerful impact as well.

Then again, later studies contend that the product obtained from this formula is misleading and insufficient (Williams, 1996 & Ward, 1999). To illustrate the

ambiguous interpretation from this expression, an example cited by Williams (1996) maintains that a risk of 10^{-8} probability with a loss of $\$10^9$ is not equal to a 0.10 probability with a $\$100$ loss. The risk importance product of the two cases warrants the same treatment or consideration, but, in most cases, the enormous potential impact of a risk makes the probability irrelevant. In identifying the risk perception of Indonesian construction contractors and owners, the study of Andi (2006) adopted this idea and separated the analysis of frequency and impact. Another contention regarding this formula calls for the consideration of a number of items other than probability and impact. To achieve a fairly detailed document for each risk, Ward (1999) calls for more data such as the information regarding interdependencies of the risks, the availability of time and resources necessary for risk response, descriptions of causes and trigger events, and party responsible for managing the risk and implementing responses.

Notwithstanding the issues on the risk importance factors, an issue that would aid risk allocation along with risk management in general, is the understanding of the risk perception and preference of the project participants. As realized by some researchers, the practice of risk management methodologies needs to realize 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 (Greene, 2000). The results from these tools and techniques not only can be influenced, but the risk response is still highly dependent on the decision maker.

According to Ward *et al.* (1991), the willingness to bear a risk is also critical. It is only appropriate if it is 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. Willingness based on need to obtain work and a false perception of the risk/ return tradeoffs of transferring the risks to another party is improper and misleading. In addition to this, Ward *et al.* (1991) also identified four basic response options of professionals or contractors who choose to bear the risk:

- Pass the risk to third party,
- continue to bear the risk, and manage it for profit, but accept liabilities,
- if a downside risk eventuates, try to recover costs from other parties, including the client,
- if a downside risk eventuates, meet liabilities reluctantly, walk away from the contract, or go bankrupt.

Obviously, the third and fourth options are unfavorable for the owner. Apparently, these incidents are more likely if the contractor is an unwilling bearer of the risk or the willingness is based on inappropriate grounds (Ward, Chapman, & Curtis, 1991). If forced to accept the risk, they will just find ways and means to offset the incurred burden. Excessive claims can be expected and disputes and malicious consumption of resources follow afterwards.

Lastly, the risk profile of a particular project was found out to be a crucial factor on determining the contractor's mark-up. However, it was learned that it hardly affects the contractor's decision on whether to bid on a particular project or not (Shash, 1993). Understanding what critical factors the contractors consider can aid financial decisions in the future. It also shows that a just risk allocation is

imperative as contractors who were not fazed with the risk profile of a project can end up getting the project. Once the risk eventuates, the attitudes of the contractors will highly influence the response to be taken in countering the risk consequences.

2.3 Construction Contracts

In East Asian countries, it has been held that the contractual fairness is not questioned to maintain good business relationships for future projects (Charoenngam & Yeh, 1999). 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.

The general conditions of a contract establishes the legal terms and conditions that will govern the construction of a project. They include provisions which are considered crucial and applicable for a conventional construction project, and it provides the convenience since they are readily available whenever a project is being developed. The familiarity of the contracting parties with the provisions reduces the bid-price contingencies and the possibilities of misunderstanding, undue compensation, change orders and claims. One more eminent advantage of using a standardized contract is the ability to identify deficiencies over time while

its contract provisions would be constantly challenged (Bubshait & Almohawis, 1994).

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.

On an international level, the FIDIC (Fédération Internationale des Ingénieurs-Conseils or the International Federation of Consulting Engineers) Red Book enjoys the popularity with its membership that draws from European Countries and newly industrialized countries. FIDIC was founded in 1913 and has long addressed professional issues affecting consulting engineers. FIDIC activities are undertaken by committees that draw upon the voluntary engagement of leading practitioners from 75 member firms worldwide. It has become known outside the profession, particularly amongst client bodies, the international financing institutions, lawyers and contractors, because of its work in preparing and publishing standard forms of contract. According to John Bowcock, Chairman of FIDIC Contracts Committee, perhaps the most important reason on why FIDIC issues a standard form of a contract is the fundamental need to ensure fairness in contracts between its clients and the contracting and manufacturing industries.

It is in the interest of all sectors of the engineering industry that contractors and manufacturers should be given a fair and just reward for the works they carry out and the goods they supply. In the long run no-one in the industry gains if conditions are such that contractors and manufacturers are driven out of business. Thus fundamental to all the FIDIC Conditions is a fair allocation of risk and responsibilities between the parties to a contract. A basic principle in the FIDIC forms is that a contractor can only be expected to be bound by and to price for

conditions which are known to him or which are foreseeable when he prepares his tender (Bowcock, 1997).

Recognizing the popularity of FIDIC, studies have referred to it to analyze other standard forms of contract. In Saudi Arabia, a reduction in the bid amount was observed on using FIDIC over the local standard contract due to the clearness particularly of clauses on the topic of unforeseeable site conditions. Two offers were submitted using the two kinds of standard contract on hypothetical projects and a curve with an equation was determined to predict the bid amount reduction (Abdelkhalek, 2006). FIDIC also was compared to the New Engineering Contract (NEC) based contract also on the way they deal with site conditions issues. NEC was drafted in 1985 when it was initiated by the ICE to identify best practices and offer a contract system that provides different procurement modes. The background to the NEC, its design objectives, structure, procedures and likely judicial interpretation makes it unique in the same way with all the different standard forms of contract. It was concluded that a combination of the commendable features of the two with full compliance of the reported modern developments in successful practice would be more effective (Ndekugri & Mcdonnell, 1999).

The suitability of FIDIC in Thailand's construction industry was also studied and found that it can be used efficiently. However, 13 problems still exist that is further classified into 4 groups i.e. quality-related, cost-related, time-related and right-and-duty-related problems. Through the opinions of parties associated with the contract administration process, the three most important problems that affect the contract administration efficiency are 1) the absence of time-limits for

engineer to execute his duties of determination 2) the engineer's right to order major variation without employer's consent and 3) the contradiction of engineer's roles in contract administration (Tochaiwat, 2001).

As customs and practices vary throughout the world, procurement professionals must be aware about these differences in understanding social and business behavior. Not all practitioners are knowledgeable on the laws and practices being carried out elsewhere and potential conflicts can arise from them.

2.4 Risk Allocation by Contract Clauses

To be able to cope up with such uncertainties, risk allocation or contractual risk transfer has been employed by the construction industry as a form of risk management. Risk allocation is established by the construction contract. The contract establishes which party has assumed or negated a particular risk with regard to the project and it serves as a framework of the rules between the parties. If done effectively, risk transfer does not grossly or inequitably allocates risk to one party, but instead places risk upon parties according to their ability to control and insure against risk.

However, it has been a common notion for owners to avoid risk as far as possible by allocating as many risks as it can to the contractor. Owners are generally unwilling to carry project risks and where possible, transfer them contractually to contractors through contract documents (Ward, Chapman, & Curtis, 1991). The owners purposely include exculpatory and disclaimer clauses to avoid obligations and have a control system in a competitive project. This practice proved to work against the owner and, in contrast, built up the occurrences of

disputes and claims. Price certainty is not maintained because the contractor will include contingency costs and risk premiums to protect themselves even for events that do not realize. Studies showed that premiums ranging from 8% to 20% of the total project cost are attached by contractors to compensate the possible consequences of a risk (Zaghloul & Hartman, 2003). For the contractor, it was also found that the typical practice of adding 10% is often inadequate resulting to expensive delays, litigation and even bankruptcy (Hayes, Perry, & Thompson, 1986). The absence of the formal risk analysis leads to contingency premiums based on intuition and experience. Contractors who choose not to price the risk in order to submit a competitive bid prefers submitting claims whenever the risk materializes (Hanna, 2007). The competitive climate in construction nowadays has called forth the contractor's attitude to face and accept risks even if it is beyond their control.

Contract formulation also takes into account the relationship being fostered during the contract implementation as well as the long term. The short-term gains of avoiding risks could hurt the construction industry and could create an atmosphere of hostility and reluctance to tender for further work. The disposition of the contractor towards the owner acquires tendency to look for other grounds or loopholes to manipulate to his advantage. Time and effort would be constantly directed on how to compensate losses caused by unfair shifting of risk. The amount of premiums being tagged by contractors was also observed to be significantly related also with the level of trust between the contracting parties (Zaghloul & Hartman, 2003).

A possible insolvency of contractor would only lead to unwanted delays and chain of serious problems that might affect the owner. Aside from any moral considerations, the owner will be faced with the problem of finding a new contractor to complete the job and undergo unnecessary transactions all over again. The owner should also consider supporting a capable and effective construction industry to keep a number of qualified pools of experienced and financially stable contractors for future projects (Abrahamson & Curtis, 1990). Owners should recognize the value of relationships, if for no other reason than to secure future work.

On the other hand, assuming too much risks provide drawbacks for the owner. Taking too much risk off the contractor takes off the incentive of an effective risk management. Another situation can be seen with some governments providing guarantees and shouldering particular risks to encourage private infrastructure investments. Governments of developing countries yield to the requests by investors of some form of government guarantee against such risks as political and regulatory risks, cost overruns, low demand, or fluctuations in exchange and interest rates. If these risks are borne by the governments entirely, the private investors find little motivational influence to choose financially sound projects. It could encourage contractors to take excessive risks and impose excessive costs to the government.

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

The foregoing list is considered as the most comprehensive guideline and it gained the acceptance of a lot of researchers, such as Jesse B. Grove III. Grove is a consultant from New York that was engaged in 1998 by the Hong Kong government “to enable the employer to make policy decisions on specific issues, and to facilitate a revision of the procurement procedures and the General Conditions of Contract (GCC), if necessary.” The program included a review of the GCC and related documents, extensive interviews with government and industry representatives, analysis of international forms and practices, and applying the consultant’s own experience. On the process, the consultant also came up with a form of guidelines related to risks allocation. The interpretations obtained from the extensive and critical review reflects on the following:

- Which party can best control the events that may lead to the risk occurring?
- Which party can best manage the risk if it occurs?
- Whether or not it is preferable for the employer to retain an involvement in the management of the risk.
- Which party should carry the risk if it cannot be controlled?
- Whether the premium charged by the transferee is likely to be reasonable and acceptable.
- Whether the transferee is likely to be able to sustain the consequences if the risk occurs.
- Whether, if the risk is transferred, it leads to the possibility of risks of different nature being transferred back to the employer.

Grove combined the two sets of guidelines as references believing that it could provide clear and realistic terms acceptable to the employer and on which contractors are prepared to bid at sensible prices (Grove III, 1998). Other guidelines available in literature would also pertain in one way or another to the following considerations and its application is already a good foundation.

Handling risks through risk allocation by contract clauses turn out to be impractical and imprudent as shown by the standard contracts available at present. The construction contracts usually take into account particular risks and distribute it in a manner that is consistent with traditional practices and risk principles. The owners and contractors, therefore, assume an interpretation by themselves on how

unclear stipulations and nonexistent contract clauses are supposed to be allocated. Wang and Chou (2003) identified seven conditions of interpretation of risk allocation between owners and contractors. The nonexistence of a clause addressing a risk may still be approached in a conventional manner acceptable to both parties. On the contrary, an allocated risk in the contract can still vary on a case by case basis depending on the actual circumstances. Fig. 2 shows the following conditions, with the following descriptions:

- Type A: The contract clause definitely stipulates that the owner should take the certain risk.
- Type B-1a: The contract clause definitely stipulates that the contractor should take the certain risk, and the contractor have no objection to such allocation.
- Type B-1b: The contract clause definitely stipulates that the contractor should take the certain risk, but the contractor is unwilling to accept such allocation, transgressing the principle of good faith and fair dealing.
- Type B-2: The contract has some sketchy stipulations about the certain risk, and for this reason the risk allocation remains unconfirmed.
- Type C-1: Although there is no clause in the contract to allocate the certain risk, the two contracting parties have consensus that the owner should take the risk.

- Type C-2: Although there is no clause in the contract to allocate the certain risk, the two contracting parties have the consensus that the contractor should take the risk.
- Type D: No clause in the contract allocates the certain risk, and the two contracting parties have no consensus as to risk responsibilities.

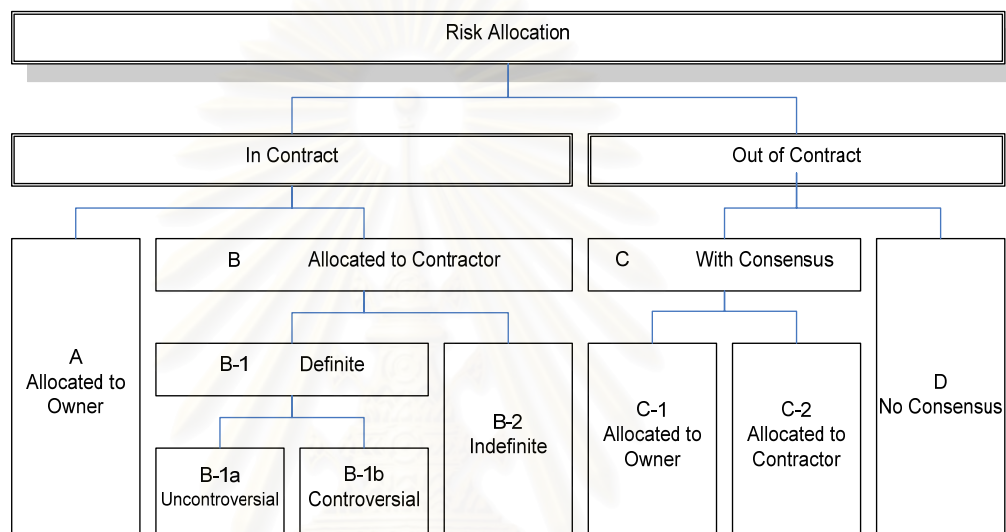


Fig. 2.1 Risk allocation by contract clauses (Wang & Chou, 2003)

CHAPTER III

RESEARCH METHODOLOGY

3.1 Research Procedure

The study identified the Filipino construction contractors' risk perception and risk allocation preferences by means of survey questionnaire and interview, respectively. The GPPB construction contract was investigated with regards to its risk allocation for each of the risk types considered. Each risk allocation was examined with the application of risk principles obtained from the literature. The guidelines proposed by Max Abrahamson in 1973 are considered to comprise the most comprehensive available in literature and they were applied in coming up with the appropriate examination. The risk provisions of chosen international standard contracts were also reviewed to render the accepted practice of this organization on apportioning risks. The results of the interview on the risk allocation preference of contractors indicated how they regard the different situations. This particular process was not considered during the GPPB contract formulation and this study addresses this deficiency. The inclusion of this process can serve as representative of the ideal contracting process wherein two parties negotiate among themselves. The willingness of the contractor to bear a risk will result to a favorable risk response by the contractor at any time the risk eventuates (Ward, Chapman, & Curtis, 1991).

The tasks performed are graphically presented on Fig. 3.1.

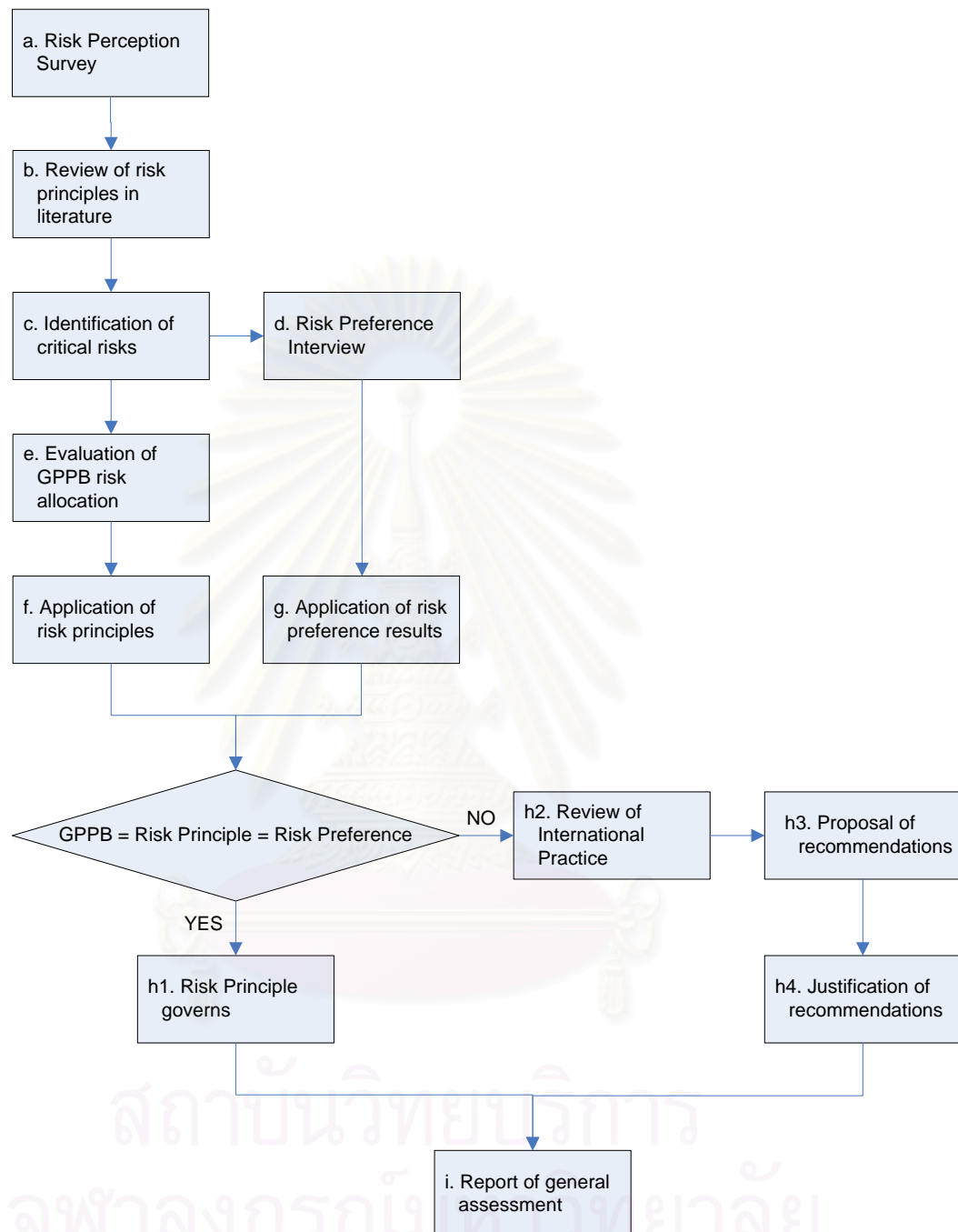


Fig.3.1. Flow Diagram of Research Project Tasks

The final guidelines for improvement were prepared based on the risk principles, FIDIC and risk preferences. In events of conflicting results between the risk

principles and risk preferences, the application of the risk principle governed and served as the objective basis for reasoning.

3.2 Respondent Profile

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 included in the survey. A category accredited by PCAB is the graded level of the total capability of a construction company based on pre-determined qualification criteria that includes financial capacity, experience of sustaining technical employees, track record and equipments. This classification is part of the license application and shall be renewed annually on or before the expiration of their validity which is on the 30th June of each year.

The minimum requirements for AAA and AA contractors are shown in Table 3.1.

The survey cover letter indicated that the positions of the person who would answer the survey has the qualifications of any of the Chief Estimator/ Senior Quantity Surveyor, Contracts Manager, Project Manager or Authorized Managing Officer. The ability and responsibility of these positions impart them the knowledge desired for this survey. Stating a particular position is impracticable and too demanding knowing that these companies differ in organizational structure.

For the risk allocation preference interview, the sampling was obtained from the respondents of survey questionnaires. The survey questionnaire included a query

Table 3.1 PCAB AAA & AA Companies Categorization Table.

Category	MINIMUM QUALIFICATION REQUIREMENTS				
	FINANCIAL CAPACITY		SITE MINIMUM CONSTRUCTION EXPERIENCE REQUIREMENT		
	STOCKHOLDER'S EQUITY	CREDIT POINTS (C.P.) REQ'D.* (1 point/ ₱ 100k)	INDIVIDUAL	AGGREGATE	C.P. REQ'D. ** (1 point/yr. of construction experience)
AAA	₱ 90,000,0000	900	10	60	300
AA	45,000,000	450	10	50	250
50. Financial Capacity C.P. inclusive of Equipment Capacity (1 point/ ₱ 100k)					
** Site Minimum Construction Experience C.P. inclusive of Experience of Firm (10 points/year of active existence; & 1 point/₱ 100 Th of 3 year Average Annual Volume of Work Accomplished)					

asking for the willingness and interest of the respondents to participate in a further supplementary interview for this research. These respondents were afterwards selected with the interest of representing the Filipino contractors from different localities.

3.3 Survey and Interview Structure

A survey was utilized by this study to determine the risk perception of the Filipino contractors in relation to the subjective view on the importance of a risk item. The initial risk types considered in identifying risk perception were generated from the work of Kangari (1995), Ahmed *et al.* (1999), Rahman & Kumarasamy (2002), Kartam N. & Kartam S. (2001), Andi (2006), and Hameed & Woo (2007). The survey was conducted with consideration that the importance

of a particular risk varies from one project to another and the expected assessment derived was a generalized evaluation of the risk.

The rating system of this part was based on an international survey conducted by Wang *et al.* (2004) in their attempt to develop a risk management framework for construction to be used by international investors when planning to work in developing countries. The respondents were asked to rank each risk on a scale of 1 to 7 according to their perceived importance for that risk item, as shown in Table 3.2. This rating system is different from the broad-based evaluation employed by other studies, thus giving more definite and consistent assessment from the respondents. The different ratings have corresponding characterization to guide the respondents as they perform their evaluation.

Table 3.2 Rating system for risk criticality (Wang, Dulaimi, & Aguria, 2004)

Rating	Risk criticality
1	Not critical at all
2	Slightly critical
3	Somehow critical
4	Critical
5	Very critical
6	Very much critical
7	Exceptionally critical

The basis of the survey respondents may be out of their own individual intuition, judgment and experience gained from previous contracts. To ensure consistency on their assessments, it was indicated in the survey to rate the degree of importance for each risk based on perceived probability and impact in meeting the project's objectives related to budget, schedule and performance

requirements. With consideration to the limitations of these two factors as stated by Williams (1995) and Ward (1999), the combination of these two dimensions is inevitably simpler and appropriate for the survey as opposed to the inclusion of all the suggested items. The risk rating desired refers to the general characteristics of each risk factor and do not pertain to any particular case under a risk factor, especially extreme circumstances. For a more specific evaluation or ranking of key risks, the researchers of this study agree to the more extensive collection of information besides probability and impact. The design of the questionnaire was intentionally concise to encourage the participation of the respondents.

In addition to the risk perception survey, the final part posed a question to determine additional risks not included in the survey. The initial list was purely based on literature to avoid personal biases from the author. This revealed risks that are unique to the Philippine setting as reported by the contractors.

After survey collection, the interview was conducted to distinguish the risk allocation preference of the contractors. This part is intended to act as the vehicle for the contractor to define and limit their risks and responsibilities in accordance with their goals. The questions and further meetings are intended to be thorough to reflect their statements of position and ensure that meaningful responses are obtained. The background and objectives of this study were also explained to discuss the relevant circumstances in connection with the interview.

3.4 Response Profile

The survey was conducted from April to June 2008. The study was able to gather 37 responses out of 227 surveys sent out, for a response rate of 16.30%. The

respondents consist of 26 AAA and 11 AA companies. The response rate is considered satisfactory because construction professionals are usually disinclined to participate in such studies especially in the Philippines. Furthermore, the respondents are all at management level in their respective companies possessing concrete experience on the country's construction risks.

Out of the 37 responses, 18 contractors stated their willingness to participate on the supplementary interviews for this research. Because of different constraints and the desire to have an equal representation of the different localities in the Philippines, only 16 among the accommodating contractors were interviewed.



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CHAPTER IV

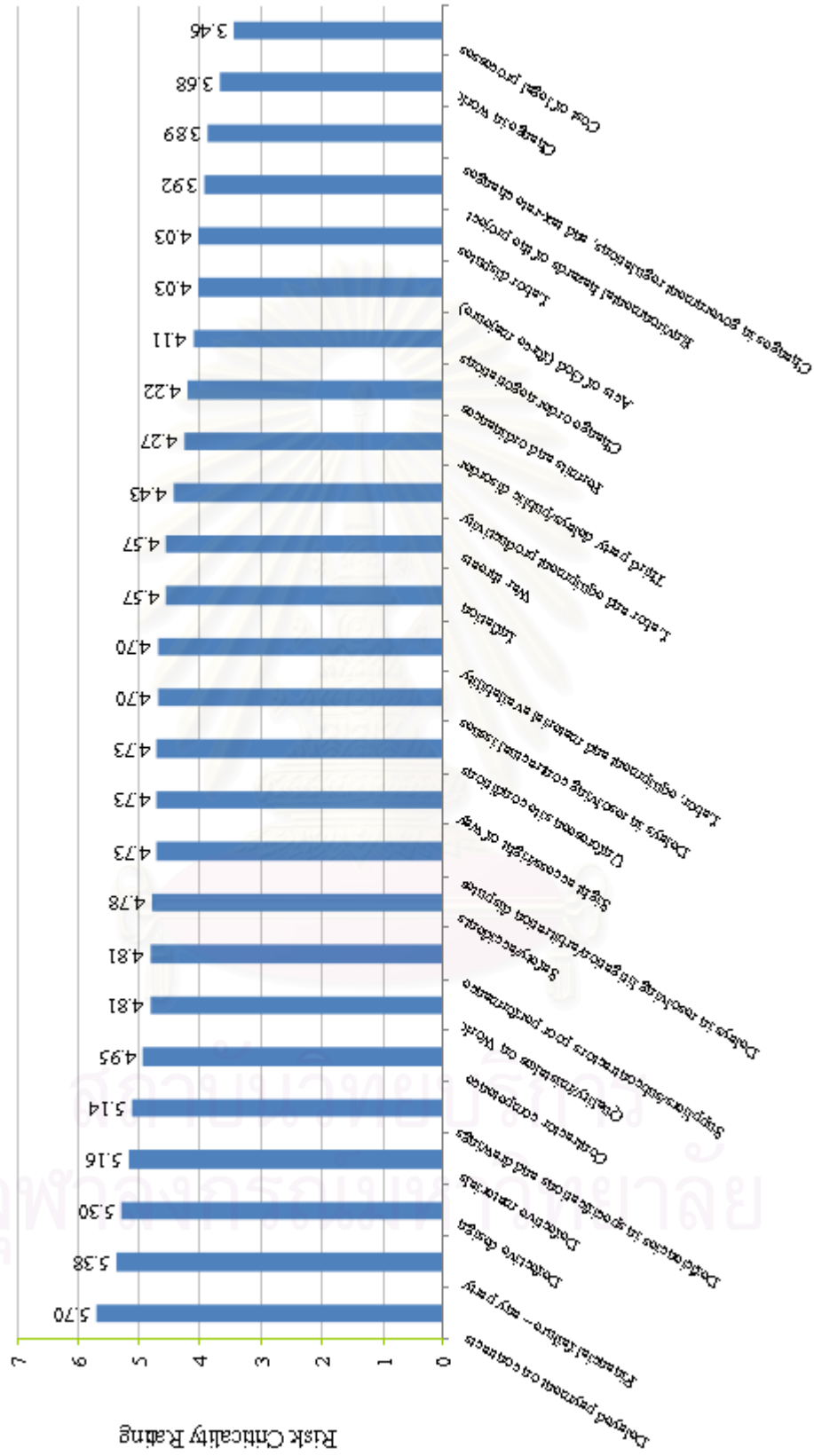
RISK PERCEPTION OF FILIPINO CONTRACTORS

4.1 Risk Perception of AAA and AA contractors

The analysis on this part was carried out by arithmetically averaging all the figures for each risk item. Fig. 4.1 shows the average ratings arranged from highest to lowest.

Based on a 7-degree rating system, twenty-two out of twenty-six risk items were found to be at least “Critical”. It shows that the contractors generally perceive risks to be critical because of its potential to become a turning point or crisis. The lack of predictability of such events/factors could cause abrupt changes that usually hit contractors initially. As expected, the contractors would rather leave there allowance for contingencies not spent and preferably carry on without these risks. The quality possessed by something that should be avoided affects their judgment and evaluation, most likely keeping in mind the worst possible outcome.

Moreover, five of the risk items were considered no less than “Very Critical”. These “Very Critical” risks also apparently constitute the top five which are: *Delayed Payment on Contractors, Financial Failure-of any party, Defective Design, Defective Materials and Deficiencies in Specifications and Drawings.* The top two risk items can be regarded as closely related since both of these events are associated with the project financing. The verbiage also of these two



Construction Risk Items

Fig. 4.1 Results of Risk Perception Survey

risk items poses a more imminent consequence on a contractor's profit that is of great importance to their business. The third and fourth ranked risk items are notably likewise interrelated as design is a process of creating the description of a new facility, usually represented by detailed specifications and drawings. The closeness of the rankings of these two cases shows consistency of the tallied results.

On the other hand, the four risk items that did not go above the "Critical" rating were at least given the "Somehow Critical" rating. These four risk items that settled at the bottom of the list are: *Environmental Hazards of the Project*, *Changes in Government Regulations and Tax-rate Changes*, *Change in Work* and *Cost of Legal Processes*. While it came out that these risks were short of being considered "Critical" as demonstrated by the survey results, the ratings are still relatively close to the "Critical" rating. The *Environmental Hazards of the Project*, and *Changes in Government Regulations and Tax-rate Changes* almost garnered the "Critical" rating with 3.92 and 3.89 rating, respectively.

It is also interesting that the range of the average ratings fall from 5.70 to 3.46 even though a 7-degree rating system was utilized on this survey. The range can be considered narrow and the perceptions are constricted to the representations of its ratings. Fig. 4.1 shows small intervals between one particular risk to the other, let alone some risks finishing with equal ratings. Seventeen out of twenty-six risks fell from the 5.00 to 4.00 rating or from "Very Critical" to "Critical" rating. Such findings show that the contractors find little disparity among the risk items considered. The respondents associate these factors together because of their identical and inherent qualities as a risk.

In view of the rankings, the largest difference from one rank to the next was interestingly found on the first and second ranked risks namely the events of *Delayed Payment on Contractors* and *Financial Failure-of any party*. The ranking of the *Delayed Payment on Contractors* and the relatively large variation of its rating to the following risk item illustrate the contractors' extraordinary regard for this particular risk item. It can be construed that contractors are primarily concerned with the correct and timely processing of payments that could have been problematic or bureaucratic based on previous experiences. The recurring incidence of this risk event on a contract influenced the way it was rated. It exposes the need for contracts that are fairer to the contractor and incorporate better terms of payment to them. A contingency added by the contractor to mitigate the possible occurrence can be avoided by enforcing clear terms of payment on the whole project duration.

4.2 Political Intervention and Rebel Tax

Different types of risk that were not initially included surfaced from the comments of the respondents. Of all the risks that were revealed, the risks of *Political Intervention* and *Rebel Tax* stood out as the new items repeatedly brought up having no connection to the already considered risk types. These two additional risk items perhaps are not as crucial or do not exist in other countries compared to the Philippines. The fact that both of these risks were cited by different respondents merits them the equivalent amount of consideration on this research as the initial risks from literature.

Public contracting is considered an enormous and lucrative area of business and *Political Intervention* plays a huge role in policy-making. Most of the contracts

are meant to buy or produce goods or services that should benefit the citizens directly or indirectly. The key question is whether genuine efforts to serve the public interest motivate the contracting decisions being made. Contracting activities are performed by all levels of government, from municipalities and towns, to provinces and national governments.

Political Intervention can be interpreted as a misuse and abuse of authority and is often related to corruption. Corruption in public contracting leads to a distortion of fair competition, the waste of scarce resources and the neglect of basic needs. Massive market inefficiencies can also arise from corruption and, in extreme, lead to destruction of development opportunities. Systemic corruption frequently results in inferior quality goods and services and unnecessary purchases. Contracts are sources of power to those who give them put, and targets of ambition for those who may receive them, making public contracts prone to abuse at the expense of public need. The risk of corruption in public contracting exists even before the contracting process has started, perhaps even at the moment when public budgets are allocated, and it perpetuates beyond the awarding of a contract to its implementation.

All efforts of the government to increase transparency and hinder *Political Intervention* in their projects, as well as to support anti-corruption activities, are therefore crucial. The lack of transparency in contracting processes for large-scale infrastructure projects can have devastating consequences for economic and social development. Corruption (which includes bribery, extortion and fraud) also steers public spending towards environmentally destructive projects. Huge construction projects have gone only because bribes were paid, and

environmental standards were not applied. Too frequently, corruption results in redundant infrastructure projects.

Rebel Tax or Revolutionary Tax are demands usually in forms of money from a business enterprise or owner. It is a burden that entrepreneurs have to bear before a project on rebel infested areas, usually in rural locations. The group notorious for the collection of such levies in the Philippines is the New People's Army (NPA). The NPA is a 35-year-old Maoist rebellion that aims to overthrow the government. They believe that they are a "revolutionary government that exists side by side with the Philippine government and in some instances performs the functions of the Philippine government," thus giving them the authority to collect taxes. They usually collect as much as 3 percent of a company's gross income using the money for group operations and to finance projects in the communities that the rebels control. Businesses operating on these locations are used to complying with such unjustified demands and just consider it as an added business cost, part of security expenses. It is a fact of life that many businessmen have to live with.

In conclusion, the contractors have ranked the majority of the risk events as more or less Critical and significant in meeting the project objectives. The findings convey that the risks found from the literature were indeed crucial and worth analyzing. The results demonstrate the concern prevalent within the industry and the serious need for improved strategies of risk management. All of these risk events further evaluated on aspects of risk preference and risk allocation on the following chapters to address these issues.

CHAPTER V

RISK ALLOCATION PREFERENCE OF FILIPINO CONTRACTORS

For the risk allocation preference interview, the sampling was obtained from the respondents of survey questionnaires. These respondents were afterwards selected with the interest of representing the Filipino contractors from different localities. The Philippine Bidding Documents (PBDs) under consideration for this interview is intended for admeasurements (unit price or unit rates in a bill of quantities) types of Contract.

Also, because of the large number of risks to be investigated, the total number of respondents was divided into two and the risk types were distributed on each group to have a more fruitful discussion. This decision was affected chiefly by the concern that a prolonged dialogue with the respondents might cause uneasiness and indifference to the respondents. The different risk types were distributed in such a way that risks with similar nature were put on different groups, so that the contractors in effect have taken up every risk item. The summary of the risk preferences interview together with the respondents' key can be found on Table 5.1.

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

Table 5.1 Summary of Risk Preferences and Comments

Risk Type	Risk Preference/ Comments	Respondent 1	Respondent 2	Respondent 3	Respondent 4	Respondent 5	Respondent 6	Respondent 7	Respondent 8
Labor and equipment productivity	Risk Preference	Contractor	Contractor	Contractor	Shared	Contractor	Contractor	Contractor	Contractor
	Comments	Contractor cannot be competitive if he overlooks the productivity of his equipments and laborers.	It is expected that the performance of the contractor's resources are well in-place.			Contractor is responsible for all the equipments, safety and quality of works.			
Quality/mistakes on work	Risk Preference	Contractor	Shared	Shared	Shared	Shared	Contractor	Contractor –	Shared
	Comments	Any violation, inconsistency and mistakes are under the responsibility of the contractor because he is being paid accordingly by the owner.	The inspector decides if the work passes their standards and approves it.	It's better if the owner already has the enough knowledge regarding construction.		There should also be a countercheck from the owner to check the quality.	As an ethical contractor, he should be liable in providing quality with anything he does.	Contractors hired by an owner because of their competency.	
Safety/accidents	Risk Preference	Contractor	Contractor	Contractor	Contractor	Contractor	Shared	Contractor	Contractor
	Comments	Standards in construction are taken lightly by Filipino contractors.	Contractors should see to it that he carries out his own safety practices even without the guidance of the owner.	Contractors should supervise workers especially those who are stubborn.	Owner is just overseeing the accomplishments of the contractor.	Site is under the contractor.	Owner must establish his own Health and Safety Program.	Owner has to remind and guide the contractor with his responsibility.	It would be better if safety is included in the bid item. It should be fixed and on the top of the list and every contractor is standard with this item.

Table 5.1 (continuation) Summary of Risk Preferences and Comments

Deficiencies in specifications and drawings	Risk Preference	Owner	Owner	Owner	Owner	Owner	Owner	Owner	Owner
	Comments	But the contractor should likewise advise in cases of deficiencies. On an EPC contract, the contractor should be responsible accordingly.	Signatories in the plans show their approval on its correctness. The job of the contractor is mainly to execute the project as per plan satisfactorily.	Since an error was overlooked by all those qualified bidders, it is proven that it cannot be blamed to the winning contractor.	Owner should employ engineers in all fields concerned.	Owner if he's the source of design.	Contractor only executes based on plans and specifications.	All the bidders sat down with the same specifications and if it was overlooked by all of them, this proves that it is a no ordinary omission.	The liability should always be with whom party the design came from.
Permits and ordinances	Risk Preference	Owner	Owner	Owner	Owner	Owner	Contractor	Owner	Contractor
	Comments	Owners this responsibility when contractors have connections with the local authorities. Even so, the contractor on this case recoups the cost to the owner probably with some margin.	It is more efficient if the owner will carry out the acquisition of permits because most of the documents are on his possession.	It incurs additional costs when owners pass this to contractors.	Owners pass it to the contractor and contractors take it because of the need for a project.	Owners should be more aware of the transactions on his own municipality. Bribes and different payoffs are involved for the processing of legal requirements.	Owner should provide you with some assistance with the completion of documents.	If there should be no violations in the project, it wouldn't cause a lot of problem and red tape, the owner should be the one to take care of this	Contractors should accept this responsibility as part of the total service to the owner.
War Threats	Risk Preference	Owner	Owner	Owner	Owner	Owner	Contractor	Owner	Contractor
	Comments	Owners this responsibility when contractors have connections with the local authorities. Even so, the contractor on this case recoups the cost to the owner probably with some margin.	It is more efficient if the owner will carry out the acquisition of permits because most of the documents are on his possession.	It incurs additional costs when owners pass this to contractors.	Owners pass it to the contractor and contractors take it because of the need for a project.	Owners should be more aware of the transactions on his own municipality. Bribes and different payoffs are involved for the processing of legal requirements.	Owner should provide you with some assistance with the completion of documents.	If there should be no violations in the project, it wouldn't cause a lot of problem and red tape, the owner should be the one to take care of this	Contractors should accept this responsibility as part of the total service to the owner.

Table 5.1 (continuation) Summary of Risk Preferences and Comments

Financial failure – any party	Risk Preference	Shared	Shared	Shared	Owner	Shared	Shared	Shared	Shared
	Comments			Government still pays in cases of bad economy.		Extraordinary situations should be understood by both parties.		It is not to the liking of the contractor that these things will happen. If this will be priced, a big amount will be charged.	Contractors might not be capable to bear the damages caused by these incidents. It will also be cheaper to the owner to insure the project by himself rather than letting the contractor put his margin with obtaining these insurances.
Acts of God (force majeure)	Risk Preference	Owner	Owner	Shared	Shared	Owner	Owner	Owner	Shared
	Comments	Contractors are usually safe with these cases. CAR insurance also is a protection for them.	This one should be negotiated. The government also has itself a calamity fund.	From past experiences, if we haven't touched the area, then we are still free from the responsibility.	These cases can be referred to insurance.	Owners usually honor these extraordinary cases.	If there could be damages, it would be put under investigation and the costs should be borne by the owner.	These are unforeseeable events.	Both parties should have an agreement on how to apportion its consequences.
Unforeseen Site Conditions	Risk Preference	Owner	Shared	Owner	Owner	Owner	Owner	Owner	Owner
	Comments		But more on the owner.	Faulty site investigations should be the responsibility of the owner.	Since it's unforeseen.	Owner must complete all the site inspection and different plans.	If there's an affidavit of site inspection given by the contractor, the responsibility is passed to the owner.	Owner should have taken all the necessary engineering preparations.	We will just follow whatever information is given on us.

Table 5.1 (continuation) Summary of Risk Preferences and Comments

Third party delays/public disorder	Risk Preference	Owner	Shared	Owner	Owner	Shared	Owner	Owner	Shared
	Comments		Owner should clear all his finances, legal requirements, safety, site access and mitigation schemes.			If we would be forced to stop, delays are not critical seeing that the contract time is also being put on hold. We evaluate it and see what activities can be done to resolve it.	As long as it's beyond the control of the contractor, the owner should be responsible for the effects.	The contractor cannot control these kinds of incidents.	Contractor should minimize the consequences, but the owner should take care of the unavoidable effects.
Changes in government regulations and tax-rate changes	Risk Preference	Owner	Shared	Owner	Contractor	Owner	Owner	Owner	Owner
	Comments	However, if during the pre-bid it was already being felt that a wage increase will happen and the owner advised the contractors to include it, the owner would be free from the liability. In the end, the owner again shoulders the cost.	For the changes in government regulations, usually you're tied with the agreed rates in the contract. It also depends on your relationship with the owner and the actual situation.	Price escalations should be shouldered by the government.	Contract should expressly address this risk.	This was passed by lawmakers and the contractors shouldn't be held liable for this.	Contractor can only accept minor changes. A major change could be distinguished in agreement with the owner.	The contractor cannot control these kinds of incidents.	Owners should reflect changes in law on their development budgets.
Change order negotiations	Risk Preference	Shared	Shared	Shared	Shared	Shared	Contractor	Shared	Shared
	Comments	No one accepts the responsibility involving the issue being disputed.	Contractor should be prepared for the time and cost effects of filing a claim.	Lines of communication and scope of authority of participants are spelled out and understood.	Contract should expressly address the resolution process.		Contractor claims for change orders making him responsible for the negotiation process.	Notices should be given clearly and promptly.	Owners and contractors should be organized to provide effective three-way communications.

Table 5.1 (continuation) Summary of Risk Preferences and Comments

Delays in resolving litigation/arbitration disputes	Risk Preference	Shared	Shared	Shared	Shared	Shared	Contractor	Shared	Shared
	Comments	No one accepts the responsibility involving the issue being disputed.	The cost if possible could be borne by the owner.	Contractors should manage their personnel and just assign them to other operations or dismisses them.		For the case of non-productive workers, we transfer them to a different assignment or dismiss them.	Contractor must be responsible as it will look like a gamble on taking his claims.		All parties should be organized to provide effective three-way communications.
Political Intervention	Risk Preference	Shared	Owner	Contractor	Shared	Contractor	Owner	Shared	Shared
	Comments	On administration changes, politics also plays a bigger role. The policies of agencies change.	Contractors could ask for some assistance with the owner. In the Philippines, past agreements are not honored with changes in administration.	Contractors give in to the political intervention and considered this as a matter-of-fact in the business.	Contractor initially pays and does the dirty works but it will in the end be passed to the owner.	Politics in the local government are more critical, but not the overall government. Contractor should be ready for this.	Local government can stop the project whenever its interests are not granted.	Local government applies pressure to receive different favors and take advantage of your project.	Contractor should abide officials and the owner must deal with unavoidable consequences.

Table 5.1 (continuation) Summary of Risk Preferences and Comments

Risk Type	Risk Preference/ Comments	Respondent 9	Respondent 10	Respondent 11	Respondent 12	Respondent 13	Respondent 14	Respondent 15	Respondent 16
Change in work	Risk Preference	Owner	Owner	Owner	Owner	Owner	Owner	Owner	Owner
	Comments	Change orders are usually owner initiated.	Owner is in a better position to manage it by specifying clear and fair contract terms and clear and workable procedures	Inadequate & ambiguous specifications cause a lot of variations.	Contractors will not avoid large contingency sums in their tenders to cover this risk.	Budget allocated on planning is limited causing a lot of changes.	Owners change their mind as the project progresses.		Facility is to be utilized ultimately by the owner.
Contractor competence	Risk Preference	Contractor	Owner	Owner	Owner	Owner	Owner	Owner	Owner.
	Comments	Considering the prequalification is appropriate, the responsibility should be passed to the contractor.	Selection committee should be liable. Prequalification could also avoid bid collusion.	Qualifying office should be liable. Nepotism is rampant in the Philippines.	Accreditation should be made and the owner must establish standards.	There are cases also where the owner defines criteria which are not suited for the project.	Owner investigates financial, legal, technical and experience qualifications.	If they are qualified by PCAB, it is proven to be competent.	
Defective materials	Risk Preference	Contractor	Contractor	Contractor	Contractor	Contractor	Contractor	Contractor	Contractor
	Comments	Unless it's owner-supplied.	Some also procure substandard materials at the risk of being rejected for higher income.	However, the one who makes the specification are the owners. The function of the contractor, on the other hand, is to comply with the plans & specifications.		However, if there's a defect on specifications, it would be on who provided the specifications.	It's the duty of the contractor to see to it that the materials passed the quality standards. It's a fraudulent act by the contractor to use substandard materials.	As roads and bridges contractor, we accept the liability.	But in cases of owner-supplied, it could be shared.

Table 5.1 (continuation) Summary of Risk Preferences and Comments

Labor, equipment and material availability	Risk Preference	Contractor	Contractor	Contractor	Contractor	Contractor	Contractor	Contractor	Contractor
	Comments		Contractor should be aware about the availability and adjust his cost to reflect shortages.	Supply & demand is so erratic in the Philippines.		But when it comes to abnormal situations, like the demand increases on other countries, the owner should be reasonable enough to address the problem.	Cost is already incorporated in the bid and these situations don't affect it.	Before you qualify and seek for accreditation, equipments and personnel will be investigated.	
Suppliers/ subcontractors poor performance	Risk Preference	Contractor	Contractor	Contractor	Contractor	Contractor	Contractor	Contractor	Contractor
	Comments	Unless supplier/ subcontractor is nominated	Who engages a contractor/subcontractor should be accountable for his performance.		Contractors are more technically adept.	Waiver is issued to the owner to free us from any liability against unscrupulous subcontractors.	Contractors are now given the autonomy of subcontracting or doing the works on their own.		If they are nominated, the most is shared.
Defective design	Risk Preference	Owner	Owner	Owner	Owner	Owner	Owner	Owner	Shared
	Comments	Owner should go after the designer if it appears to be defective.	Whoever made the design should be responsible for it.	It lies on the shoulder of the designer. The function of the contractor is to execute the plans and specifications.	Whoever is in the side of the design should be responsible.	If we see the client as a potential for the future, we just shoulder it as a sin of good will.	Ethical standards shall be observed and the contractor should not interfere on the design.	Owners are advised in meetings if errors are observed.	Contractors can be liable for obvious defects. Owner, on the other hand, has the resources to check the design as he chooses the designers.

Table 5.1 (continuation) Summary of Risk Preferences and Comments

Inflation	Risk Preference	Shared	Owner	Owner	Shared	Shared	Owner	Owner	Contractor
	Comments	Contracts should include a provision that states that these cost items are only valid for a particular period.	On cases of unusual inflation, the owner should come to shoulder.	System should consider the validity of bid for a period of time & an established value; say a 6-month period & 3% inflation.	After a certain period, say 2 years, the contract price can be adjusted.	What we do is that we also lock-in our suppliers. If they set a period of validity on their bids, we also set it with the owner.	Owner should pay the contractor the increase in prices brought about by inflation		Contractors should be ready to be responsible for this.
Delayed Payment on contracts	Risk Preference	Owner	Owner	Owner	Owner	Owner	Owner	Owner	Owner
	Comments		Expenditures in construction are dependent on owners' disbursements.	Interest payments must be paid on delays.	Owner can obtain loan money at a lower rate of interest.		Financing terms must be strictly followed by the owner.	Certainty on the timing of payments is paramount in project execution.	Present system could be unfair since it does not allow interest payments.
Environmental hazards of the project	Risk Preference	Owner	Shared	Shared	Owner	Contractor	Shared	Shared	Contractor
	Comments	Environmental Compliance Certificate is usually provided by the owner.	Contractor should be responsible for any hazard in the project. Unforeseen hazards should be of the owner's.	Contractor and owner should work together to handle this risk.	Owner should take care of the environmental hazards.	Contractor should assure the protection of everyone that might be affected.	Owner should clear the project's environmental compliance to the appropriate agencies. Construction methodology is the responsibility of the contractor.	Normally, the contractor has also chance to air his concerns and recommend.	Contractors must clarify hazards on prebid meetings.

Table 5.1 (continuation) Summary of Risk Preferences and Comments

Costs of legal processes	Risk Preference	Shared	Shared	Shared	Contractor	Shared	Owner	Shared	Contractor
	Comments	Depends on which party is involved.		Losing party always pays.	Contractor must perform his obligations faithfully to avoid legal proceedings.	Successful party to litigation is entitled to an order for payment of his costs.	Legal fees must be passed onto the owner.	Unforeseen fees required by officials should be of the owner's.	Contractors are usually at the receiving end of lawsuits.
Sight access/right of way	Risk Preference	Owner	Owner	Owner	Owner	Owner	Owner	Owner	Shared
	Comments	It works better if the owner should take care of the right-of-way acquisition.	However, for example, on transportation, when it can be brought manually but instead a contractor chooses to use equipment, the contractor should be more responsible for this situation.	Government should take care of the right of way prior to the award of contract.	Definitely the owner.	Owners usually take care only of the path. Cost is difficult to control because people especially when they became aware of their rights extort from the contractor when they pass the property. It is uncontrollable and unpredictable at times.	However, in some government contracts, the owner includes it and assigns it to the contractor.	Authorities or obligations are easily accepted by owners on the grounds that it is unforeseen.	Owners can assist in dealing with these issues. Contractors should study how he would go about the project before construction.
Delays in resolving contractual issues (Change order negotiations)	Risk Preference	Shared	Shared	Shared	Shared	Shared	Shared	Shared	Shared
	Comments	Owner should grant time extension without the additional overhead.	A dispute is a joint undertaking.		Nobody should be solely responsible.	Usually it is investigated thoroughly, for the benefit of both parties, who are responsible.	Cost should be shared.	But usually the cost is a big risk of the contractor.	

Table 5.1 (continuation) Summary of Risk Preferences and Comments

Labor disputes	Risk Preference	Contractor	Contractor	Contractor	Contractor	Contractor	Contractor	Contractor	Contractor
	Comments	Common cause is the early termination of workers.		Owners should share responsibility if there is a delay in payments.		Our policy here is that whether the owner pays or not, we see to it that we pay the workers.			
Rebel tax	Risk Preference	Contractor	Owner	Contractor	Contractor	Owner	Contractor	Contractor	Contractor
	Comments	Revolutionary tax normally happen rebel infested areas. The contractor includes contingency for him to be responsible on with the negotiation with this leftist group.	Assistance of the military should be sought on these situations. But, what happens is that the military would also take advantage of you.	The solution there is to avoid the projects on those locations. Let them suffer. They wouldn't have the infrastructure.	As contractors, we avoid projects vulnerable to these risks to stick with our principles.	Government officials usually intervene on government projects.	Contractors shoulder rebel tax because it's illegal.	Contractors would not operate on that area if not for the owner's project.	Contractors should have analyzed that before the start of the project

assists the presentation of the interview results on risk allocation preference. Fig. 5.1 shows the different categories prepared by the author.

5.1 Construction related risks

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.

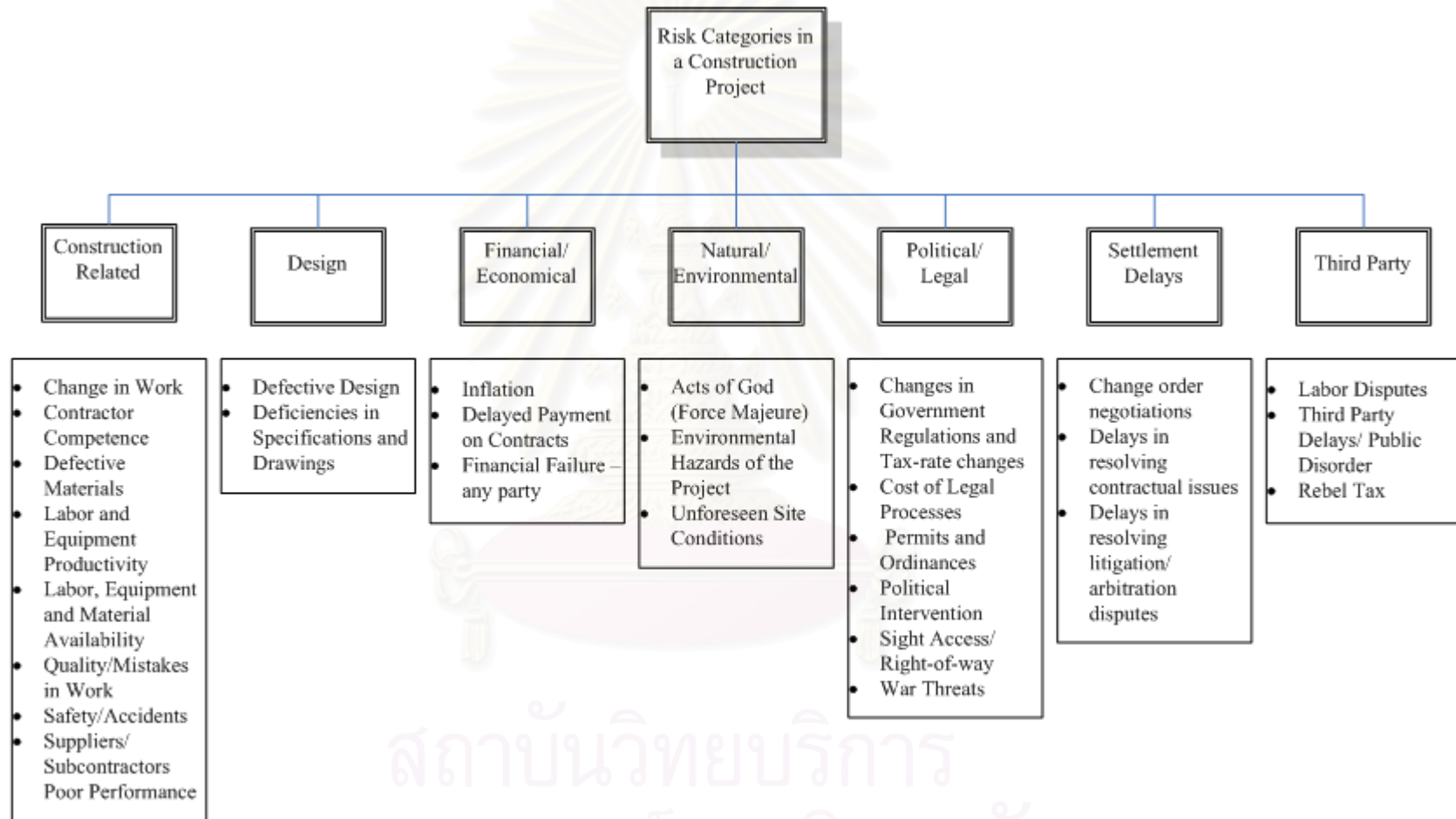


Fig. 5.1 Construction Risk Categories

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 labour, 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.

5.2 Design Risks

The two risk events, *Defective Design* and *Deficiencies in Specifications and Drawings*, are very much interrelated and got similar views from the interview. When an owner furnishes plans and specifications for a construction project, contractors normally expect the owner to bear responsibility for any deficiencies in those specifications. The respondents refuse to assume responsibility for the completeness and accuracy of the design as well as the plans and specifications, except on clearly designated design build projects. The owner is expected to adequately fund the costs of complete design, specifications and drawings therefore the extra work and expenses not expected when entering the contract are expected to be recoverable. Conflicts and discrepancies often only do not arise until the actual construction is prepared with upcoming work. The inadequate planning because of urgent owner requirements or insufficient funding results in general drawings without details or specifications that causes ambiguous perceptions from contractors.

Contractors also usually prepare bid under stiff deadlines compared to the ample time the owner and designer benefit from. The respondents find disclaimer clauses as unjust mechanisms of both the owner and design professional. Expecting the contractor to go through a large amount of cross-reference data, tables and figures

is too much a burden according to the contractor's perception. The contractors will estimate based on his logical understanding of the contract terms and design intent of the project keeping in mind the objective to underbid fellow bidders.

While contractors should rightfully check any omissions, errors and inconsistencies, the respondents contend that the review be confined to the contractor's capacity as a contractor not as a design professional. The respondents are actually unwilling to act as guarantors of the design as they submit their bid but sometimes are forced to if required by a contract. Pre-bid conferences must also be scheduled by the owner in order for the contractors to seek clarifications and disclose any discovered deficiency. This practice will ensure fairness for the bidders and indicate that an error unnoticed eluded all the bidders' evaluation of the contract documents.

One of the most common deficiencies the contractors encounter with the design is the coordination of different utilities on a project. Detailed specifications and drawings are usually unavailable on the issuance of bid documents and conflicts come up on their installation. The respondents believe that the design team should maintain the primary responsibility and they can only offer assistance on coordination for the harmony of the project.

5.3 Financial/Economical risks

To begin with the discussion of this category, it is noteworthy that the interview was conducted on July 2008 where the annual inflation hit a near 17-year high of 12.2%, the highest since December 1991 when consumer prices rose 13.2%. The annual inflation rate went beyond the central bank's forecast range of 11.2-12.0%

and the inflation forecasts for 2009 were adjusted to average 6.0-8.0%, from the 2.8% forecast expected last year (Remo, 2008). The present economic climate around the world, in both rich and emerging countries, possibly influenced personal perceptions of the respondents on these risk items.

Two risk items under this category, *Financial Failure-any party* and *Inflation*, was preferred to be allocated by the owner or else shared by the two parties. The contractors who pass the risk to the owner argued that clients have more financial capability to shoulder the consequences of these risks. Owners will benefit later on when the intended use of the facility be realized during its lifespan. On the other hand, those respondents who accepted a sharing of risk allocation settle with this agreement understanding that neither party anticipated and wanted these incidents. The interests of both parties may be poles apart but the financial risks on entering into a contract should not be borne by either the owner or contractor alone, as stated by a respondent.

When sharing of risks is considered, the actual sharing and allocation becomes another predicament to keep the objective of fairness at hand. The respondents cannot suggest a system to ensure the total fairness of risk allocation, likewise on measuring the actual equality of apportioning. Contract negotiations, whether prior to the risk event or following the unwanted incident, establish the distribution suited for a particular situation. The impacts rely on various factors such as the project size and the magnitude of the risk itself, which makes a standardization of agreements complicated. The owner's granting of time extension and contractor's acceptance of cost implications is an arrangement experienced by some contractors, and seems to be viable for some respondents.

The objections come in when the contractors draw their thoughts to significant cost implications.

Several comments were also suggested by particular respondents to have a clear agreement on economic risks. The contract can stipulate a period, for instance 2 years, wherein estimated costs are fixed in spite of steep price escalations. This strategy leaves the decision to the contractor on whether he would add allowances for price escalation or submit a low bid price to outbid his competitors. The owner will be relieved from the pressures of the contractor during the agreed period, but will also risk on higher construction costs including contingencies. Another common suggestion requires an establishment of a specified percentage on the contract on which price adjustments will be granted once price escalations exceeded this figure. The price adjustments can be limited to certain materials like steel and cement. However, the implementation of this idea need to address first what the impartial percentage is and where to base the actual prices of the materials considered.

In view of the present exercise involving No Escalation Clauses, the respondents are as expected against the stipulation. The uncertainties of the current economic condition make them averse to risk on material prices. The respondents more willingly agree to an involvement from the owner in addressing financial implications.

Furthermore, issues on steel price escalation and hike on petroleum prices have been consistently pointed out during the interviews as two of the most apparent causes of concern recently. The contractors claimed that steel prices doubled since the start of the year whereas fuel prices increased by 27.5% a year-ago. Most of

the contractors tried to ask for price adjustments and owners reportedly turn out to be cooperative with nearly all the respondents interviewed. However, a satisfying assistance usually comes with no more than a partial recovery or price adjustment.

Contractors also rely on memos from the government, through the National Economic Development Authority (NEDA), granting price adjustments on government projects whenever extreme price escalations are experienced. The contractors claim becomes indisputably official and free from any elaborate justification.

Finally, the risk of *Delayed Payment on Contractors* has been passed to the owner by the respondents. Payment terms in the contract are from time to time not followed and contractors have learned to adapt on these situations over their years of experience. The request for payment process requires various documents and usually undergoes processing on different offices. The contractors are more understanding on such cases as opposed to situations owners withholding payments for cashflow advantages. Other than the arduous processing of payments, some respondents are remarkably satisfied with the payment attitudes of the government. Corresponding interests are chargeable as compensation for the late payment. A respondent also revealed that they employ a skilled contracts administrator to watch out chances to request for claims like these. Another statement affirmed that a good management and sound financial capability can take care of these cases. Contractors give some understanding on occasional incidents to preserve a good working relationship with the owner.

5.4 Natural/Environmental Risks

The scope of this category consists of risks influenced by unanticipated circumstances involving the project site and environment that interrupt the expected course of events. This research considered the risks on *Acts of God (Force Majeure)*, *Environmental Hazards of the Project*, and *Unforeseen Site Conditions* under this category and logical relationships on the responses were obtained from the contractors. The respondents see them as unexpected circumstances by both parties and usually could not be resolved by due care. These events can undermine a construction process with great financial impact than most other disruptions and are frequent sources of disputes between owners and contractors.

The risks on *Acts of God (Force Majeure)* and *Unforeseen Site Conditions* were assigned by most respondents chiefly to the owner while several respondents accepted a sharing of risk allocation. The contractors if at all possible avoid any kind of responsibility but understand as well that owners should not be left fully accountable for these events. The recovery of additional costs incurred due to these events is usually governed by the express language in the contract and the respondents admit that they sometimes overlook the provisions (if any) on addressing these risks. The traditional approach of the respondents rely more on the negotiations subsequent to the risk events, which they deem the owner to be impliedly responsible. A contractor's claim becomes problematic when the actual risk event is not stated boldly or indicated in the contract documents and the owner also refuses to be charged of some financial consequences. The assumption that owners will be tolerant on accepting claims on these risks could be undependable at times and knowledge of the contract provisions and site

conditions are areas where the respondents have to attach more importance in contracting.

The basic difference of the risk factors *Acts of God (Force Majeure)* and *Unforeseen Site Conditions* is the fact that the latter is generally present or existing already in the site, but is hard to detect with a normal site investigation. On that note, the respondents stated that owners are more capable to conduct advance investigations to obtain the as much knowledge of the site. The owner should devote sufficient time and funds during the planning and design stage to investigate the possible risks the construction may encounter. The contractors do not find it practical to conduct an extensive site exploration for every project bidding they participate in since a contract is not yet assured to be given to them. The time constraints imposed on bid submissions adds up to the difficulty of assessing the site conditions. Owners are also discouraged by the respondents in relation to the practice of disclaiming liabilities with the furnished site information since it only invites additional costs added on top of the construction costs as a contingency to a risk that may or may not materialize. The owners should stand behind the information distributed to its bidders and be accountable to misleading or inadequate data where bids were based.

Similarly, the risk of *Environmental Hazards of the Project* can be dealt by an extensive planning by the owner but the respondents showed a somewhat more receptive attitude towards this risk. Some respondents are willing to take in the responsibility caused by the potential impacts of the proposed project on its surroundings, while some still maintained a sharing on risk allocation because the construction methods and operations were required by the project implementation.

Incidentally, the government requires environmentally critical projects to secure Environmental Compliance Certificate that will require a project to develop a program of environmental enhancement or protective measures and this procedure minimizes significant impacts on the environment. The contractors acknowledge the responsibility to comply with other applicable national and local environmental laws and regulations governing the project. They agree that if the work at any time results in a significant impact on its surroundings or a violation of any applicable environmental law or regulation, appropriate actions will immediately be taken on their account. Simple measures like dust control and noise reduction can be undertaken to show their conscious effort in maintaining the quality of the surroundings.

Then again, the contractor prefers the sharing of risk allocation on cases beyond the abiding national and local requirements. It will be favorable for the contractors if the owner will also anticipate the protection necessary on the project surroundings and prepare provisions in the bid documents for such protection. Some contractors also find difficulty in satisfying neighboring occupants especially in terms of cleanliness and noise created by the construction operation and assistance of the owner is expected. The owner who is more aware of the local regulations as well as the personalities around the area should advise the contractors about these possible scenarios prior to project execution. Moreover, the owner can also establish monitoring systems during the construction process to avoid undesirable impacts to the community.

5.5 Political/ Legal risks

The risk of *Changes in Government Regulations and Tax-rate Changes* were passed on to the owner as expected. Since this research is limited to government projects, the respondents find it fittingly that the owner shoulder consequences from changes in law since the change originated from the same legislative body. Past experiences show that the government as the owner obliged to claims with similar nature. Contractors can be extremely affected especially on large projects when changes on labour escalation and tax-rate were passed on to them as noted by some respondents. Conversely, the respondents also added that owners also know how immense the financial impacts of these changes are, and do not want to take in huge contingencies on the contract either. If it was indicated in the bid documents that forthcoming changes in government regulations be considered, the owner releases himself from any liability and the contractor must deliberate this on his bid. This practice ultimately still places the risk to the owner seeing that he ends up paying for these risks. Additionally, a respondent raised up the possibility of overcharging by the contractors particularly on labour escalation events where they would declare employees that are not actually hired. It was suggested that an appropriate documentation be required or other means of countercheck be made before approving these claims.

Next, problems regarding *Site Access/Right-of-way* are normally addressed by the owner before the hand-over to the contractor and commencement of work. The planning phase of the project must take into consideration the section under Right-of-way and the apparent area requirements of the construction methods involved. An experience by a transmission line contractor tells that the owners usually take care only of the facility's path. The cost can be uncontrollable because people

especially when they became aware of their rights extort from the contractor when they pass the property. Claims were constantly filed, but ever since nothing was approved. He then concluded that owners must be alongside the contractor even after the hand over has been made.

Another controversial phase of these pre-construction requirements lies under the risk of *Permits and Ordinances* and *Right-of-Way* approvals. The contractors face these two risks before carrying out the contract and obstruction can be encountered by lengthy procedures and red tape. There are offices that a project needs to secure approval and these are where the irregularities spring up. Illegal payoffs or bribes are prevalent on some local municipalities in order to expedite the processing of the necessary documents. On the contractors' viewpoint, the owner should secure all these requirements before handing over the project to the contractor, since most of the pertinent documents related to the permits are on the possession of the owner. The owner also can be regarded as more knowledgeable of the site than the contractor who is involved with the site only during the project duration. Familiarity of the owner with the local authorities and procedures can also enhance the processing of these permits.

However, in spite of their abovementioned preference on these risks, the contractors professed that they still usually end up carrying out these duties. The contractors are considered to be more familiar with these procedures as well as the "negotiation" with government officials. A respondent also cited that the owners want to keep their hands clean from these anomalies in trying to observe personal or the organization's principles. Another respondent considers these extra tasks as part of their service to the owner. In the end, carrying out these duties has its

corresponding account in the contract that the contractors put price into. Whether it's the contractor or the owner who chooses to perform these requirements, the financing still comes from the owner. One respondent encounters owners who choose to accomplish these requirements on his own when they observe that huge amounts are placed alongside these tasks.

With regards to the *Political Intervention* and *War Threats*, the contractors agree that they are among the risk items they are more anxious about. The interference of the government can come in different forms and the impacts can be relatively minor or can also be as grave like termination of a project. In view of the actual construction per se, some authorities reportedly ask for small favors like sponsoring a government project or social gathering when constructing under their jurisdiction. Certain favors can be bearable by the contractors, but projects are also vulnerable to sudden change in policies or priorities about a project, as for example, due to a change in administration. Infrastructures associated with the former administration at times block the appropriate funding, eventually leading to project stoppage. The allocation of this risk, therefore, is left undecided because demanding the government to be accountable seems to be far-fetched seeing that they are the guilty party as well. On the other hand, the potential interruption of a project due to a war threat can also lead to project stoppage. In view of this, most contractors do not see any imminent threat as of the present conditions except for rebel infested areas in some parts of the country. Being aware of the looming uncertainties and danger, the contractors also avoid contracting on these isolated parts of the country. They exclaimed that the citizens of these areas suffer because developments are hampered because of the threat. In the case of a threat outside the Philippines, this threat could pose more damage to the country, and in that

case, both the owners and contractors obviously experience the consequences of the risk factor. Again, both threats coming from external and internal forces are unlikely to happen as of present circumstances and contractors apathetically suggested a sharing of risk allocation.

Lastly on this category, the *Costs of Legal Processes* that are unanticipated, as stated by the respondents, should fall on the owner. Other fees by duly constituted authorities or obligations are easily accepted by owners on the grounds that it is unforeseen during the bidding stage of the project. Legal processes might also include court cases filed by the project site's community who turned out agitated or violated by the construction process. The respondents stated that contractors are usually on the receiving end of the lawsuits that leaves them the responsibility of coping with the complaints. On cases where a dispute occurs between the owner and contractor, the unsuccessful party takes on the charges from legal processes based from the experience of some contractors.

5.6 Settlement Delays

As the name implies, this category pertains to factors that could put off the work and slow the development of the project. *Change-order negotiations*, *Delays in resolving contractual issues* and *Delays in resolving litigation/arbitration disputes* try to reach for an agreement on a matter and the conflicting dispositions on it. Besides the obvious consequence on schedule, additional costs are created with added stand-by time, non-productive workers and overhead costs. The respondents stated that they usually carry these costs or manage their resources to mitigate the effects of these events. In general, the owners do not acknowledge these claims since it happened on the contractor's side; also it is difficult to

measure and countercheck. They added that workers and equipments are transferred to other projects where they can be productive if these factors become apparent. In addition, a respondent cited that litigations are typically initiated by contractors because of the negative response on its claim by an owner. Having said so, the contractors bear the burden of proving his disposition and must be prepared for the possible implications of his action concerning the project.

Then again, in spite of the acknowledgement on possible costs that strike him, a sharing of risk allocation on these events is still preferred with the owner expected to grant time extensions equal to the time due to such delay. This premise lies on the basis that both parties are pointing fingers on a disputed issue and no one wants to assume responsibility. The owner in any way has to undergo also some form of inconvenience to discourage resorting to lengthy resolutions. If the owner has no stake in preventing delays to the contractor, some delay may result which could have been prevented by the owner's or the owner's agent's timely attention to the potential delay item. Quick decisions and better communication can be achieved if owners designate a competent on-site representative who has a decision-making authority. The lines of communication must be clear to allow a closer coordination and representation of the owner and contractor.

5.7 Third Party risks

A common attribute of this category have to do with involvement or disruption from parties aside from the owner, contractor and design team. Nevertheless, the risk of *Labor Disputes* arguably falls under the command of the contractor since employment was engaged by them. The respondents agree that the arrangement was done between the contractor and the labour, therefore, removing the liability

on the owner. The essential point on avoiding possible disputes against workers is clearing up to them the organization's policies and terms of their contract from the very beginning.

The common sources of labor disputes were also investigated to understand the relevant circumstances and participation of construction parties. Most of the respondents spoke about the sensitivity of workers on salary and benefits, and are quick to assert that they fulfill their obligations especially on salary. They usually come across workers who are well aware of their rights and insist on their entitlement to such. Living quarters, safety gears and equipments are part of the expectations of labourers every now and then. The workers even proceed to government agencies and put forward their complaints against employers. Another interesting problem some contractors come upon particularly on provincial projects is the "territorial" behavior of certain workers in which they demand the contractors to hire only labourers living on the local region. Gangs of workers are organized on local provinces to ensure employment for the native workforce. The management of these certain problems were recognized by the respondents to be part of their contractual obligations.

Concerning the risks of *Third Party Delays/Public Disorder*, the respondents favour the owner to bear these risks. Risks with this nature are considered not critical except for those that force the construction to stop or inflict some damages. If such cases do occur, the rectification costs and schedule adjustments are claimed from the owner on the basis of its unforeseeability. The respondents can let pass minor disturbances and adjust activities based on the evaluation of the situation.

One more risk from an outside organization is the extortion of *Rebel Tax*. The respondents' common remark revealed that contractors carry out the unpleasant job of negotiating with these leftist groups. Both the owner and contractor have no choice but to yield on their requests. The initial costs are transmitted by the contractors, but will finally accrue to the owner. If the owners avoid liability right from the onset, engaging on a construction project at locations notorious with these extortion groups consequentially induces contingency costs. This kind of set-up obliges contractors to be prepared with the possibility of being pressured with particular demands. It also refrains a possible overcharging by the contractor seeing that these transactions do not involve receipts. It is amusing how some contractors take advantage of this event and adding up to the distress.

It was also noted that requests of these extortion groups are somewhat manageable and they are open to negotiations on what a contractor is capable to offer. The contractors, on submitting to these illegal demands, do not condone these actions, but on the contrary condemn those who perpetrate these illegal acts as obstacles to the local development of these isolated areas. Overall, the responsibility falls on the contractor not only the consequences of these risks but also its elimination.

5.8 Academic Standpoints

Having obtained the risk allocation preference of the contractors, some textbooks were referenced to identify the opinions of various authors and identify some risk allocation practices. Different types of references can be expected to allocate risks in different mechanisms and their own recommendations cannot be quickly held as absolute. These references were explored to be oriented with several mechanisms on achieving different risk distributions. The discussion below

presents the positions of various authors and its evaluation against the collected risk preferences.

Firstly, the references considered Construction-related risks, except *Changes in work*, to be the contractors' basic obligations. In a construction undertaking, contractors are expected to comply with the contract documents and proper instructions of the owner or its representative (Jervis & Levin, 1988; Uff, 1996; Murdoch & Hughes, 2008). The different risk items concerning materials, labor and equipment were not even scrutinized critically and these were assumed to fall directly to the contractor. The consideration of the contractor are in the form of providing all the necessary skills, materials, plant and equipments and to build what the client had had designed (Murdoch & Hughes, 2008). It is sensible not to expect the owner to perform technical aspect of the works, such as performing material tests, or take other elaborate measures unless this is called for in the agreement with the owner (Jervis & Levin, 1988). The desire of some respondents to split the responsibility and bring on some involvement from the owners also in controlling the performance of the works was not reflected on the references cited.

In view of subcontracting the works, the progress of subcontractors, including nominated, are also under the contractor's responsibility as he elected to perform the work on this way (Murdoch & Hughes, 2008). The sentiments of the contractors stated their willingness to bear such responsibility except for those nominated by the owner. Certain contractors asserted that they control and determine the performance of subcontractors by performing their own prequalification investigations. The contractors are wary that the nominated subcontractors might turn out to be negligent, as they were given the job based

from unwarranted qualifications. At least when the subcontractor was hired because of the prime contractor's independent decision, the liability is easier to accept seeing that this action did not turn out as planned.

On the other hand, the contractor will not be liable for defective materials, and in turn poor performing suppliers, where forced by the employer to obtain those materials from a certain supplier. The liability on the contractor can only be found where the contractor has the choice of materials (Murdoch & Hughes, 2008). Relevant opinions or cases regarding events of radical shortages, which the contractors wish to have a sharing on risk allocation, were not covered openly from the references sought. Aside from the abovementioned cases, the acceptance of the risks on *Defective Materials, Labor and Equipment Productivity*, and *Labor, Equipment and Materials Availability* did not become difficult for the contractors during the interviews knowing that their trade highly depends on these aspects of the works.

Another important, and risky, aspect of the general contractor's duties is responsibility for overall job safety. Courts have generally ruled that the degree of control over the job site that is granted to the general contractor carries a commensurate degree of responsibility to maintain safe working conditions (Jervis & Levin, 1988). While some contractors easily accepted this responsibility, some also preferred some participation by the owners. The contractor's methods of carrying out the work are his responsibility and his choice and there is only an exception only if the contract designates the method of construction and that method becomes impossible (Uff, 1996). Imposing the author to implement safety checks and include safety provisions in the contract

are left to the discretion of the owner. Preferably, some respondents want safety to be standardized so that all the contractors bidding on the project can be expected to price the project with the same amount of consideration for safety. This practice is believed to help minimize rework and long term problems for the project.

In ensuring contractor's performance and avoiding the risk of *Contractor's Competence*, the stipulation of performance bonds, termination clauses, payment provisions, and warranties and guarantees can provide a sense of protection to the owner. However, in the case of performance bonds, it still looks as if the owners shoulder this risk as they directly or indirectly pay the bond premiums (Jervis & Levin, 1988). The respondents prefer the allocation of this risk item to the owner bearing in mind the performance of rigorous prequalification processes by the owners to ensure the competence of the contractors. If the owner accepts this responsibility in securing performance bonds, this practice might sit well with the contractors. In cases of difficulty or impossibility to perform the work, contractual obligations stay as absolute and a party will not be relieved. In effect, the contractors are compelled to carry on performing the works just as the owners continue paying the contractor. The contract can only be frustrated if the circumstances change in way that the performance of contractual obligations becomes radically different from the agreed (Uff, 1996).

Variations of the work are owners' prerogative as long as change clauses are expressed in the contract. The respondents asserted that changes usually originate from the owners and changes initiated by contractors are only for introduction of novel methods for the good of the project. When an instruction transforms radically the nature of the project, this can be considered as a "cardinal change"

and the contractor can reject this directive (Jervis & Levin, 1988). Contractors are likely to accept these directives of *Changes in work* even if it is because of the designers' failure to complete comprehensive plans in their haste to release contract documents (Jervis & Levin, 1988; Murdoch & Hughes, 2008).

On the subject of design, design risks, such as the poor definition of the project's scope or difficulties in the interaction of services and structure, can be attributed to the consultant. The consultant converts an owner's instruction into a design and must exercise a degree of care, skill and knowledge that is generally expected within the profession (Jervis & Levin, 1988; Murdoch & Hughes, 2008). Contractors only rely on the plans and specifications when bidding and planning a job. The respondents reject the idea of being guarantors of the design and do not want to assume responsibility for the completeness and accuracy of the design. Additionally, the reviews conducted by contractors are limited to their capacity as a contractor and not as a design professional. The coordination of utilities on a project can also be challenging to visualize when looking into plans and drawings before the actual building of a structure.

Defective Design and Deficiencies in specifications and Drawings are common sources of compensable delay and cases are often decided in favor of the contractor (Jervis & Levin, 1988). Plans and specifications are sometimes handed out without adequate details because of urgent owner requirements or insufficient funding. Conflicts eventually surface from ambiguous representations that were not discovered during the planning stage and pre-bid conferences. Clarifications are intended to be uncovered on pre-bid conferences, and the errors overlooked by

the designers and bidders can be proven to be unusual for a reasonable contractor to detect.

In cases involving novel design as per instructions of the owner, the responsibility of bearing such risk is consequently passed to the owner as well (Uff, 1996). The basic obligations with regards to design risks of the contractors only concern following statutory obligations and notice requirements (Jervis & Levin, 1988; Uff, 1996).

When errors or uncertainties are discovered in the field, it is frequently necessary to halt construction work pending resolution of the problem. Settlement delays can draw in higher costs for owner and contractor alike since construction involves pricey labor, materials and equipment. Financing costs and revenue losses can hurt the owner, while the contractor expends on overhead costs, labor and material costs. The interviews with the contractors revealed that contractors usually shoulder the costs because owners do not honor their claims relating to these settlements. The contractors have become so used to this practice that they have learned to accept and just mitigate the consequences on these occasions.

However, according to Uff, the allocation of this risk can be decided by no less than the court or tribunal and the owners sometimes shall acknowledge these incurred costs (Uff, 1996). Costs accumulated by the contractors may be justifiably claimed, according also to Murdoch, if properly substantiated by evidences and project data (Murdoch & Hughes, 2008). The risk of *Change Order Negotiations* where it may involve “claims consultants” can also be claimed if they were employed because of the contract administrator’s request for evidences with a considerable amount of managerial time. Otherwise, if detailed claims are

not necessitated with reference to contract documents, this item may not be recoverable (Murdoch & Hughes, 2008).

The process of dispute resolution has on it conflicting duties to give parties the opportunity to establish their cases, but at the same time avoid unnecessary delays and costs. Both parties can agree in setting a sufficient time, and extending it, as the dispute is determined (Uff, 1996). This kind of arrangement can be more preferable for the contractors as they have wished for a sharing of risk allocation just to distribute the effects caused by these disputes. The customary procedure employed nowadays puts the time aspect to the owner while the contractors shoulder costs incurred, as revealed by some contractors. One of the perceptive opinions learned from interviews demands some consequences to be put on the owner for him to have a stake on preventing delays caused by dispute resolutions. The owner's responsibility in reaching quick decisions and maintaining communication with the contractor can be enforced by placing some liability on him.

A risk also normally disputed is *Unforeseen Site Conditions*, where the physical conditions differ materially from normal conditions or the representation in the contract documents. Disputes arise since there is no implied right for compensation with *Unforeseen Site Conditions* as a contractor agreed to do the work with the equivalent stipulated price (Uff, 1996; Murdoch & Hughes, 2008). This is contrary to what the contractors prefer when most of them would like the owner to be responsible. According to Murdoch, the owner may possibly be liable if the project is unexpectedly expensive or difficult to execute, if warranty or accuracy of documents was implied, if true conditions were intentionally or

negligently concealed, or if the contract was priced according to the bill of quantities and standard method of measurement (Murdoch & Hughes, 2008). To satisfy the liking of the contractor to be absolved from this risk item, the contractor must take the burden stated above in his attempt to recover losses. Some contractors would be appeased with at least a sharing of risk allocation asserting that some instances of this risk are impossible to avoid even with due care.

Another angle to this risk item is the availability of time on hand for the two parties. The contractor can assert that the owner owns the site and has an extended period of time to investigate conditions, while the contractor must gather site information bound by time constraints. The owner can also probably hire professional assistance in determining an accurate data for the contractors (Jervis & Levin, 1988). The respondents expressed also that the owner should devote sufficient time and funds during the planning and design stage to know as much knowledge of the site. Cross-referencing different data, tables and figures are challenging to do within the bid preparation period and contractors only can rely on their logical understanding based on the contract documents received. It is also noteworthy that disclaimers do not make things easier for contractors and this practice puts suspicion on the reliability of the documents.

Courts also have upheld that only a reasonable site inspection and judgment of an experienced contractor are expected from the contractor before they commit to a price. Contractors cannot always execute an extensive site exploration on every project he wishes to participate on and owners should be more sympathetic on this matter.

With regards to *Acts of God (Force Majeure)*, this risk item can be considered as a compensable event or a ground for termination when it becomes difficult to execute the contract either temporarily or permanently (Murdoch & Hughes, 2008). The respondents believe likewise primarily because of the unforeseeable nature of this event. Also in the Philippines where the weather can be strange at times, weather conditions need to be extraordinary or unusual for that location at that time of the year before it could merit the consequent compensation (Jervis & Levin, 1988). The interviews only can at least accept a sharing of risk allocation in dealing with this risk.

Similarly, inestimable risks including *Political Intervention, Rebel Tax, Third party delays/ Public disorder* and *War Threats* are low probability but high impact risks. Risks bearing these characteristics are more economical to keep the risk with the owner so contractors will not gamble on their proposals (Murdoch & Hughes, 2008). This manner of risk allocation more likely obtains the approval of the contractors as demonstrated by the risk preferences interview. Impacts of these risks can be insignificant and can also be as crucial when it leads to project stoppage. The contractors from experience said that minor consequences can be absorbed in good faith and maintaining good relationships with the owner.

On the risks concerning *Political Intervention* and *Rebel Tax*, risk allocation schemes should be established on how the construction parties can suitably respond with these situations. The references did not include a thorough evaluation of these cases perhaps again because of the peculiarity of this risk item. Only some regions in the world experience these risks and it suggests that perhaps the country where the references or authors came from do not consider these items

to be critical as a part of their project. Obviously, these risks are illegitimate acts of certain groups or individuals and that fact makes the rightful allocation tough to justify. On the project, the respondents revealed that they go through the unpleasant job of satisfying these groups and they are every so often left without a choice but to yield on their requests. As part of the fulfillment of contractor's obligations, it is unclear from the references whether the contractors are excused from their performance because of these situations. If contractors are expected to be careful in choosing where to obtain work taking into account these factors, the citizens living on these areas experiences undeserved loss when development is hampered on their localities.

Relatively foreseeable risks like *Site Access/Right-of-way* and *Permits and Ordinances* are simply allocated by distributing the task and including it in the contract documents. A contractor must anticipate a certain lead time if he was advised to secure certain permits from public authorities (Jervis & Levin, 1988). The common reaction also from interviews mentions about such agreements done on a case by case basis with the owner concerning this assignment.

For the risk of *Permits and Ordinances*, the acquisition of permits and compliance to ordinances can be shared, with the owner assuming the risks of identification and acquisition and the contractor assuming the risks of compliance (Jervis & Levin, 1988). The only problematic portions in the acquisition of permits are those that will be caught by lengthy procedures and red tape. Time considerations as well as illegitimate inducements on certain officials to expedite the process are the common problems encountered according to some contractors. If the

contractors are to choose, the owner should secure all these requirements to ensure that the project is free from such inconveniences on turn-over.

Fees, charges, rates and taxes are ultimately borne by the owner as the contractor designates a corresponding amount on his bid for this various obligations (Jervis & Levin, 1988). Just the same as if the contractor is assigned to secure the permit, a corresponding amount is apportioned on a contractor's bid in return for this responsibility.

The handing over *Site Access* is easier allocated to the owner and may subject him liability for failing to deliver it at the agreed time. Similarly when the contractor is expected to perform his obligations, the contractor also has an entitlement to carry out the work and the owner must cooperate to achieve it (Jervis & Levin, 1988; Uff, 1996; Murdoch & Hughes, 2008). It is further expected that the contractor must be given, not only the actual area to be built on, but also sufficient surrounding space to enable the work to be properly undertaken (Uff, 1996; Murdoch & Hughes, 2008). Not surprisingly, the respondents assign the risk item of *Site Access/Right-of-way* to the owner. *Site Access* may be considered less controversial, but the acquisition of *Right-of-way* may be in conflict with the owners' standpoint. Some owners do not specifically include the *Right-of-way* that the contractor requires especially those crossing adjoining land. Contractors prefer the owner to take this into consideration during the planning, and be alongside the contractor to provide assistance during the project execution once obstructions are encountered. A contractor also stated that he is willing to be responsible on *Right-of-way* issues caused by his chosen methodology.

Relating to the surrounding area of the project, contractors and owners are also regarded to owe a duty of care not to cause physical harm to anyone as part of their tortuous obligations. Negligence causing the risk of *Environmental hazards of the project* can be indicted to any party who will be found at fault (Uff, 1996). Specific allocation when it comes to unforeseen hazards to the environment, however, was not observed from the references. This could similarly fall to incidents that are unforeseeable and cannot be avoided with due care. Then again, some respondents again cited that an extensive planning by the owner could somehow prevent these situations from occurring. The environmental impacts are accepted by some respondents and the rest preferred at least a sharing of responsibility. Generally, the contractors interviewed accept the accountability on violations to applicable environmental rules and regulations as part of their social responsibility to the community.

Serious financial impacts can also be brought about directly by *Inflation*. Admeasurement/remasurement contracts generally, which this research addresses, do not recognize price adjustments due to fluctuations (Uff, 1996). This is against the preference of some contractors who believe that the owners are more capable financially to shoulder *Inflation*. Other respondents expressed their willingness to share the financial risks seeing that neither party can be held accountable for its occurrence.

On the subject of sharing the effects of *Inflation*, fluctuation clauses can be included in the contract to provide a mechanism for reimbursing contractors for changes in input prices over which they have no control at all (Murdoch & Hughes, 2008). On competitively bid jobs, the bid solicitation may state that all

bids must be firm and irrevocable for a state period of time, usually 60 days. During that period the bidder may not withdraw or alter its bid. The bid is an offer subject to acceptance at any time until the offer expires (Jervis & Levin, 1988). This agreement is very similar to the recommendations of some contractors interviewed. Implementing such scheme minimizes claims from the contractor and also relieves the owner from being worried about the price fluctuations. The current system that grants price adjustments through NEDA eases also the determination of related cases. Implementing a system or scheme will put more certainty on the behaviour of the construction parties amidst these uncertainties.

Financial Failure-any party caused also by affairs of the company and the economy usually can terminate the contract. Resolution for these cases can be resorted with the laws of bankruptcy usually taking the debtor's property for the benefit of his creditors to compensate the financial loss to the other party. Consequently, the debtor obtains release from his debts and liabilities (Uff, 1996; Murdoch & Hughes, 2008). As per the contractors' risk preference, they viewed occurrences of this risk to be shared since both parties do not clearly benefit from the collapse of the other. Again, unforeseeable and unfortunate events influenced by higher factors do not attribute this event to a particular party. The occurrences are also unlikely to happen in every project, and certain regulations are in place to respond to these incidents. Also, according to Murdoch, losses may be reduced or even avoided by owners by appropriating retention money or through the contractor's plant and goods or by enforcing a bond, and contractors are likely to fare less well compared to the owner in recovering such losses (Murdoch & Hughes, 2008).

Lastly, as the most important of the employer's obligations and also the most critical as perceived by the contractors, the owner must be responsible for the risk of *Delayed Payment on Contracts* (Murdoch & Hughes, 2008). The interviews related that payment terms can be from time to time not followed and contractors have already learned to adapt on these situations over their years of experience. As the disbursing of funds to the contractor, the owner is in a better position to structure payments in a manner that will assure proper performance by the contractor. Contractors rely on the agreed payment terms in making some decisions concerning the project. Additionally, the owner is then again in a better position to go to a lender and seek construction financing than the contractor, as stated by Gervin. If, at the time of contract formation, the contractor has reservations about the project owner's ability to pay for the work, the contractor may ask a third party to guarantee the owner's payment obligation (Jervis & Levin, 1988). Contractors can give some consideration on occasional incidents to preserve a good working relationship with the owner, but regular and too late payments can affect the financing of the contractors considerably.

CHAPTER VI

APPLICATION OF RISK PRINCIPLES

AND RISK PREFERENCE

OF FILIPINO CONTRACTORS

6.1 Risk Allocation Preference Summary

This research purposely decided on arranging interviews with the contractors to obtain not only the preferred risk allocation per se, but also the actual experience and practices taking place on 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. Although it is practical and customary that one party drafts the contract, the participation of both parties is certainly ideal.

Table 6.1 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. Some risks also require a certain level of participation from both parties for a more efficient

Table 6.1 Summary of the findings of the interviews on risk allocation preference

Contractor (C+)	Contractor (C)	Contractor (C-)	Shared (S)	Owner (O-)	Owner (O)	Owner (O+)
Defective materials	Labor, equipment and material availability	Rebel Tax	Change order negotiations	Acts of God (force majeure)	Changes in government regulations and tax-rate changes	Defective design
Labor and equipment productivity	Safety/ accidents		Cost of legal processes	Inflation		Delayed payment on contracts
Labor disputes			Delays in resolving contractual issues	Third party delays/public disorder	Change in Work	
Suppliers/subcontractors poor performance			Delays in resolving litigation/arbitration disputes		Contractor competence	
			Environmental hazards of the project		Deficiencies in specifications and drawings	
			Financial failure – any party		Permits and ordinances	
			Political Intervention		Sight access/right of way	
			Quality/mistakes on Work		Unforeseen site conditions	
			War Threats			

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

Contractor (C) / Owner (O) - allocated the risk to this party with some conditions

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

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

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+), © 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.

The order of the columns on Table 6.1 follows the degree of willingness that the respondents expressed during the interview. Having said that, the rightmost risks are those assigned categorically to the contractor, the risks on middle column preferred as shared, and the leftmost risks are those assigned categorically to the owner.

Summing up the allocation on each party regardless of the level of preference expressed by the respondents, Table 6.1 shows that 7 risks were allocated to the contractor, 12 risks were assigned to the owner and 7 risks were preferred to be shared. While more risks were allocated to the owner, only 2 risks were definitely assigned to them, with the contractors partaking in the management of the remaining risks. The risks placed on the owner side of the contract generally relate to the design, legal requirements and site. The common claim of the respondents regarding these risk categories pertains to the pre-construction tasks of the owner particularly the acquisition of design and permits. The owners are called to devote sufficient time and funds during the planning stage to investigate the possible hazards the construction may encounter. The owners should stand behind the information handed out to its bidders and be answerable to misleading or

inadequate data where bids were based. The necessary permits and site acquisition, on the other hand, are matters that are considered to be best handled by the owner. Carrying out these duties does not need the special know-how of the contractor. After all, the owner should know that the intended project complies with land use regulations and other necessary permits and licenses.

Another set of risks besides the categories aforementioned includes *Acts of God (Force Majeure)*, *Inflation* and *Unforeseen Site Conditions*. These are arguably three of the risks well covered in literature possibly because of the issue it holds. Various references show differing recommendations seeing that neither party can be blamed for the occurrence of these situations. As for the interview respondents, the general attitude for these uncertainties was to pass it to the owner so that they do not have to gamble on their bids trusting that the owner will cover future incidences.

It can be observed also from the interview results that the risks willingly accepted by the respondents relate to supervision, labor, materials and equipment. As contractors, they are aware of their primary duty to provide the goods and services on their engagement with a client. The line of work by which they were employed certainly deals with these features of the project, and transferring these risks to the owner seems dubious. The course of the interview allowed them to assign the risks one-sidedly to the owner, but they responded otherwise. The readiness exhibited by the interviewees can be accounted to their recognition and assurance of obligations as contractors.

Nevertheless, a remarkable exception to the aforesaid observation is the risk of *Quality/Mistakes in Work*, which they regard as a joint responsibility of both

parties. Quality requirements are desired to be clear and verifiable so that all parties in the project can understand the requirements for conformance. The simultaneous monitoring of the project can put forward issues and standards of the owner before serious disagreement starts. Owners are also desired to initiate good quality control and seek out contractors who maintain such standards to avoid rework and long term problems.

Lastly, a sharing of risk allocation was generally suggested in the events of a settlement between two parties or cases that could cause the termination of the project, such as *Financial Failure-any party* and *War Threats*. Settlements may result to delays and the contractors agree to an arrangement wherein they shoulder incurred costs while the owners grant time extension. A termination of a project would inflict some loss on both parties; hence, a sharing was concluded. The allocation of *Political Intervention* is left undecided because demanding the government to be accountable seems to be far-fetched idea seeing that they are the guilty party as well.

6.2 Risk Principle Application

The next section discusses the risk allocation on the GPPB GCC per risk preference category in the order shown on Table 6.1. The risk allocation on GCC compares them to the widely accepted guidelines by Max Abrahamson (1979). This set of guiding principles was employed by Jesse Grove (1998) when he analyzed the standard contract of Hong Kong. On his review of all the principles that take up risk allocation, he concluded that Max Abrahamson's guidelines make up the most appropriate "formula" in determining which party should carry a risk.

Though it can be challenging to balance these principles according to Max Abrahamson himself, starting from these laid out terms works best than referring from the undeclared and perhaps unconscious prejudices (Abrahamson, *Risk Management*, 2 ICLR 241, 1984). The following principles once more answers which party should be responsible for the risk in any of the following cases:

- 1. if it is in his control, i.e., if it comes about it will due to herefo
misconduct or lack of reasonable efficiency or care,**
- 2. 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,**
- 3. if the preponderant economic benefit of running the risk accrues to
him,**
- 4. if it is in the interests of efficiency to place the risk on him,**
- 5. 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.**

On this study's own review of the principles available in literature, it was observed that most studies also relied on the abovementioned set of guidelines. Some application of other principles, although its relevance to risk allocation is not discounted, is not sufficient enough to deal with all the risk types that this study considered. The risk principles from different sources need to be consolidated to have an adequate set of guidelines. It is difficult to integrate the

actual judgment or objectives of differing authors and their real intentions may be missed out. The advantage of using Max Abrahamson's principle over other standards lies on the fact that they were proposed by a single author and its use can stand on its own at determining which party should rightly bear a risk. The concise language presents a straightforward guideline ideal for the analysis of all the 28 risks.

Settling on this set of guidelines, it was presented using a checklist of risks' conformity with a risk principle. The subsequent tables show the checklists with the list of risks and the corresponding evaluation of which party should accept the risk based on the principles above. The numbers on the table represent a principle, following the same order as presented above, and the owner and contractor are represented by "O" & "C", respectively. The subheadings of the succeeding sections easily present the preferred risk allocation of the Filipino contractors established from the interviews. A blank entry can be characterized as not applicable for the particular risk event or subject to further thought greater than what the term of the risk event suggests.

Contractor (C+)

With reference to the chosen risk guidelines, Table 6.2 clearly shows that the risks of *Defective Materials, Labor and Equipment Productivity, Labor Disputes and Suppliers/Subcontractors Poor Performance* are suggested to be allocated to the contractor. The application of these risk principles is uniform with how the GCCs

characterize the Works and Contractor's Obligations. Sub-Clause 1.31¹ of the GCCs defines the Work(s) executed by the contractor to include the furnishing of all labor, materials, equipment and other incidentals, necessary or convenient for the completion of the Works. Once more, it was stated in Sub-Clause 6.1, a Sub-Clause of Clause 6–The Contractor's Obligations, that the contractor shall provide all supervision, labor, materials, plant and contractor's equipment, which may be required. The GCC states it plainly that these features of the work are the responsibility of the contractor. No conflict was observed on the allocation of these risks according to the risk principles, GCCs and the contractors risk allocation preference. The interviewees' acknowledgement of these responsibilities is also worth mentioning.

Table 6.2 Risk Principle checklist of Contractor (C+) risks

<i>Contractor (C+)</i> Risk Types	Principles									
	1 Who controls?		2 Who can Insure?		3 Who benefits ?		4 Who can efficiently handle?		5 On which party it 1 st falls?	
	C	O	C	O	C	O	C	O	C	O
Defective Materials	✓				✓		✓		✓	
Labor and Equipment Productivity	✓				✓		✓		✓	
Labor Disputes	✓				✓		✓		✓	
Suppliers/Subcontractors Poor Performance	✓		✓		✓		✓		✓	

The allocation of these risks is probably straightforward given that the reasons for the occurrence of these risks can be openly attributed to the lack of reasonable efficiency or care of the contractors. The benefit of minimizing defects and high

¹ References to clause and sub-clause numbers on this section, 6.2 Risk Principle Application, are to those in the General Conditions of Contract for Procurement of Works issued by the Government Procurement Policy Board unless otherwise noted.

productivity runs direct the contractor more than the owner. The contractors understand that their estimation and decisions on materials, labor, equipments and construction approach are among the fundamental challenges of project planning – at the same time something that provides competitive edge in their business. If something involving these events does not go according to plan, the contractor should be liable on the unwanted outcomes encountered. Some contractors choose to be aggressive on taking risks in order for his bid to prevail and such attitudes can be permitted if accompanied by their readiness to accept the risks.

An issue relevant to controlling the risks on materials, labor, equipment and subcontracting is the idea suggesting that the owner shall provide material and equipment specifications as well as suppliers and subcontractors restrictions. The proposition incited dissenting opinions from the interview respondents. This practice conflicts with Principle no. 4, regarding efficiency, because it is the contractor who is expected to be knowledgeable on how he can execute the project using his own devices. Stipulation of various detailed specifications to minimize the uncertainties on the materials and project execution requires the owner to employ his own consultants. In doing so, an accompanying extension of the planning period is rather uneconomical and impracticable. The means and methods of construction should be left to the discretion of the contractor, who is presumably expert on these matters. The contract usually simply defines, in an objective and verifiable manner, the end result the contractor must produce.

Then again, with regards to *Defective Materials* and the application of Principle no. 3, some might argue that the economic benefit accrues to the owner on cases where the defect becomes apparent only after the Defects Liability Period. For the

owner, it is dismaying to discover that substandard or second-rate materials available in the market nowadays hardly last for the entire service life. Consequently, such cases exempt the contractors of any liability as stated in Clause 36, except where Warranties and Guarantees were provided.

Table 6.2 also shows that this group of risks usually does not involve transferring the risk by insurance except for the acquisition Subcontractor Performance Bonds. Subcontract Performance Bond premiums are expenses which cannot be passed directly through to the project owner especially when it is just the decision of the contractor to require a particular bond upon his subcontractors. While it might be ideal to require a performance bond from every subcontractor, this would make the prime contractor's position less cost-competitive. It is again the discretion of contractors as to which subcontractors should be bonded that is why bonds are usually only required from key subcontractors. Also, although the contractors of today can adequately insure themselves from risks such as *Defective Materials*, this practice is not popular in the Philippines except for vital and pricey components of the project. Nevertheless, the application of the other principles clearly shows that the contractor is the rightful bearer of these risks and the option of insuring these risks do not outweigh the other arguments.

Finally on this part, it is worth mentioning that the GCCs do not have a clause concerning Nominated Subcontractors/Suppliers. The GCCs define the term Subcontractor on Sub-Clause 1.29 as a person or organization to whom a part of the Works has been subcontracted by the contractor, as allowed by the owner, but not any assignee of such person. It is primarily because competitive bidding is required on construction projects that involve public funds. However, this fails to

consider small items of work and emergency situations where competitive bidding seems impractical. The interviews also revealed the frequency of cases where some government officials pressure a contractor to take the services of a particular subcontractor because of vested interests. The delinquency of the Nominated Subcontractors/Suppliers cannot be fully attributed to the contractor on this case and the contract should address possible problems that may arise.

Contractor ©

Table 6.3 Risk Principle checklist of Contractor © risks

Contractor © Risk Types	Principles									
	1 Who controls?		2 Who can Insure?		3 Who benefits?		4 Who can efficiently handle?		5 On which party it 1 st falls?	
	C	O	C	O	C	O	C	O	C	O
Labor, Equipment and Material Availability	✓	✓	✓		✓		✓		✓	
Safety/Accidents	✓				✓		✓		✓	

The contractor's preferred risk allocation for the risks of *Labor, Equipment and Material Availability* and *Safety/Accidents* almost went acknowledged totally by the respondents, but significant considerations were raised before their favorable approval. The contractors are actually responsive on their obligations towards the execution of the works and some circumstances just refined the apportioning of these risk factors.

The treatment of the risk on *Labor, Equipment and Material Availability* got affected by the respondents' consideration of the economic conditions and the presence of an owner-supply agreement. This research was conducted on a period where the local, or perhaps international, prices of steel, cement and oil have

reached all-time highs. Although these steep price escalations may be reflected on more as a risk pertaining to *Inflation*, a close connection can be seen with their dependence on the economic conditions. Unlike *Labor and Equipment Productivity*, this risk is harder to control and the respondents ask for assistance from the owner in cases of dramatic shortages. Also, an arrangement where the owner decides to supply the materials puts the control away from the contractor as he is only as good when the materials are made available to him by the owner.

Under the GCCs, Sub-Clause 46.2 states that an inexcusable failure or negligence of contractor to provide the required equipment, supplies or materials do not warrant an extension of contract time. Only shortages of materials that are publicly felt and certified by appropriate government agencies are granted by time extension as supported by Sub-Clause 46.5. Furthermore, Sub-Clause 15.4(a) upholds that the lack of minimum essential equipment required by the project can be a basis for termination of the contractor. These Sub-Clauses clearly put the responsibility of the risk of *Labor, Equipment and Material Availability* to the contractor and the influence of economic conditions was considered appropriately.

On the other hand, the contractor is also protected accordingly by the contract on cases where the supply of materials was assigned to the owner. The contractor may terminate the contract under Sub-Clause 16.1(a) if the works are stopped because of the owner's failure to deliver supplies and materials assigned to him within a reasonable time. Sub-Clause 44.2(d) gives also the right to suspend work along with an adjustment of contract time if the owner fails to deliver government-furnished materials and equipments. These Sub-Clauses responds to the concern of the contractors about owner-supplied materials.

Some contractors also withhold their acceptance on *Safety/Accidents* saying that preventive measures should be initiated by the owner. The respondents look on the safety requirements of an owner on the preparation of bids and adjust to it accordingly in the planning (or no planning) of a safety program. If strict guidelines are not available, safety provisions turns out to be excessive and becomes an area for them to obtain savings. Sub-Clause 6.3 passes to the contractor all the responsibility for the adequacy, stability and safety of all site operations and methods of construction. This responsibility was reiterated in Sub-Clause 12.1. Then again, the definite requirements like the provision of lights, guards and fencing are not expressly written. Various respondents admit that these can be ignored especially since the costs accrue to the contractor.

As per the risk guidelines, Table 6.3 clearly demonstrates that the risks of *Labor, Equipment and Material Availability* and *Safety/Accidents* be allocated to the contractor. The relevance of Principle no. 4 stands out for both these risks seeing that the planning and carrying out of the decisions are engaged by the contractor. Contractors also secure accreditation from the government on which they present their capabilities, such as ownership of equipments, which qualifies them to perform a particular project. Given that the equipments possessed satisfies the qualifications, ensuring its performance and availability lies on the contractor. It is also typical that the contractor holds the responsibility for the means and methods of construction, therefore, making him the rightful bearer of the safety responsibility of people authorized to access the site. Sound practices must be observed in harmony to the acknowledged and professional safety standards by the contractor regardless of the inclusion of safety provisions from the owner.

Each personnel have a responsibility to know and adhere to safety standards in avoiding unfortunate mishaps.

The application of Principle no. 1 on the risk of *Labor, Equipment and Material Availability* both relates to the owner and contractor, seeing that agreements nowadays can put the supply of a material to either side. When this risk turns out, the GCCs have provisions that deal with both situations. Principle no. 3 and Principle no. 5 points to the contractor since costs on delays due to the absence of pertinent materials and expenses to allay the accidents usually fall within his own business. Insurances seem to be practicable just on the risk of *Safety/Accidents* and the contractor corresponds well to what the Principle no. 2 implies. The premium can be passed to the owner and it is most practical to assign it in such way. At any rate, Sub-Clause 14.1 obliges the contractor to secure insurances for the personal injury or death of his personnel.

Contractor (C-)

Table 6.4 Risk Principle checklist of Contractor (C-) risks

<i>Contractor (C-)</i> Risk Types	Principles									
	1 Who controls?		2 Who can Insure?		3 Who benefits?		4 Who can efficiently handle?		5 On which party it 1 st falls?	
	C	O	C	O	C	O	C	O	C	O
Rebel Tax						✓	✓			

The risk of *Rebel Tax* is one of the two risks not initially on the list of risks included by this research and those international studies. Obviously, this risk applies preponderantly to the Philippine construction industry and is never

contemplated on most countries. The application of Principle no.1 rightly puts the responsibility to no one in view of the fact that the harm is caused by a third party. Nobody wants the presence of these rebel groups and both parties generally abhors the burden they impose on the project participants. Principle no. 2 is also out of the question as an insurance system for this kind of risk is yet to be introduced. Passing this risk to an insurer condones this unlawful acts and the option is highly unlikely.

Some may argue that a contractor seeking for a project on these areas puts himself on risk and should be rightfully prepared to take on the risks. The contractor must set aside on his budget a contingency fund to dole out once the threats from these groups start coming. If this reasoning is to be linked to Max Abrahamson's Principle, Principle no. 1 may best suit this way of thinking because the contractor's lack of care on selecting projects led him to that instance. In the Philippines, an experienced contractor should be knowledgeable of the presence of these groups on various localities and the possibility that they may fall victim while engaging on a project inhabited by these entities.

In spite of this, Principle no. 1 starts with the statement asking which party controls the risk. The author believes that what Max Abrahamson implies on the term control is the authoritative control or power to direct the actual events. The involvement of a third party puts away the control from the project participants on this regard. It is also difficult to prove that the contractors should have known the susceptibility of a given area because there is no official basis of such. The government is unlikely to discourage contractors on engaging works on certain localities as they can be accused of hampering the development of these areas.

Dealing with Principle no. 4, on the other hand, assumes the unavailability of this risk already, and the efficiency on dealing with it was considered by the respondents to be related on which party is more capable of negotiating with the demands of these groups. The owner, since the property at hand belongs to him, could be more familiar on dealing with these personalities. The contractor also could have acquired liaison through past projects on these areas. Contractors as business people are believed to be more capable of efficiently dealing with outside parties.

The application of Principle no. 3 involves various considerations on to which the economic benefit goes to. To start with, the threats from these groups target the contractor's equipments or the project site as reported on the interviews. Principle no. 5 comes also into play when these damages are experienced. A respondent had his equipment maliciously burned when he ignored an intimidation from these groups. Whenever a contractor's property or the site is brought down, the contractors experience the loss more than the owner. If the contractor is to take care of dealing with these groups, another issue pertains to the reimbursement to the owner once the payoff has been done by the contractor. Since these transactions do not involve receipts, possible overcharging was seen by the respondents. It is astonishing that this kind of comment was raised by several respondents with the accompanying snigger.

Having said all these points, the most compelling justification associates with Principle no. 3 because of the fact that the owner stands to gain the longer term benefit of the project with the returns and realization of whatever purposes he plans for the project. Even though Table 6.4 shows that Principles nos. 4 and 5

suggests otherwise, the mere combination of Principle nos. 4 and 5 do not make it superior to the argument of Principle no. 3. The cost implications of this risk certainly fall to the owner either by instructing the contractors to include the appropriate contingencies or granting reimbursements. This agreement obviously cannot be written expressly on the GCCs because of its nature. Additionally, the arrangements of the responsibility on which party shall deal with these entities depend on who is in the better position and capable to manage the dialogue.

Finally on this risk factor, the preferred risk allocation obtained from the respondents apparently does not go along with the abovementioned recommendation. In conformity with the research framework on Fig. 3.1, the literature and international practices were referred to gain useful insights and practices. These references have yet to deal with this peculiar risk event except if someone classifies it as third party risks. This research, however, treats the risk of *Third Party Delays/Public Disorder* separately and classifying *Rebel Tax* under it will not maintain their distinctness. Overall, it is concluded that the outcome of the evaluation of *Rebel Tax* with the risk principles governs and puts this risk on the owner side.

Shared (S)

For various reasons, some risks are best managed not by allocating it fully to a particular party, but by splitting the obligations to both the owner and contractor. Some risks involve complicated circumstances leaving an allocation for a risk open-ended, and the indecisiveness over it makes sharing the most viable alternative. The risks on Table 6.5 were decided by the respondents to be shared because of their relevance to either of the aforesaid reasons. This group of

Table 6.5 Risk Principle checklist of Shared (S) risks

Shared (S) Risk Type	Principles									
	1 Who controls?		2 Who can Insure?		3 Who benefits?		4 Who can efficiently handle?		5 On which party it 1 st falls?	
	C	O	C	O	C	O	C	O	C	O
Change Order Negotiations					✓		✓		✓	
Cost of Legal Processes									✓	✓
Delays in Resolving Contractual Issues					✓	✓				
Delays in Resolving Litigation/Arbitration Disputes					✓	✓				
Environmental Hazards of the Project	✓	✓					✓	✓		
Financial Failure – any party	✓	✓								
Political Intervention						✓		✓	✓	✓
Quality/Mistakes on Work	✓				✓		✓		✓	
War Threats									✓	✓

preferred risk allocation had the most number of risks under it, as preferred by the contractors.

The first 4 risks namely, *Change Order Negotiations*, *Cost of Legal Processes*, *Delays in Resolving Contractual Issues* and *Delays in Resolving Litigation/Arbitration Disputes*, can be deemed interrelated to each other. These risks pertain to the possible disagreements between the owner and contractor, except with the risk of *Cost of Legal Processes* where the dispute may involve an outside party. All of these 4 risks are out of contract and no clause deals with its allocation.

In reality, claims are typically initiated by the contractor as confided by the interviews. The contractor conveys a problem to the owner then submits a proposal on the changed or additional work. *Change Order Negotiations* transpire especially if the owner disagrees that the particular work item or a particular

directive is a change in the original scope. Principles no. 3, 4 and 5 assign the preparation of a formal claim to the contractor since it is on his interests that this event came out.

Moreover, extreme cases of arguments can possibly lead to the risks of *Delays in Resolving Contractual Issues* and *Delays in Resolving Litigation/Arbitration Disputes*. These delays certainly entail increased costs because non-productive workers must be paid and overhead costs continued. The costs and time extension essential for the management of these risks are seemingly not covered by insurance companies, thus, making Principle no. 2 not applicable. On applying Principle no. 3, both the contractor and the owner appear to hold some stake on avoiding these delays. Contractors surely do not want such delays to interfere the project and they do not want to be charged of liquidated damages in the end. The owners have some gain as well if the project is expeditiously completed when income generating projects bring forward profits just according or ahead of the plan. Principle no. 4 is then judged to be not applicable on these delays because of the potential significant delays which makes it difficult to control efficiently. Principle no. 5 apparently makes the contractor the responsible party since these risks will happen to fall on him. On the contrary, the following statement on Principle no. 5 regarding the passing of risk back to the owner, with a grant of time extension, seems to be a practicable option. The use of Principle no. 5 does not also present an overwhelming answer to who should accept the risk.

With reference to Table 6.5, a balance of risk allocation between the contractor and owner seems evident. The mostly blank entries on the use of checklist are interpreted with the fact that neither party should be held liable for this risk. In the

case where the contractor is required to accept the entire responsibility with these delays, the contractor does not have a real good basis to set a contingency. It also puts no incentive for the owner to cut down these delays which could have been prevented by the owner's. Even though Principle no. 1 does not present a responsible party, it should be understood that the unforeseeability of these occasions at the onset of the project makes it an excusable delay in effect.

To minimize the disagreements and lengthy negotiations, sharing of roles again can make things easier. Of course, it is recommended that appropriate language should be included on the contract documents in order to put things in black and white. Lines of communication and the scope of authority of the project participants must be expressly written and the representation of the owner also plays a vital role in an operable decision-making on site. The open communication, early appreciation of risks and prompt resolution of issues would eliminate the possibility of claims falling to a formal arbitration.

The *Costs of Legal Processes* do not incite a great deal of considerations comparing to the other risks abovementioned relating to disagreements. The contractors interviewed as well as the use of the risk principles simply put the charges to the plaintiff. If the plaintiff is from an outside party, Principle no. 5 puts the risk on whoever party is involved. The interview results verified that charges against a construction project can either be charged to the owner or contractor by an outside party.

Another Political/Legal risks that was preferred to be shared was the risk of *Political Intervention*. It is another risk that was not included in previous researches perhaps because it does not appear to be relevant with other countries.

The GCCs naturally will not deal with this risk because activities linked with these are unauthorized. Informed construction practitioners, or even ordinary citizens, are aware that government officials can put pressure to a project in various means. Principle No. 3, like *Rebel Tax*, perceives that the owner retains the economic benefit of running this risk instead of unnecessarily passing it to the owner. A typical *Political Intervention* has a government official demanding for a particular amount or request. If an owner wants the contractor to deal with these activities, the contractor essentially will only act as a middle man for the two parties. Principle No. 4, on this case is different with *Rebel Tax*, since the GCCs are used for government projects. The procuring entity is virtually on the same organization with the offending party. Having said so, Principle no. 5 has both contractor and the owner feeling the risk at the same time. It does not follow that government offices are free from the risk of *Political Intervention* just because they are associated together. The volatility of the political situation in the Philippines, as reported by the interviewees, can affect the carrying out of the project at any given time. The pressure is usually put on the project itself disregarding that it is a government undertaking. Sharing appears to be the most effective way of dealing with this risk by defining the roles of both parties. Both parties should be ready on its exposure to this particular risk. The financial responsibility happens to fall on the owner, except for relatively minor extortions as agreed by the respondents. It is naive to say that the risk of *Political Intervention* is limited to financial pressures. Both parties should work together when pressures come in other forms and this research maintains the sharing of risks as the most suitable.

Talking about possible unpleasant events coming from a risk, the actualization of *War Threats* possibly has the highest potential to incur the greatest damage. Sub-Clause 13.1 has put the damages to the works, plants, materials and equipment due to a war or radioactive contamination as the owner's risk. The contract is discontinued according to Sub-Clause 19.2 by an outbreak of war and the contractor is assigned to take care of the site and stop the works as quickly as possible. Another relevant provision on Sub-Clause 44.2© allows the contractor to suspend the works if peace and order situations make it extremely dangerous to continue the work.

The GCCs, as compared to preferred risk allocation, gives more benefit to the contractor. The only applicable principle from the chosen guidelines could be observed with Principle no. 5. It cannot be judged on who technically experiences the loss in the first instance and it is more likely to consider that both parties have evenly shouldered a loss in one way or another.

The second most important risk according to the results of the risk perception survey, which is the *Financial Failure-any party*, was adequately addressed by the GCCs. The owner can terminate the contract on Sub-Clause 17.1 if it becomes financially impractical for him to pursue the project. On the case where the financial failure is experienced by the contractor, the owner, not the contractor, can treat this as a fundamental breach of contract according to Sub-Clauses 17.2 & 17.3. As a consequence, the termination will be made without compensation to the contractor and any equipment requested by the owner will be put on hold until project completion.

As a general principle, all the creditors of an insolvent person or company are entitled to share equally in the remaining assets, and these will include all property owned by the insolvent person at the time. Thus, if the contractor becomes insolvent, materials on site that have not yet passed to the employer may be seized by the contractor's on site; those that have not yet passed to the employer may be seized by the contractor's receivers. What is more, unless the contract provides otherwise, this will hold good even where the value of those materials has been included in interim certificates.

The only applicable risk principle for this risk suggests the same position with the contractor's preferred risk allocation. The use of Principle no. 1, regarding the control of the risk, lies between both parties. The estimates made by both parties on the project planning and budgeting should be as realistic as possible. Contingencies should be provided depending on the project complexity and level of estimating accuracy to take care of possible eventualities. The project costs should be monitored to react with variances on estimates by knowledgeable personnel.

For the risks of *Environmental Hazards of the Project*, the responsibility was preferred to be shared by the contractors because both parties have their distinct roles to play. Risk Principles no. 1 and 4 have both the contractors and owners as the responsible parties also because of the same responsibilities they could perform to prevent the happening of this risk. The due care that Principle no. 1 indicates is treated with reference to the preparation of design and the execution of construction methods. Principle no. 4 is treated in a similar way where the design is the owner's responsibility, and the execution is the contractor's. The possible

disturbances to existing structures, services and surroundings should be prevented with measures taken before, during and after construction.

During the owner's design phase, all pertinent information of the risks that will be encountered should be obtained through adequate site investigations. The respondents also prefer the owner to initiate the development of designs needed for construction of protection measures on any anticipated methods of construction that could impact the environment. The owner should also be responsible on the establishment of monitoring systems and procedures as part of his quality control. The contractor gives his share by being responsible for additional efforts to minimize the hazards caused by the construction methods and operations. Some actions can go beyond the faithful execution of the project and the contractor's social responsibility has to take place.

It is also expected for a responsible contractor to observe the professional standards of quality. The contractors have openly expressed their preference for the risk of *Quality/Mistakes in Work*, which is a shared responsibility by both the owner and contractor. They assert for a client driven quality management and wants the owner to assign a capable representative to countercheck the quality of workmanship. The contractors want to adjust his efforts to the subjective judgment of an owner while performing the job.

On the contrary, the risk principles differ from these insights and the treatment was similar to the risks on the risks with C+ risk allocation. It also shows that the GCCs satisfy this appeal from the contractor through Clause 33 and Clause 34. Sub-Clause 34.1 herein accordingly indicates that the owner's representative checks and notifies the Contractors of the defects found. Any test instructed by the

owner that is found out to be free from defects will be a compensation event as stated on Sub-Clause 33.2. The justifications on the abovementioned risks regarding the works apply as well to this risk.

OWNER (O-)

Table 6.6 Risk Principle checklist of Owner (O-) risks

Ownerr (O-) Risk Type	Principles									
	1 Who controls?		2 Who can Insure?		3 Who benefits?		4 Who can efficiently handle?		5 On which party it 1 st falls?	
	C	O	C	O	C	O	C	O	C	O
Acts of God (Force Majeure)			✓			✓			✓	
Inflation			✓			✓		✓	✓	
Third Party Delays/Public Disorder			✓			✓		✓	✓	

The usual preferred risk allocation for the risk factors on *Acts of God (Force Majeure)*, *Inflation* and *Third Party Delays/Public Disorder* goes to the owner. A few respondents accepted at least a sharing by both parties and the final combined assessment for these items rest between the owner and a shared arrangement. The nature of the risks indicate that neither party ought to have the blame but some respondents view the project as the owner's initiative by which he should take responsibility.

The application of Principle no. 1 did not assign the risk to a particular party because these events are just out of the control of both parties. This basic premise perhaps is what led some contractors to accept a sharing of risk giving some relief to the owner. Not surprisingly, the respondents would rather pass a risk to the

owner in situations where the responsibility on a particular risk item looks unclear.

On Principle no. 3, the economic benefit of dealing with the above risks was judged similarly to accrue on the owner, though this assessment maintains that the profit is indirect. It was argued to be such on the basis that the owner eventually pays for contingencies attached by a contractor for risks that may or may not happen if the latter was asked to include these risks on their bids. The lowest bidder could possibly be the contractor who has underestimated the cost and put the least budget on the contingencies on his bid. Worst happens when those who were likely to construct the project under this approach seek extra payment through claims or lower workmanship standards in order to survive. Leaving much of these risks to the contractor will achieve artificially low bid prices but will eventually have problems in getting their work complete to a satisfactory standard without substantial additional costs for the owner.

The risk of *Acts of God (Force Majeure)* was dealt with in the GCCs by a number of provisions. *Force Majeure* and fortuitous events are used interchangeably on the GCCs to refer to events which the Contractor could not have foreseen, or which though foreseen, was inevitable (Clause 19). The GCCs on Sub-Clauses 12.1 and 12.3 specified the discharge of the contractor's responsibility for any damage or destruction of the works on the occasions of *Force Majeure*. Sub-Clause 17.1 also allows the owner to terminate the contract during the existence of fortuitous events. Furthermore, the contractor also can suspend the works during these events and be granted time extension as stated on Sub-Clauses 44.1 and

46.5. The GCCs has duly excused the contractor from their responsibilities with the affirmation of the abovementioned clauses.

On the other hand, price adjustments due to inflation appear more tight-fisted and, according to Sub-Clause 47.1, will only be allowed if it can be supported by National Economic and Development Authority (NEDA), the country's economic development and planning agency. NEDA is the agency that identifies if a particular progressive increase in prices can be regarded as an extraordinary circumstance. Upon acknowledgment of a remarkable inflation, they issue written memos to the different branches of the government to serve as a formal proclamation that price adjustments will be granted. Sub-Clause 47.1 may look stern or disapproving but it is noteworthy that a number of interviewees are aware of this system and are fairly satisfied with such arrangement. The relatively minor price variations evidently will not be given the corresponding price adjustments putting the risk to the owner. The respondents probably showed their resistance towards this risk on the interviews as the inflation for the period of this research adversely affected their projects in the Philippines because of steeping prices of steel, cement and oil.

For the risks of *Third Party Delays/Public Disorder*, it may well be classified under the GCCs' definition on Clause 19 of *Force Majeure* and fortuitous events. However, the characterization of this risk possibly must entail extreme and tremendous disruptions before it can be regarded to be a part of Clause 19. Several studies presented in Chapter II where the risk types were adopted made a distinction between the *Third Party Delays/Public Disorder* and *Acts of God (Force Majeure)*, perhaps concerning less minor interferences of the third party on

the former. In view of the fact that they were made different on several studies, the risk type of *Third Party Delays/Public Disorder* has individual characteristics that to some recognizes them from *Force Majeure*. The effects or influence of *Third Party Delays/Public Disorder* could extend to minor interruptions or violent disturbances by external elements of the society.

If a related situation is to be reflected on as *Force Majeure* or a fortuitous event, Sub-Clause 19.2 indicates that the contractor can stop the work with an accompanying payment for all works carried out before the incident. Otherwise, Sub-Clause 12.1 puts full responsibility for any damage or destruction of the works to the contractor including the safety, protection, security and convenience of his personnel, third parties, and the public. In that case, the burden of establishing a particular *Third Party Delays/Public Disorder* incident is on the interest of the contractor. Only Clause 16.1 gives the contractor some respite enabling him to terminate the contract if the project has been stopped by more than sixty days due to an adverse peace and order situation. If the risk materializes through unlawful conduct by a third party, the contractor should look to that party for his remedy.

OWNER (O)

Generally speaking, the outlook of the contractors on the risk types on Table 6.1 prefers the owner to be responsible with these items. The distinction of this category to Owner (O+) is that certain conditions of the actual scenario were expressed by the respondents during the interview holding them back from completely assigning a risk to the owner. They were assigned to the owner on one hand but on the other hand contractors brought up relevant conditions before the

Table 6.7 Risk Principle checklist of Owner (O) risks

Owner (O) Risk Type	Principles									
	1 Who controls?		2 Who can Insure?		3 Who benefits?		4 Who can efficiently handle?		5 On which party it 1 st falls?	
	C	O	C	O	C	O	C	O	C	O
Changes in Government Regulations and Tax-rate Changes		✓								
Change in Work		✓								
Contractor Competence	✓			✓			✓	✓		
Deficiencies in Specifications and Drawings		✓						✓		
Permits and Ordinances						✓	✓			
Sight Access/Right of Way						✓	✓			
Unforeseen Site Conditions						✓		✓		

total allocation to the owner. These conditions state some instances wherein the performance of the risk management can be performed with the partial or minor involvement from the contractor. Nevertheless, since the interviewees were the contractors, they would instead let the owner accept this responsibility for the interest of convenience. Overall, the interview responses show a definite inclination of the risk allocation to the owner's party, which distinguishes this category from the previous category, Owner (O-).

Construction costs can be directly influenced by drastic *Changes in Government Regulations and Tax-rate Changes*. The GCCs did not contain explicit terms to relate to these changes. If it is considered that Clause 47 is the nearest provision to deal with these changes, the endorsements from NEDA and GPPB are necessary for the contractors to receive appropriate adjustments. For this particular risk item, only Principle no. 1 is considered relevant and clear. The change that is to happen is initiated by the government which on this research is also the owner. On the question of who can control the incidence of this risk and, consequently, its

consequences, it is the government who gives sanctions to these rules that exposes the project to additional costs. This argument, however, is debatable whether the particular government office that entered the contract has a direct involvement with the change in law affecting the project. But if you look on the government as one unit with a number of entities under its organization, in effect the interests of one represents the resolve of the whole group.

The foreseeability issue of an imminent change also can be relevant when lawmakers start debating on the subject right before the onset of the project. This can provide a warning well in advance, but unforeseeability of timing and full effect makes it difficult to estimate. Just in other cases, the contractors may add premiums for the possible incidence of this risk that the owners end up paying regardless of the final decision in legislation, and the owner clearly takes this risk ultimately given the above turnaround of this case. If an impending change starts to come up during the actual construction, Sub-Clause 19.1 requires the contractor to provide a warning with an accompanying estimate of the future events that may likely increase the contract price. Though it is unclear whether the owner accepts the risk on this provision, the interviews ascertained that these changes hardly cause problems with the owner, especially the government, as they are usually considerate in granting additional appropriate adjustments. It is just worth mentioning that Sub-Clause 19.1 does not place the risk to a particular party making the allocation ambiguous.

The risk of *Change in Work* is a risk that is somewhat trouble-free in coming to terms with the owner, as revealed by the interviews. It is generally construed by an average construction practitioner as a change directed by the owner or its

representative. This quick assumption, however, can present problems once the owner or its representative does not acknowledge the directive calls for a *Change in Work*. The proper confirmation through documentary evidence of the fact that a change is a *Change in Work* should be always guaranteed. Nevertheless, that particular case was never raised up by the contractors showing that it perhaps does not happen much. Table 6.7 also shows that the assessment made on Principle no. 1 identifies the owner as the party who has more control on managing this risk. Minor changes almost do not impinge on the contractor's plans and the acceptance of these can be done to maintain good relations. The controversial forms of this risk are those involving significant changes that usually emanate from the owner due to various reasons. Additional works frequently happen when owners change their minds or have new ideas that are immensely different from the original plans. As stated in Sub-Clause 6.4, the contractors are required to simply follow instructions of the owner or its representative provided that it is lawful. This provision entitles the owner the right and authority to give orders.

Change in Work also happens at times when a poorly defined scope of work was prepared to expedite the project. Given this case, Principle no. 1 puts the responsibility to the owner because of inadequate planning. Due to the insufficient and imprecise data, contractors cannot clearly understand what the owners want. Unfixed specifications caused ambiguous perceptions during the contractor's estimation of the work that may later on affect the works. The owner's requirements may change as the work is performed because of events and conditions that were not anticipated earlier. The owners are advised to set reasonable contingencies to deal with necessary changes for the completion of the project.

To act with regards to these changes in the definition of work, the GCCs designated Clause 42–Variation Orders to serve as change clauses on this form of the contract. Sub-Clause 42.5 places upon the contractor the duty to get the owner prompt notices, estimates, and justifications of any situations considered to be a change in the work. Any Variation Order can only be valid if it does not exceed ten percent (10%) of the original project cost or unless it involves exceptional cases that is urgently essential to complete the original scope of work. All the provisions of this clause must be taken into consideration to achieve harmony in executing changes.

In relation to changes, the limited time and long procedures on bid preparation make the contractors resort to standard specifications based on conventional practices or own interpretation. The concealed inaccuracies or conflicts in the plans and specifications do not instantly surface and makes the project exposed to the risks of *Deficiencies in Specifications and Drawings*. The responsibility for such occasions was once more put to the owner by Principles nos. 1 & 4 because the preparation of plans and specifications generally come from their party. One case that may possibly establish otherwise is when the contractors ignored an obvious deficiency that he became aware of. However, this case produces another question of whether the deficiency at hand is obvious or not. The respondents on this case believe that the contractors should not be held liable for design problems on the grounds that they failed to carefully review and compare the contract documents. The contractors are only to perform the degree of care, skill and knowledge that is generally expected within the profession. The identification of obvious patent errors, inconsistencies, omissions and variances in the contract documents are also believed to be beyond their concerns. The pre-bid site

investigations and meetings should also establish that the deficiencies and errors are not obvious as evidenced by the failure of all the participating bidders to notice them.

Looking on the GCCs treatment of such inconsistencies on the plans, it does not state whether the contractors are entitled for compensation when errors and omissions are met due to the reliance on plans and specifications. This could be a cause of dispute if an owner denies responsibility on the inadequacies of these documents. The owner should have facilitated the preparation of a complete, accurate, unambiguous and constructible set of plans and specifications as part of his obligations even if it is not stated in the GCCs. The contractor should be able to construct the project using commercially acceptable construction means and methods of the industry. To the extent design deficiencies increase the cost of the contractor's performance, it is logical that the cost of this setback should be borne by the project owner.

Accordingly, the risk of *Unforeseen Site Conditions* presents a similar case when physical site conditions differ materially from what could be reasonably expected in a particular job location. This risk includes cases of differing subsurface conditions, existing utilities and existing structural components. These site conditions are similar in the way that they are impossible for the owner or the contractor to fully realize prior to design or construction.

The crucial aspect to remember on this risk is that there is no implied additional compensation for *Unforeseen Site Conditions*. Some construction contracts make use of a differing site conditions clause to entitle the contractor equitable adjustments when it runs to unexpected physical conditions. As for the GCCs, it

does not contain a separate form of a differing site conditions clause, but relevant provisions were found containing some of its elements. The most relevant is arguably under the Variation Orders Clause, specifically Sub-Clause 42.3, where it states that subsurface or latent physical conditions differing materially from those indicated in the contract may be issued compensation. In addition to this, Clause 10 states that the contractor should rely on any site investigation reports in preparing the bid. Aside from the notice requirements and proposals already on Clause 42, Clause 29–Early Warning also requires the contractor to warn the owner of specific circumstances that may affect the works. Though the elements of an actual differing site conditions clause are spread in the contract, the fundamental purpose of allocating the risk is performed.

With reference to Table 6.7, only Principle nos. 3 & 4 were seen pertinent to this risk of *Unforeseen Site Conditions*. Principle no.1 was ruled out with the consideration that the owner along with its consultants have performed an extensive site investigation in gathering site information. As the owner, an extended period of time is available to investigate site conditions compared to the case of the contractor. Owners are recommended to retain a qualified consultant to perform an appropriate site evaluation and to disclose all available information. Allocating the risk of *Unforeseen Site Conditions* to the contractor means that the contractor must include a contingency to deal with the conditions should they occur. If the actual site conditions do not deviate from the original plans, the owner apparently has paid for a non-occurring risk and additional costs. If the risks are encountered and they exceed the contingency, then the contractor is forced to make claims to recover the shortfall or alternatively suffer considerable losses. It is not also economically feasible or practical for contractors to do an

extensive investigation for every project he wishes to participate as they entail huge amounts of time and money for projects they are uncertain to secure. Prior to bidding, the contractor also may not have the ample resources to conduct the kind of investigation the owner could or should have made.

Like some risks already mentioned above, pre-bid meetings play a crucial role and both the owner and contractor have their respective responsibilities towards it. The owner must see to it that these meetings are arranged in an organized manner with the attendance of all prospective bidders. On the other hand, the contractors are required to be present and responsible for any information conveyed at the meeting. Failure to attend the said meetings loses a contractor's right for an equitable compensation regarding conditions disclosed on pre-bid meetings.

It is also remarkable that the GCCs do not contain disclaimer clauses, particularly on the subjects of *Deficiencies in Specifications and Drawings* and *Unforeseen Site Conditions*. This could possibly signify that the government is prepared to engage in site investigations on its projects and bear the deficiencies of its reports. A factual and accurate evaluation is promoted when owners show readiness in accepting this obligation.

In relation to the owner's role, the interviews revealed that if there are tasks seemingly of the owner's but are customarily passed to the contractor, these are the processes tied in *Permits and Ordinances* and *Sight Access/Right of Way*. These two risk items got identical assessments in relation to the risk principles being applied. Principle no. 3 gives more economic benefit to the owner if these risk items will be withdrawn from the items that the contractor attaches price on. The amount to be paid by the owner only includes actual expenditures minus the

contractor's markup. Conversely, the application of Principle no.4 picks out the contractor as the party who can handle the risk efficiently. Through past projects, the contractors do not only have the knowledge on fulfilling these requirements, but may also have created relationships with the concerned authorities. These skills are proven essential according to some interviewees as they affirmed that bureaucratic procedures still weigh down the accomplishment of these requirements.

Reviewing the GCCs regarding the risk of *Permits and Ordinances*, Clause 11 assigns the procurement of permits, licenses or approvals to the contractor. The assignment is chiefly assigned to the contractor and only demands the owner to provide assistance if ever requested. The acquisition of these documents is still mandatory even if the GCCs are intended for government projects – where the government is also basically the same organization granting permits. A project is still subject to the requirements and regulations of different independent agencies. Sub-Clause 3.2 maintains that the GCCs shall be interpreted in accordance with Philippine laws, therefore, putting importance to the consciousness and compliance to local ordinances. To ensure that the project will not be in conflict with the law, the contractor again was tasked in the GCCs to ensure that no violations against the law will be made. Whenever the owner gives instructions that do not comply with the applicable laws, the contractor under Sub-Clause 6.4 is excused from carrying out such directives. Further emphasis was put on Sub-Clause 6.7 as it reiterates that the contractor shall abide at all times to all relevant rules on labor laws and child labor enactments. The acts of naming the labor laws and child labor enactments show the sensitivity of these issues to those who formulated the GCCs. On the whole, the abovementioned provisions show that the

risk of *Permits and Ordinances* is generally the contractor's responsibility, which is in conflict to the risk principles and contractor's preference.

Speaking of conflict, the assessment on this research and the GCCs' provisions on *Sight Access/Right of Way* provides some inconsistencies. This risk type happens to be combined together as one item on this research but the review of the GCCs presented two contrasting ways of how these two tasks are allotted. On the first part of this risk type, the delays and costs incurred from failure to give possession of *Site Access* were assigned to the owner as stated on Sub-Clause nos. 5.1 & 5.2. On the other hand, any costs on the construction of special or temporary *Right of Way* shall be borne by the contractor as stated on Sub-Clause 5.3. In addition to this, the real conflict seen on the GCCs are the provisions on termination and suspension found on Sub-Clause nos. 16.1 & 44.2, respectively. The option to either terminate or suspend the contract is given to the contractor if the owner cannot deliver the *Right of Way*. If problems, especially involving financial, arises from the acquisition of *Right of Way*, the contractor can opt on ending or suspending the contract. In other words, the contractor can ignore Sub-Clause 5.3 by asserting Sub-Clause nos. 16.1 & 44.2 if the costs linked to *Right of Way* come out too high compared to estimates. While the allocation of *Site Access* does not have differences with the principles and preferences, the stipulations concerning *Right of Way* have some ambiguities that need some review.

Another controversial risk allocation on this Owner (O+) category has to do with who should be responsible for *Contractor Competence*. Seeing that it is the contractor who asked for the job, quick presumptions lead to the sole reference on Principle no. 1. True enough, the accomplishment of the contract highly counts on

the performance and competence of the contractor. An owner can only do so much if the contractor eventually decides not to perform and show up. Due to the yearning to participate on a project, bids will be received from enterprising and daring contractors with limited or no background in the engaged undertaking. It is implied for some that a contractor who accepted a job he cannot handle should take all the blame and be held accountable. This idea is assumed especially from the owner or anyone linked to this side of the contract.

When it comes to the interview responses or the contractor's side of the contract, it is quite surprising that some conflicting response with the initial presumption were obtained. Most of the contractors even prefer this risk to be completely passed to the owner who has the ability to manage it by enforcing rigorous prequalification. In the Philippines, the contractors are categorized through Philippine Contractor's Accreditation Board (PCAB). The contractor's financial condition, equipment capacity, managerial competence and overall construction experience are evaluated to determine their classifications as well as qualifications. Pointing systems on the different areas of competence are established by the PCAB and contractors are required to renew their licenses annually to ensure that their organization is up to date. The contractors believe that making it to the category required by the project plus the fulfillment of a project's prequalification requirements would demonstrate already that they are competent enough to perform the works. They added that if it turned out that the contractor is incompetent, the owner's categorization and prequalification are seemingly flawed and the blame should not be placed entirely on the contractor. The owners are advised to be careful on their selection procedure to ensure that all

the bids received have been made by contractors with the essential experience and resources to prepare a realistic bid.

This respondent's opinion is seemingly supported by Principle no. 4 as shown in Table 6.7 with the thought that the owner is in the better position to handle the occurrence of this risk. In order to improve the odds that the contractor will perform as agreed, construction contracts can be equipped with a number of provisions designed to give the owners some leverage. The inclusion of performance bonds requirements, termination clauses, payment provisions, and warranties and guarantees are devices to protect the owner from incompetent contractors. Accordingly, the GCCs have these provisions and the contractor can be expected to perform fully and faithfully with the terms of the contract. It is more difficult for the government, which in this research is the owner, to refuse accepting bids from suspicious contractors who managed to fulfill requirements because it will defeat the value of fairness that the bidding procedure promotes.

OWNER (O+)

Table 6.8 Risk Principle checklist of Owner (O+) risks

Owner (O+) Risk Type	Principles									
	1 Who controls?		2 Who can Insure?		3 Who benefits?		4 Who can efficiently handle?		5 On which party it 1 st falls?	
	C	O	C	O	C	O	C	O	C	O
Defective Design								✓		
Delayed Payment on Contracts		✓				✓		✓		

Just like the above risk of *Deficiencies in Specifications and Drawings*, the risk of *Defective Design* is attributed by the interviews more to the owner than the

contractors. One of the distinctions with the two risks is that *Defective Design* pertains to significant errors disabling the operation of one system like structural, mechanical, electrical, etc. The risk of *Deficiencies in Specifications and Drawings*, on the other hand, commonly comprises only of minor inaccuracies and inconsistencies in the plans furnished to the contractors. *Defective Design* encompasses larger aspects of the design practice such as the non-compliance to the different codes and standards as well as constructability issues. These defects, therefore, may be seen as the consultant's failure from his fundamental obligations or, particularly, professional negligence. The owner with the consultants issue these design as part of the contract documents and the contractors are only to perform with the given plans. This research considers an arrangement where the government, as the owner, hires the consultants as another party unconnected to the contractor. In effect, on the question of who among the owner and contractor is responsible, the owner becomes responsible because of its relationship with the consultant.

The owners based on Principle no. 4 are also the party expected to efficiently handle the risk of *Defective Design*. Even though the contractors are considerably more technically adept than the owner, the review of contract documents are confined only to the capacity expected from a reasonable contractor. The contractors are pressed with time and their interests are more oriented in underbidding their competitors during bid preparation. The obligations of discovering errors, omissions and inconsistencies are beyond the task of the contractor in the project. They are more likely to perform and comply on the plans as they interpret it. In addition to this, the interviews revealed that contractors as much as possible do not want to question the competency of the consultants to

maintain good working relationships. The same with the risk of *Deficiencies in Specifications and Drawings*, an error may only be faulted on the contractor if established as sufficiently obvious for a sensible construction practitioner to recognize it. The contractor can only be expected to notify the owner of any apparent design error and deficiencies.

The risk of *Defective Design* could have been easily settled with the agreement of the risk principles and risk preference on placing it to the owner, but provisions on the GCCs do not suggest the same thing. Sub-Clause 12.3 lays the blame on structural defects and failures to the contractor after considerable warranty periods following the final acceptance of the works. It could be unfair to the contractor to be held responsible without the appropriate investigations of what caused the defects and failures. It is only in Sub-Clause 12.6 that a contractor may find release on responsibility when it states that the full reimbursement of the necessary restoration or reconstruction works shall be charged to the parties found liable. Sub-Clause 17.1 can also salvage the contractor by giving him a right to terminate the contract when he deems the project to be technically impractical. Then again, it appears that Sub-Clause 12.3 deserves significant concern from the contractor and the liable parties on Sub-Clauses 12.3 & 12.6 needs consistency and regulation.

Another risk that was assigned without any difficulty from the contractors is the risk of *Delayed Payment on Contracts*. It also happens that this is the risk perceived to be as the most critical as found out on this research most likely because of the high frequency of its occurrence relative to other risks. Based on Table 6.8, it shows that Principles no. 1 & 4 sees the owner as the party who can

control and efficiently handle this risk event. The payments definitely come from the owner and it is his share of this mutual endeavor with the contractor. Right from the constitution of the contract, the owner should forecast the financial requirements of the project to be ready when the actual release of payments is necessary. Contractors also have cashflow projections and the timing of payments is critical on their construction decisions.

It was also revealed in the interviews that some owners delay payments deliberately in order to achieve lower project costs consistent with their investment objectives. This is done by controlling the funds especially when project funds are borrowed from the bank. Withholding payments to the contractors as long as possible can lower the interest rates to the bank. The motives of the owner on such cases could be unfair to the contractor who also has his own cashflow estimates.

To give the contractors some options whenever these instances happen, the GCCs gives the contractors the right to terminate the contract. The termination of the contract can be done after eighty-four (84) days of delay, as stated on Sub-Clauses 17.3(d), while the suspension of the contract can be done after forty-five (45) days of delay, as stated on Sub-Clauses 44.2(e). Likewise, the GCCs also gives protection to the owners as Sub-Clause 39.3 states that no payment of interest for delayed payments and adjustments shall be paid by the owner unless there is a corresponding provision indicated in the SCC. The owners are required also under this Sub-Clause to pay the owner within twenty eight (28) days after the issuance of payment certificates. Thus, on the span between the 28th day and 45th day, the contractors do not have any choice but to carry on with the construction. Actually,

since interests and adjustments are out of the question, the contractors lack alternatives until the 45th day. The contractor upon his discretion can opt to continue or put the contract on hold after the 45th and 84th day. One of the best options for the contractors also is to propose and specify clear terms of payment on the SCC – in particular, the payment of interest for delayed payments.

6.3 Risk Allocation Analysis

Aiming to bring into line the contractor's risk allocation preference with the application of risk principles, this research individually examined above the risk factors with respect to these two subjects. Only some studies considered the potential impacts of risk attitudes on construction practitioners, especially the decision-makers who can be affected by personal biases on dealing with an actual risk (Hillson, 1999). According to Ward *et al.* (1991), 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, so 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 unfavourable responses from the contractor to offset the effects.

Before the start of this research, it was expected that the willingness of the contractors to accept a certain risk will not always go along with the suggestions implied by the risk principles. The grounds of how the principles were formulated cannot be expected to be always identical with how contractors perceive the

allocation of a particular risk. The contractors possibly may have been consciously or unconsciously protective of their interests during the course of the interviews. Nevertheless, the results obtained were not one-sided enough to declare that there was a failure or flaw on the data collection.

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 herefore outcomes and conditions during the project execution, especially when the risk eventuates.

Another difficulty on the use of risk principles is that each person may have his own interpretation regarding one particular guideline that is different from another's perspective. The above assessment provided corresponding explanations on how the guideline and a particular risk item were perceived to associate each other, and impartiality was observed throughout. A particular case can be observed on the application of Principle no. 1 for the risk of *Contractor Competence*. During the interviews, it was consistently interpreted by the respondents to be the responsibility of the owner since he is the party who can assert the prequalification criteria and institute other stiff requirements before

qualifying an interested bidder. However, this risk type can also be interpreted by an evaluator as the risk of a contractor since he is the party who commits to do the works as his part of the consideration. All things considered, it certainly depends on the context of what risk event this risk type represents with respect to the project.

After the comparison of the risk principles and the contractors' risk preference for a particular risk, it became imperative to identify how the GPPB's GCCs allocated the risks and whether they are in agreement with the foregoing references. This procedure is presented on Fig. 3.1 where the flowchart includes a decision node to determine if a further review is necessary. If the analysis of a particular risk item has it that the application of risk principle, the contractor's risk allocation preference and the allocation of GPPB's GCCs to 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 theoretical approval and support of the risk principle selected from the literature firms up the risk allocation suggested by the contractors. The risk principle chosen consists of different guidelines concerning the nature of the risk as well as the project and the determination made can be considered on itself as substantial.

The summary of the application of risk principles and risk preference of Filipino contractors together with the evaluation of how the GPPB's GCCs treated this risk and the corresponding clauses are presented in Table 6.9. The evaluation drawn from these three subjects must yield identical outcomes before concluding that the

Table 6.9 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 ©	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 ©	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. Site 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

particular risk allocation is appropriate. A deviation of one or every subject from each other can be observed for some risk items suggest that a more critical evaluation is necessary before stating what the most suitable means to put into practice is.

Following the framework on Fig. 3.1 above, the final assessment of the risk types were analyzed thoroughly to understand the actual nature of the risk items. A portion of the framework above is shown in Fig. 6.1 and it shows the need for further investigation only for the risks that experienced differing risk allocation on GPPB, risk principles and risk preferences. The peculiarity of a risk item may require a closer investigation by construction practitioners and researchers with regards to the actual situation. This research also chose not to rely instantly on the risk principles, with the recognition of its limitations, in reporting the final general assessment of the risk types. The popular practice employed by other international standard contracts were sought to recognize customary procedures accepted in the industry.

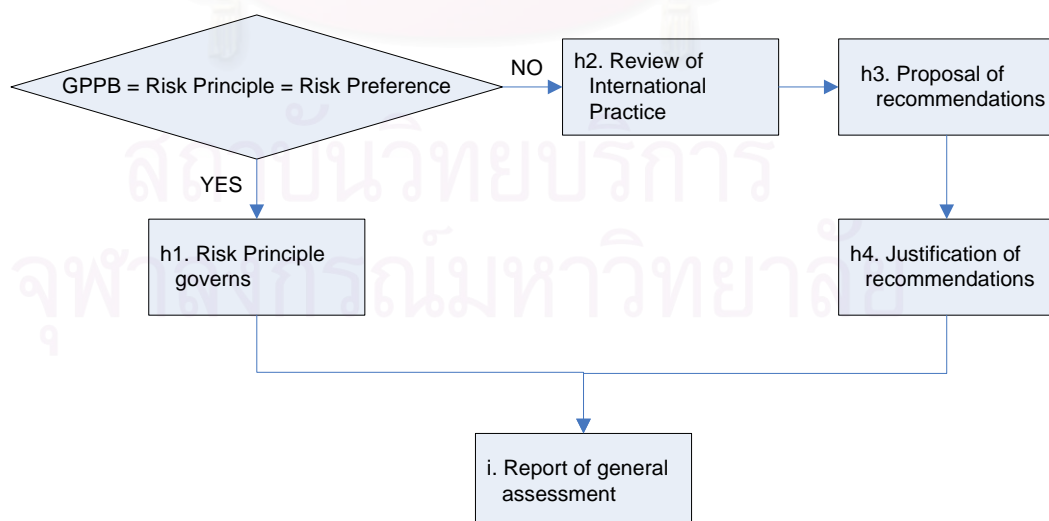


Fig. 6.1 Risk Allocation framework

Then again, standard contracts have their own qualities suited for the body they serve in. Adopting contract provisions from other standard contracts, say FIDIC, straightaway may not also be appropriate. Their applicability in the Philippine construction setting is not yet established, thus, there is no supporting ground to accept their stipulations right away. Despite the availability of standard contracts in construction, local professionals still formulate their own perhaps to reflect their sensitivity to various customs and cultural differences that influences their social and business behavior.

With reference to Table 6.9, it can be seen that there exist no clause in the GCCs to allocate the risk types of *Costs of Legal Processes*, *Political Intervention*, *Change Order Negotiations*, *Delays in Resolving Contractual Issues* and *Rebel Tax*. The GCCs were evaluated thoroughly, without being carefree, to find the most relevant provisions with respect to these risk items. For the risks of *Change Order Negotiations* and *Delays in Resolving Contractual Issues* under the category of Settlement Delays, they were interpreted to be among the contractor's risk since they were not included on the events that will merit contract extension under Clauses 25 – Extension of the Intended Completion Date, Clause 46 – Extension of Contract Time, or any other provisions. On the other hand, the risk types of *Costs of Legal Processes*, *Political Intervention*, and *Rebel Tax* do not present a pertinent party as they involve not only considerable delays, but also entails extraneous costs that the project participants should address.

Cases where there are differing outcomes between the risk principle application and contractor's preference, but a match between the risk principle application and GCCs were revealed on this research. Such cases are: *Contractor*

Competence, Quality/Mistakes in Work, Inflation, Sight Access/Right-of-Way, and Third Party Delays/Public Disorder. These cases can point to the contractor's reluctance to shoulder a particular risk; even he is the more rightful bearer. The respondents disown the entire responsibility or prefer a minor involvement from the owner. It can also possibly indicate otherwise, as the contractors accept a risk that the owner is capable of bearing. The interpretation of the risk principles and provisions of GCCs exempted the contractors from the liability, but the contractors still find themselves concerned with the occurrence of these particular risks.

Various risk allocation of GCCs also do not always match with the risk principles and contractor's risk allocation preference. The *Delayed Payments on Contracts*, which is apparently the most critical risk item identified by this research's survey, do not impose strict consequences and penalties to the owner. The *Environmental Hazards of the Project* and *Delays in Resolving Litigation/Arbitration Disputes* also were preferred to be shared, but the obligations concerning these risk types were interpreted to be of the contractors'.

CHAPTER VII

CONSIDERATION OF SPECIFIC

RISK ALLOCATION ISSUES

7.1 Further Review

After reviewing the GCC issued by GPPB and other related documents, some risk items included on this research were taken out for further review on this chapter. The analysis done on the previous chapters identified which risk items need another careful evaluation to assess what risk allocation mechanism is most appropriate on general conditions. Needless to say, the features of some risks are too complex and challenging to come up with an absolute risk allocation and the risks singled out are probably those bearing these characteristics. The standards supposed by some experts or researchers on this field may contradict the opinions of other references and it may be impossible to judge which of them is more appropriate. Once more, taking on the popular practice among the different international standard contracts may be characterized as a groundless practice because of the failure of considering the justifications of these practices. The principal issue on why people find it difficult to agree on the subject of risk allocation is the nonexistence of absolute principles to validate a particular decision to be made regarding risks. It is inherently challenging for all the construction practitioners and stakeholders to be of the same opinion when it comes to apportioning risks.

Also, it was taken into consideration that many of these risks are common to all projects while others are specific to a particular type of construction or project location. One of the criticisms on the use of standard contracts is the application of the same patterns of risk apportionment on projects regardless of the type and location. If this is the case, it is unnecessary for the owner to make assessments of the suitability of the form of contract on every project. While it is impractical to evaluate the contract on every construction undertaking, having risk allocation mechanisms that deals with general circumstances is probably the convenient response on this flaw. The use of boiler-plate contracts offers its own share of advantages, but people who employ them should be aware of their limitations. The different organizations producing the standard contracts try to address these flaws by drafting different types of building contracts that allocate risks in different means. In the Philippines, such contracts specially made for different types of projects are yet to be created and the analysis on this research is only limited to the GCC issued by the government. The assessment and review were done with consideration to general construction project conditions and it is hoped that it will be suitable for the projects of the Philippine government.

On this research, the recommendations to be given are based on the ground that implementation of them will promote the public interest in receiving best value for money in the procurement of public works. Since no authoritative reference is available on the literature and other contract forms, this study attempts to provide the perspective free from any bias that might arise from personal involvement with Philippine public works. As a part of an academic endeavor, the judgment and recommendations to be provided on this research are aimed to be as objective

as possible. The inputs from interviews of local contractors were just used to identify the controversial risk types to be assessed further on this chapter. The researchers involved on this study are unconnected with both the government and contractor as of the moment this study is conducted. On a side note, it also helps that this study was mostly done outside of the Philippines and it may put a sense that this research acted as a middleman during a contract negotiation.

Despite the fact that international contracts were believed to have their own principles and following them may provide unwarranted recommendations, different standard contracts were still chosen as a reference of the popular practices and systems employed elsewhere. The international practices were used only as a guide to show what practicable procedures are accepted, but the recommendations provided were not based on the recognition of these practices by other bodies who drafted these standard forms. Also, the different forms were also chosen with no underlying principle with respect to their popularity or relevance to the Philippine setting. The analysis of the different contracts chosen should not be used for the legal interpretation of their respective meanings. The standard forms looked upon on this research are:

- American Institute of Architects (United States), AIA Document A201-1997, *General Conditions of Contract for Construction* (1997);
- Australian Standard, AS 4000–1997, *General Conditions of Contract* (1997);
- Fédération Internationale des Ingénieurs-Conseils (International Federation of Consulting Engineers, or FIDIC), *Conditions of Contract for Works of Civil Engineering Construction, Part I, General Conditions*, Fourth Edition (1987, reprinted in 1988 and 1992 with amendments);

- Joint Contracts Tribunal for the Standard Form of Building Contract, *Standard Form of Building Contract, Private With Quantities* (1980 Edition, incorporating Amendments issued through April, 1998) (“JCT 80”);
- The Institution of Civil Engineers (United Kingdom), *The Engineering and Construction Contract*, Second Edition (1995, reprinted with corrections May, 1998) (“ECC”, formerly the “NEC”);

The presentation of the following discussions was again grouped according to its categories once shown in Chapter V (see table 5.1). Certain risk items share the same analysis as they have related features and exist in similar nature. The recommendations would be redundant if laid out on their own merits. Specific issues on some risks were at least identified and discussed taking into account its own characteristics. The assessments based from the Chapter VI were stated first to call back the apparent conflicts between the risk principles, the contractor’s risk preference, and the GPPB’s risk allocation. Next, the interpretations of the general risk allocation procedures from the different international contracts were identified before the presentation of the different recommendations of this research.

The specific risks considered on this chapter are shown by categories on Fig. 7.1, while the different interpretations per contract are found on Appendix B.

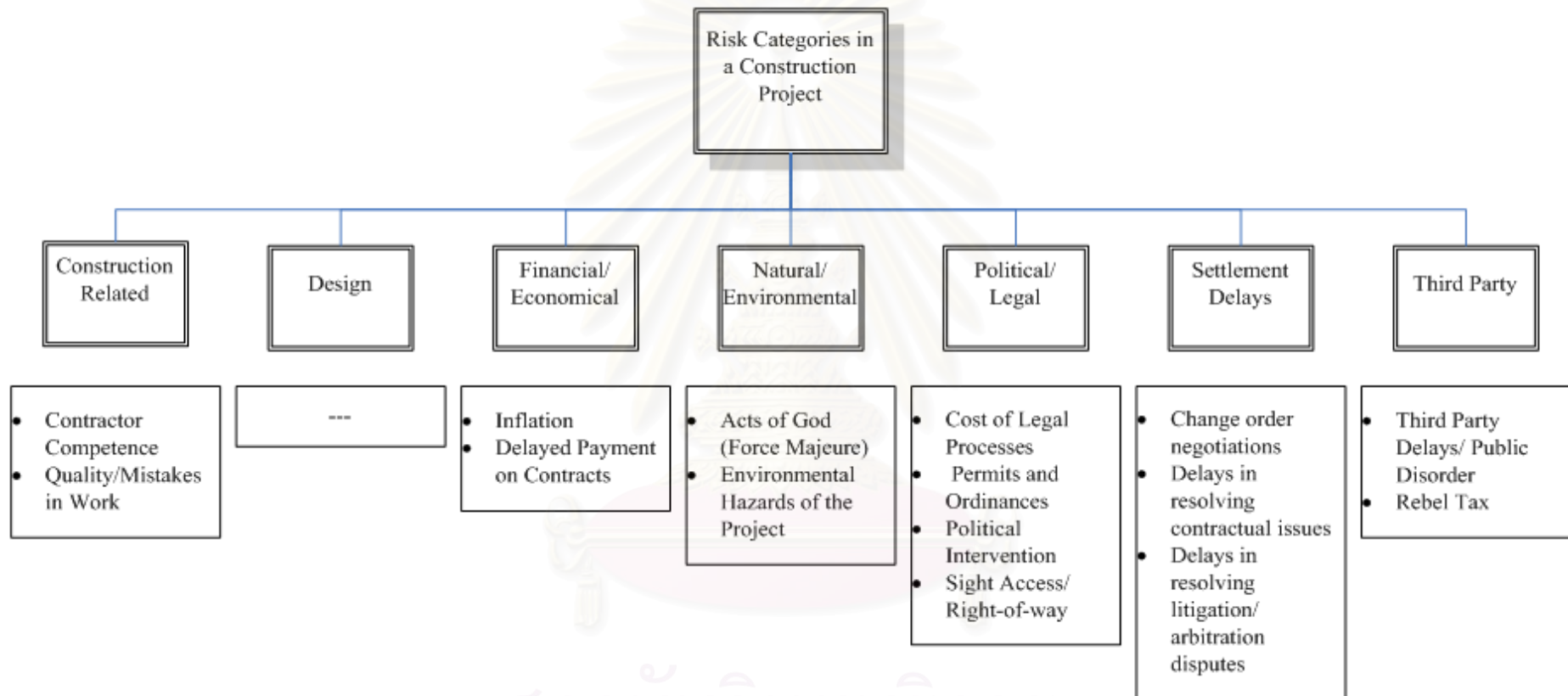


Fig. 7.1 Risks for further evaluation

สถาบันวิทยบริการ
จุฬาลงกรณ์มหาวิทยาลัย

7.2 Construction related risks

a) Assessment

- (1) This category may right away imply for some that this is the contractor's part of the deal or consideration with the owner. However, 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.
- (2) The contractors want the government to be accountable on their project roles particularly the prequalification/accreditation of contractors and project supervision.

b) International Practice

- (1) International practice is consistent on expressly assigning to the contractor the responsibility for the methods of construction, care of the works and goods. Contractor shall remedy defects and works rejected by the owner's representative. Owner may terminate the contract if the contractor abandons the work or repeatedly fails to continue the performance of his obligations.
- (2) Both parties shall have a competent representative aptly qualified to superintend the works, and shall act in a spirit of trust and mutual cooperation. The owner's representative may order the removal and re-execution of the works he would find defective. Failure of the contractor to comply entitles the owner to carry out the work by himself at the cost of the contractor.

c) Justification of Recommendations

- (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.

7.3 Financial/Economical risks

a) Assessment

- (1) The risk of *Inflation* was characterized as shared as the GCC only acknowledges such price adjustment if an endorsement by NEDA is made. The contractor shoulders escalation of prices until endorsements are received, and the owner then grants adjustments once the NEDA decides it can be classified as extraordinary circumstances. This system of responding to price fluctuations does not state a single set of pricing formula.
- (2) The contractors preferred the risk of *Inflation* to be the risk of the owner.
- (3) The assessment of the contractors and risk principles on the risk of *Delayed Payment on Contracts* put this responsibility to the owner. However, the government does not grant payment of interest or adjustments according to the GCC.

- (4) The contractor can suspend or terminate the contract after 45 and 84 days, respectively, of payment deferrals.

b) International Practice

- (1) Interests are due to the contractor during the period of the delay of payment by the owner or late issuance of payment certificate at the interest rate for that period or at the rate agreed upon in writing.
- (2) The contractor can suspend or terminate the contract after a notice and within the agreed number of days the owner and its representative fail to perform their obligations regarding the payment.
- (3) Both JCT and NEC contracts have option clauses on price adjustments to deal with inflation. The other contracts do not appear to address the problems on inflation.

c) Justification of Recommendations

- (1) The system involving NEDA as the agency to determine an extraordinary circumstance is acceptable. This approach puts more reference to the realities of the situation in the Philippines as opposed to the application of formulas.
 - (a) In periods of high inflation, or on long contracts, the risk of *Inflation* can be very high. It would be unwise to impose such a risk on the contractor and let them assign a corresponding cost to counter the effects of this risk. The results for the owner will either be inflated contract amounts or a winning bid for the contractor that attached the lowest contingency for this risk. On the latter case, the contractor who got the contract is not equipped to handle the risk once it eventuates. Contractors may be hit badly by inflation and will likely seek extra

payments from the owner or resort to lower work standards in order to recover substantial losses.

(b) It is more economical to the employer to absorb these risks when the effecting changes to the contract sum is based upon the actual behavior of market prices for labor, materials and other costs. The owner must include realistic and appropriate contingency to the construction funds on its pre-construction estimating.

(c) Various forms of contract used internationally hold some variations in pricing techniques and it is complex to determine which has the most appropriate formula. Delegating the duty to NEDA is fitting since this agency takes care of the economic affairs of the country. Although the contractors' opinions did not affect this recommendation, it is worth mentioning that the contractors are highly satisfied with how the government grants these adjustments through NEDA.

(d) *Inflation* depends on the economic condition of the country and it is appropriate to make the government responsible since its administration decides on the economic policies.

(2) The primary obligation of the owner is to pay the contractor the sum of money which forms the consideration for the contract. Money must be paid promptly and fully unless there are specific reasons of withholding it. Payments of interest are also recommended to deter *Delayed Payment on Contracts*.

(a) It is important to understand the way how contractors build up their prices for the purposes of bidding. An element of their estimates depends on the timing of the payment as agreed with the owner. The

commitment of the owner to pay on schedule assists the contractor's financing and avoids possible disruption that may affect the project. If the owner will not keep up with the agreed payment schedule, the project may encounter unanticipated problems leading to additional costs and disputes.

- (b) The payment of interests on *Delayed Payment on Contracts* obliges the owner to ensure timely disbursement of payments. Without a system to put penalty on the owner, there is no motivational influence for the owner to pay on time.
- (c) The contractor's option to suspend the works only after 45 days virtually gives the owner that number of days before something can put him to a disadvantage. Some contractors may find the need to put additional price on their bid to offset delayed payments and this is clearly unfavorable for the owner.
- (d) The owners are also discouraged to use tactics on delaying the payments as long as possible to pay less interest to the bank. This financing scheme is obviously unfair to the contractor.

7.4 Natural/Environmental risks

a) Assessment

- (1) The risk of *Acts of God (Force Majeure)* is one of the risks that have been widely debated in the literature. It is hard to weigh down which party is rightfully responsible for this risk because of the fact that it is not foreseeable to the contractor and neither the owner nor contractor have direct responsibility.

- (2) The assessment on the use of risk principles of this research settles on a sharing of responsibility. Unforeseen events that can be classified under this risk item were assigned to the owner as preferred by the contractors and expressed in the GCC.
- (3) The *Environmental Hazards of the Project* were assigned by the GCC to be part of the contractor's responsibility, while the application of risk principles and preference of the contractors favor a sharing of responsibility.

b) International Practice

- (1) The contractor shall uphold the protection of people and surrounding area and minimize the disturbances caused by construction operations.
- (2) The contractor is entitled to extension of time and compensation for delays caused by Acts of God (*Force Majeure*). Both parties can be excused from performance of obligation and can suspend or terminate the contract if prevented by this risk from doing them.

c) Justification of Recommendations

- (1) *Acts of God (Force Majeure)* events are indeed neither the contractor's nor the owner's direct responsibility, but it is more advantageous to let the owner carry this risk.
 - (a) Experience suggests that the potential risk posed by *Acts of God (Force Majeure)* events on a construction project is substantial. Although its probability can be low, the consequence can be devastating and anticipating it is impracticable for every construction project.
 - (b) If this risk is allocated to the contractor, the owner will likely experience higher costs due to risk premiums in bids. If the contract documents

clearly state that the owner will be responsible for the risk of these unanticipated hazardous events in connection with the project, the contractor will have no reason to include a risk premium in its bid for that item.

(c) If the contractors are expected to include it on their bids, the eventual winner could possibly be the bidder who did not include a corresponding contingency on his bid. These unscrupulous contractors would resort to filing of claims if and when unanticipated conditions are encountered. Otherwise, they could absorb the risk and possibly go out of business, which is also not good for the government as this does not foster a healthy construction industry.

(2) It is the owner's responsibility to reasonably anticipate the risk of *Environmental Hazards of the Project* and to make provisions in the contract documents regarding preventive actions for such protection. Contingencies on time and budget must be anticipated by the owner if there is a looming possibility of this risk.

(a) The basic premise of this recommendation is that the project owner, prior to construction, should retain a qualified consultant to assist in identifying possible disturbances to existing structures, services and surroundings. The risks can be reduced and addressed sooner by conducting comprehensive site investigations during the planning stage.

(b) The owner can allot sufficient time during project planning stage to investigate and identify the potential impacts of the proposed construction on the project surroundings. Conversely, the contractors are pressed with time to evaluate potential impacts on nearby surroundings.

It is more of the interest of the owner to identify the working methods, quality controls, and any necessary measures to protect the existing environment around the project. Identifying these items will ensure a more uniform bid from the contractors and that these risks are reflected on bids.

- (c) The contractor is only responsible if there is a failure to practice faithful execution of the works. The construction methods or operations that are inevitable for the project and might cause distress or damage should be reasonably anticipated by the owner. A clause should include appropriate notification provisions from the contractor once an unanticipated and unavoidable hazard to the environment is looming.
- (d) If the contract documents clearly establish that the owner will be accountable for the risk of unanticipated hazards to the environment, the contractor will have no reason to include risk premium in its bid for that item.
- (e) It is also more of the interest of the owner than the contractor to preserve the surroundings of this project seeing that the owner will dwell in this environment on the projected life of this facility, while the contractor is involved only within the duration of the construction project.

7.5 Political/Legal risks

a) Assessment

- (1) *Costs of Legal Processes* can originate due to a mistake or misunderstanding by either party or an external party. Both the risk

principle application and preferred risk allocation of contractors assigned it as shared as it depends which party is the defendant. The GCC does not have expressed provisions on the allocation of this risk.

- (2) The trouble on getting permits is preferred to be the job of the owner, while the GCC assigns it to the contractor. The use of risk principles settles on a sharing of risk allocation. The job of abiding the ordinances was unanimously assigned to be the responsibility of the contractor.
- (3) The acquisition of *Sight Access/Right-of-Way* is preferred also to be the responsibility of the owner, while the risk principle suggests a sharing of allocation. However, the two issues on this risk item were assessed separately by the GCC by putting the responsibility of sight access to the owner as the contractor is assigned to take care of the right-of-way.
- (4) Events involving *Political Intervention* were understandably not included in the GCC. The contractors are willing to have a sharing of allocation, while the use of risk principles puts forward the owner as the reasonable bearer of this risk.
- (5) It is remarkable that the GCC made clear the respective responsibilities of the contractor and the owner in the acquisition of the permits, site access and right of way.

b) International Practice

- (1) AIA and FIDIC assigns the acquisition of permits to the contractor, while other contracts do not appear to address the problems on permits. The contractor is also consistently expected to comply with the laws of the country or other jurisdiction, including ordinances.

- (2) Under FIDIC, the owner is liable for the unforeseeable costs from collaborations with local authorities, while the Australian Standard expressly limits the liability in cases involving martial law or confiscation orders by any government or public authority. Both AIA and JCT have the option to terminate the contract if there is a prolonged suspension because of an order from a public authority. JCT and FIDIC also gives the owner the right to terminate the contract if the contractor commits an act relating to corruption.
- (3) The delay by the owner in giving site access entitles the contractor extension of time and compensation. FIDIC assigns the costs for rights-of-way to the contractor, while AIA puts the responsibility of securing easements required for construction, use or occupancy of permanent structures or for permanent exchanges in existing facilities to the owner.
- (4) The contracts do not appear to address the problems on the costs of legal processes.

c) Justification of Recommendations

- (1) The *Costs of Legal Processes* are to be borne by whoever is involved in the legal proceedings. Ultimately, the losing party takes on the costs.
 - (a) The allocation of this risk item does not seem problematic since it is understandable that *Costs of Legal Processes* are to be assumed to the party concerned. The damages owed to a third party liability depend on which party is sued or accused.
 - (b) The GCC's implicit risk allocation on this matter does not pose grave conflicts affecting the project objectives. Also, this risk type is considered the least important according to the risk perception survey

that may denote that it hardly becomes an issue on the project. Construction practitioners do not resort to legal proceedings as much as possible to preserve good relationships.

- (2) Site access and permits are fundamental requirements before carrying out the project and these items can be better handled by the owner. Failure to do so shall render the owner liable to pay damages to the contractor.
 - (a) The owner is in a better position to obtain access of the site and the documents pertinent to the procurement of permits are under the possession of the owner.
 - (b) Putting these tasks to the responsibility of the owner will entail an amount with a mark-up that can be avoided if the owner's party accomplishes these on his own.
 - (c) Delays are the likely consequences of these tasks and accomplishing them before turning over the project to a contractor leaves out the need to adjust the schedule with the contractor.
 - (d) The author also believes that requiring the owner to complete the necessary permits minimizes the pay-offs and briberies being done just to expedite the approval of these permits. Contractors are pressed to execute immediately once the project has been handed over and this leads to the need of illegitimate means to ensure all permits are taken care of.
 - (e) Getting the possession of the site and necessary permits does not require the special expertise of a contractor. It will be more practical for the owner to accomplish them with his own forces rather than passing it to the contractor.

- (3) The contractor should check applicable laws and ordinances that concern the locality of the project. The contractor should also assume the risk of its compliance.
- (a) Contractors usually operate in a locality he is familiar. If not, a responsible contractor should see to it that there is no violation of local regulations with respect to his construction plans.
 - (b) Through experience, contractors can gain knowledge on carrying out construction tasks on different locations. The ordinances of different municipalities do not vary significantly.
- (4) As part of the owner's pre-design surveys and reports, it is recommended that the owner should also identify and address right of way issues.
- (a) The owner again has ample time to obtain the rights of way compared to the contractor. If the contractor encounters difficulties in construction because of failure to acquire rights of way as planned, this will result to delays and different schemes by the contractor to recover these costs to the owner.
 - (b) This recommendation allows the preparation of adequate and identical bid pricing among the bidders.
 - (c) The owner being the government has more authority to insist right of way to the surrounding area of the project. Social issues on getting hold of right of way can be best handled by the government.
 - (d) Only in cases where the rights-of-way are required by the particular method of construction proposed by a particular contractor should make the contractor responsible for securing such rights. The contractor shall assume this risk and see to it for himself that the proposed method is a

more efficient one. This gives the contractor freedom in as well as accountability with his technical expertise.

- (5) Risk incidents involving *Political Intervention* are more due to be assigned to the owner.
- (a) The costs and delays incurred to comply with demands and exaction of local authorities are hard to forecast. There is no basis on how to put contingencies on such risks and for that reason makes the contractor not ready to handle the consequences.
- (b) Although this risk is unforeseeable and neither the contractor nor the owner can be held liable for this risk, the reason that the owner benefits more with the realization of the project (compared to the contractor who's involvement is limited only to the construction duration) puts some validity in putting this risk to the owner.
- (c) On this research particularly, the owners are the government authorities and the burden or imposition done, regardless if it's under the same department or agency, should be taken back to their party.
- (d) Looking at the bigger picture, the government should make the effort to eradicate the incidence of this risk.

7.6 Settlement Delays risks

a) Assessment

- (1) Risks of *Change Order Negotiations*, *Delays in resolving contractual issues*, and *Delays in resolving litigation/arbitration disputes* originate because neither party gives up their end of the argument. The contractors preferred risk sharing on the consequences of delay for these risk items.

- (2) *Change Order Negotiations* are assigned to the contractor as it involves minor issues relative to the *Delays in resolving contractual issues*, and *Delays in resolving litigation/arbitration disputes*. *Change Order Negotiations* are initiated usually by the contractor thus making him the bearer when risk principles are applied.
- (3) If the works are stopped for twenty-eight (28) days or by the number of days for which the maximum amount of liquidated damages can be paid, the owner can terminate the contract and cite a breach in contract by the contractor. These delays are most likely on *Delays in resolving litigation/arbitration disputes* and that is why the GCC provision was only considered to concern this kind of Settlement Delays.

b) International Practice

- (1) The contracts have time bar provisions and instructions on dealing with dispute resolutions. AIA, FIDIC and NEC expressly states that the owner and contractor shall proceed with their performance of obligations pending the resolution of a claim as if the matter disputed was not disputed. Only AIA gives the contractor a time extension because of delays pending the dispute resolution.

c) Justification of Recommendations

- (1) The consequences on the risks of *Change Order Negotiations*, *Delays in resolving contractual issues*, and *Delays in resolving litigation/arbitration disputes* are recommended to be shared by directing the owner to grant time extension, while the contractor shoulders the costs. It is suggested for the GCC to specify risks involving disputes to the types of delay it permits and grants time extension.

- (a) These are delays that can be categorized to be neither the fault nor the responsibility of the contractor similar to the items expressly included to the other events that could merit time extension.
- (b) It becomes unnecessary for the contractors to provide evidence of financial losses due to these delays. In theory, it is always the contractor who wishes for time extension. However, the failure of the field personnel to quickly reach decisions and the lack of appropriate language in the contract lead to the prolongation of an issue. The owner should delegate the decision-making authority to avoid such kinds of delay.
- (c) Then again, if the dispute is an unfaithful effort of the contractor to receive time extension, the contractor can be disqualified of such time adjustments. The late presentation or notice of problem in resolving issues also forfeits the contractor his right for a time extension. This avoids untimely claims wherein a contractor realizes a need for extra time and looks for past incidents he once ignored to cite as a ground for such extension. The contractor also should proceed to working continuously and must be able to substantiate the delays caused by these risk items.
- (d) On the other hand, the late response and decision-making of the owner's representative should also be a ground for not only time extension but also price adjustments. This allows the owner to assign competent and experienced staff in the site.
- (e) Sharing of risk allocation promotes the prompt management of issues and good communication between the two parties. Both parties would

have a stake on responding to problems and avoiding delays. The owners are compelled to be attentive with the contractor's claims in preventing delays on the project.

7.7 Third Party risks

a) Assessment

- (1) Risks involving *Third Party Delays/Public Disorder* are preferred by the contractors to be of the owner, while the chosen principles elected a sharing of risk allocation.
- (2) The contractor is fully responsible for the safety, protection, security and convenience of the third party to be affected by his construction work. An insurance covering acts causing damage to their persons is also required from the contractor as per GCC. On the other hand, the contractor may terminate or suspend the works if stopped continuously by adverse situations involving local situations. Taken together, a sharing on risk allocation is interpreted with the use of GCC.
- (3) There is no provision in the GCC explicitly addressing *Rebel Tax*.
- (4) The contractors interviewed accepts the responsibility on *Rebel Tax*, while the use of risk principles suggest that it is more appropriate if the owner handles this risk.

b) International Practice

- (1) The owner is responsible for the consequences of hostilities, commotions, or disorder under the Australian Standard, FIDIC, and NEC. AIA and JCT permit the termination of the contract with the AIA requiring a declaration of national emergency.

- (2) Acts or threats involving rebellion and terrorism are risks of the owner under Australian Standard, FIDIC and JCT. NEC seems to put this risk on the owner as well as it considers unforeseeable events which stops the contractor from completing the works as compensation events.

c) Justification of Recommendations

- (1) The risks of *Third Party Delays/Public Disorder* and *Rebel Tax* are recommended to be borne by the owner. The contractor should faithfully limit the damage and protect the security of the site.
- (a) Even if the potential of this risk can be anticipated on certain locations, the excessive costs to be required in responding to these risks are difficult to estimate. It can be more economic to pass the actual costs to the owner instead of trying to predict the possible amount of these events.
- (b) Ultimately, the costs are essentially shouldered by the owner. Whether the contract documents assign it to the contractor or not, the contractor will include a premium in his bid or just claim this amount to the owner in the end.
- (c) The occurrences of these risks are highly dependent on the location and security situation of a certain locality. It is the owner who wants a facility in that particular location, plus the government as the owner should also be responsible on the peace and order situation.
- (d) As reported, certain groups exacting this *Rebel Tax* engage the meetings with the contractors as they come to the site and not to the owner's agency. More often than not, the owners also do not want to get involved with these dirty jobs.

- (e) The contractor as the party in-charge of the security of the site premises shall look after a third party causing damage to the site.

7.8 Summary of Recommendations

Table 7.1 presents the summary of recommendations for the risks further reviewed on this research because of conflicts between the GCCs' risk allocation, risk allocation preference of the contractors and the application of Max Abrahamson's risk principles. Again, these recommendations were decided by the objective assessment of the researcher with consideration to general construction project conditions. This research has reviewed some academic standpoints from different textbooks, international contracts, and risk principles in the literature. However, neither of them is considered absolute when it comes to apportioning the risks because of the circumstances surrounding a construction project including the different risks. The references were only used as a guide and the final recommendations were justified based on their own merits without prejudice to either party.

Firstly, the risk items relating to the basic obligations of either party were assigned to that party in fulfillment of their respective considerations in the contract. The contractor was to be responsible for construction related risks, and it was deemed that they should not rely on the guidance of the owner for them to faithfully execute the works. The contractor has to try performing the best practice in response for meticulous owners and avoid redundant execution of the works. In contrast, the owner is asked to grant interest payments during risks of *Delayed Payment on Contracts* to avoid the occurrences of these events.

Table 7.1 Summary of recommendations

Risk Types	Risk Allocation	Remarks
I. Construction Related		
1. Contractor Competence	Contractor	
2. Quality/Mistakes in Work	Contractor	
II. Financial/Economical		
3. Inflation	Owner	
4. Delayed Payment on Contracts	Owner	
III. Natural/Environmental		
5. Acts of God (<i>Force Majeure</i>)	Owner	
6. Environmental Hazards of the Project	Owner	Contractor is responsible for hazards caused by failing to faithfully carry out the works.
IV. Political/Legal		
7. Costs of Legal Processes	Conditional	
8. Permits and Ordinances	Permits – Owner Ordinances – Contractor	
9. Political Intervention	Owner	
10. Site Access/Right-of-Way	Owner	Contractor is responsible for rights-of-way required by own particular method of construction.
V. Settlement Delays		
11. Change Order Negotiations	Shared	Contractor may be disqualified of time & price adjustments if the dispute is unqualified or presented too late. Just the same, the owner may be liable for time & price adjustments if there is a late response in decision-making.
12. Delays in Resolving Contractual Issues	Shared	Contractor may be disqualified of time & price adjustments if the dispute is unqualified or presented too late. Just the same, the owner may be liable for time & price adjustments if there is a late response in decision-making.
13. Delays in Resolving Litigation/Arbitration Disputes	Shared	Contractor may be disqualified of time & price adjustments if the dispute is unqualified or presented too late. Just the same, the owner may be liable for time & price adjustments if there is a late response in decision-making.

Table 7.1 (continuation) Summary of recommendations

VI. Third Party		
14. Third Party Delays/Public Disorder	Owner	Owner is responsible for consequences of this risk, while the contractor maintains the security of the site.
15. Rebel Tax	Owner	Owner is responsible for consequences of this risk, while the contractor maintains the security of the site.

One of the grounds where the other recommendations were based is the foreseeability of a certain risk item. Risks such as *Inflation* and *Acts of God* (*Force Majeure*) are inevitable events experienced by a project, but can hardly be predicted by nature. It was considered more practical to let the owners accept the responsibility for its consequences seeing that passing it to the contractors will result to inflated bid amounts. The contractor who took the most risk by neglecting these risk events is more likely to win the contract. The owner could have gained advantage at this point, but problems will later arise once the risk eventuates as the contractor would find means on how to recover losses from the owner. A more uniform bid prices can be expected if the owner expressly accepted risks of such nature.

The accomplishment or fulfillment of statutory requirements is also put on the owner since these activities do not require the technical expertise of contractors. Owners were deemed to have more sufficient time, in most cases, to acquire the project requirements such as *Permits* and *Sight Access/Right-of-way*. This recommendation also believes that it would be more economical for the owner to implement this one and avoid letting the contractor attach an amount (with corresponding mark-up) when passing these items to the contractor.

For the risks on settlement delays, sharing of risk allocation was considered as the most viable alternative to compel both parties to respond promptly to problems and avoid delays. Good communication lines are also seen to be essential in avoiding other risks and achievement of project objectives.

Lastly, some recommendations were given with some conditions stated under the remarks column (see Table 7.1). The recommendations can be overturned if these conditions were proven against the other party.



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CHAPTER VIII

CONCLUSIONS & RECOMMENDATIONS

In the Philippines, the Government Procurement Policy Board (GPPB) was created for the purpose of protecting national interest in all matters affecting public procurement. One of the tasks of GPPB is formulating and amending, whenever necessary, the implementing rules and regulations and corresponding standard bidding forms and it encourages civil society organizations such as an academic institution to observe and monitor the procurement process and contract implementation. The primary aim of this research is to take the contractors' risk philosophies into account and serve as the channel for the Filipino contractors to raise their judgment regarding the nature and treatment of different risks in construction projects. This particular process was not considered during the GPPB contract formulation and it is believed that the willingness of the contractor to bear a risk will result to a favorable risk response by the contractor at any time the risk eventuates (Ward, Chapman, & Curtis, 1991).

In view of this, this research investigated the risk perception and risk preferences of Filipino contractors. Based on a 7-degree rating system, twenty-two out of twenty-six risk items were found to be at least Critical and significant in meeting the project objectives. Also, the risks of *Rebel Tax* and *Political Intervention* surfaced and suggested what distinct and actual experiences construction practitioners go through in the Philippines. These findings convey that the risks found from the literature together with the two risks raised by the contractors were indeed crucial and worth

investigating. Interviews were then arranged from selected contractors to obtain primarily the preferred risk allocation and gain insights on the actual experience and practices taking place on these risks.

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. 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 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.*

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 on where they are based and reflect on the options available that will fit their project requirements.



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REFERENCES

- Abdelkhalek, H. A. (2006). Comparative study of not-foreseeable conditions in Saudi, FIDIC and some other construction contracts. Journal of Engineering and Applied Science 53(6): 749-764.
- Abrahamson, M. and B. Curtis (1990). Collaborative risk distribution for construction contracts. London, London: Centre of Construction Law and Management.
- Ahmed, S. M., R. Ahmad, et al. (1999). Risk management trends in the Hong Kong construction industry: a comparison of contractors and owners perceptions. Engineering, Construction and Architectural Management 6(3): 225-234.
- Al-Bahar, J. F. and K. C. Crandall (1990). Systematic risk management approach for construction projects. Journal of Construction Engineering and Management 116(3): 533-546.
- Al-Tabtabai, H. and J. E. Diekmann (1992). Judgemental forecasting in construction projects. Construction Management and Economics 10(1): 19-30.
- Andi (2006). The importance and allocation of risks in Indonesian construction projects. Construction Management and Economics 24: 69-80.
- Bajaj, D., J. Oluwoye, et al. (1997). An analysis of contractors' approaches to risk identification in New South Wales, Australia. Construction Management and Economics 15(4): 363-369.
- Bowcock, J. (1997) User Forum. International Federation of Consulting Engineers Volume, DOI:
- Bubshait, A. A. and S. A. Almohawis (1994). Evaluating the general conditions of a construction contract. International Journal of Project Management 12(3): 133-136.
- Charoengam, C. and C. Y. Yeh (1999). Contractual risk and liability sharing in hydropower construction. International Journal of Project Management 17(1): 29-37.
- GPPB (2005). Philippine Bidding Documents. G. P. P. Board, Government of the Philippines.
- Greene, A. (2000). A process approach to project risk management, Loughborough University: 14-25.
- Grove, J. B. (1998). Review of General Conditions of Contract for Construction Works for the Government of the Hong Kong Special Administrative Region. New York, Thelen Reid & Priest LLP.

- Hameed, A. and S. Woo (2007). Risk Importance and Allocation in the Pakistan Construction Industry: A Contractor's Perspective. KSCE Journal of Civil Engineering 11(2): 73-80.
- Hanna, A. S. (2007). Risk Allocation and Increased Claims in the Construction Industry. Journal of Professional Issues in Engineering Education and Practice: 43-44.
- Hastak, M. and A. Shaked (2000). ICRAM-1: model for international construction risk assessment. Journal of Management in Engineering 16(1): 59-67.
- Hayes, R., J. Perry, et al. (1986). Risk management in engineering construction: a guide to project risk analysis and risk management. London, Thomas Telford Ltd.
- Jaselskis, E. J. and A. Talukhaba (1998). Bidding Considerations in Developing Countries. Journal of Construction Engineering and Management 124(3): 185-193.
- Jervis, B. M. and P. Levin (1988). Construction Law: Principles and Practice. New York, McGraw-Hill.
- Kangari, R. (1995). Risk Management Perceptions and Trends of U.S. Construction. Journal of Construction Engineering and Management 121(4): 422-429.
- Kartam, N. A. and S. A. Karrtam (2000). Risk and its management in the Kuwaiti construction industry: a contractor's perspective. International Journal of Project Management 19: 325-335.
- Kim, S. and D. Bajaj (2000). Risk management in construction: an approach for contractors in South Korea. Cost Engineering 42(1): 38-44.
- Murdoch, J. and W. Hughes (2008). Construction Contracts: Law and Management. London and New York, Taylor & Francis.
- Ndekugri, I. and B. McDonnell (1999). Differing site conditions: a FIDIC/engineering and construction contract comparison. Engineering, Construction and Architectural Management 6(2): 177-187.
- Rahman, M. M. and M. M. Kumaraswamy (2002). Risk management trends in the construction industry: moving towards joint risk management. Engineering, Construction and Architectural Management 125(4): 131-151.
- Remo, M. (2008). Inflation near 17-year high, rate hike eyed. Philippine Daily Inquirer. Manila, Philippines.
- Shash, A. A. (1993). Factors considered in tendering decisions by top UK contractors. Construction Management and Economics 11(2): 111-118.

- Shumway, R., A. Richard, et al. (2004). New Trends and Bad Results in Construction Contracts, Part I. Leadership and Management in Engineering: 93-98.
- Thompson, P. A. and J. G. Perry (1992). Engineering construction risks: a guide to project risk analysis and risk management, Thomas Telford Ltd.
- Tochaiwat, K. (2001). A study of FIDIC contract applicability in Thai construction industry. Civil Engineering. Bangkok, Chulalongkorn University.
- Uff, J. (1996). Construction Law. London, Dublin, Hong Kong, Sweet & Maxwell.
- Wang, M.-T. and H.-Y. Chou (2003). Risk Allocation and Risk Handling of Highway Projects in Taiwan. Journal of Management in Engineering 19(2): 60-68.
- Wang, S. Q., M. F. Dulaimi, et al. (2004). Risk management framework for construction projects in developing countries. Construction Management and Economics 22(3): 237-252.
- Ward, S. C. (1999). Assessing and managing important risks. International Journal of Project Management 17(6): 331-336.
- Ward, S. C., C. B. Chapman, et al. (1991). On the allocation of risk in construction projects. International Journal of Project Management 9(3): 140-147.
- Wikipedia (2008). Risk definition, Wikipedia, the free encyclopedia.
- Williams, T. M. (1996). The two-dimensionality of project risk. International Journal of Project Management 14(3): 185-186.
- Zaghloul, R. and F. Hartman (2003). Construction contracts: the cost of mistrust. International Journal of Project Management 21: 419-424.
- Zhi, H. (1995). Risk management for overseas construction projects. International Journal of Project Management 13(4): 231-237.



APPENDICES

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APPENDIX A

Philippine Bidding Documents

General Conditions of Contract

(As Harmonized with Asian Development Bank, Japan Bank for International Cooperation, and World Bank)

Section III. General Conditions of Contract

Notes on the General Conditions of Contract

The details in the GCC and SCC, and submission thereof, along with other required documents listed therein, expressing all the rights and obligations of the parties, should be complete.

The GCC herein shall not be altered. Any changes and complementary information, which may be needed, shall be introduced only through the SCC.

1. Definitions
 - 1.1. For purposes of this Clause, boldface type is used to identify defined terms.
 - 1.2. The Arbitrator is the person appointed jointly by the **PROCURING ENTITY** and the Contractor to resolve disputes in the first instance, as provided for in GCC Clause 20.
 - 1.3. Bill of Quantities refers to a list of the specific items of the Work and their corresponding unit prices, lump sums, and/or provisional sums.
 - 1.4. The Completion Date is the date of completion of the Works as certified by the **PROCURING ENTITY**'s Representative, in accordance with GCC Clause 48.
 - 1.5. The Contract is the contract between the **PROCURING ENTITY** and the Contractor to execute, complete, and maintain the Works. It consists of the documents listed in GCC Clause 2.3.
 - 1.6. The Contract Price is the price stated in the Letter of Acceptance and thereafter to be paid by the **PROCURING ENTITY** to the Contractor for the execution of the Works in accordance with this Contract.
 - 1.7. Contract Time Extension is the allowable period for the Contractor to complete the Works in addition to the original Completion Date stated in this Contract.
 - 1.8. The Contractor is the juridical entity whose proposal has been accepted by the **PROCURING ENTITY** and to whom the Contract to execute the Work was awarded.
 - 1.9. The Contractor's Bid is the signed offer or proposal submitted by the Contractor to the **PROCURING ENTITY** in response to the Bidding Documents.
 - 1.10. Days are calendar days; months are calendar months.
 - 1.11. Dayworks are varied work inputs subject to payment on a time basis for the Contractor's employees and Equipment, in addition to payments for associated Materials and Plant.

- 1.12. A Defect is any part of the Works not completed in accordance with the Contract.
- 1.13. The Defects Liability Certificate is the certificate issued by PROCURING ENTITY's Representative upon correction of defects by the Contractor.
- 1.14. The Defects Liability Period is the one year period between project completion and final acceptance within which the Contractor assumes the responsibility to undertake the repair of any damage to the Works at his own expense.
- 1.15. Drawings are graphical presentations of the Works. They include all supplementary details, shop drawings, calculations, and other information provided or approved for the execution of this Contract.
- 1.16. Equipment refers to all facilities, supplies, appliances, materials or things required for the execution and completion of the Work provided by the Contractor and which shall not form or are not intended to form part of the Permanent Works.
- 1.17. The Intended Completion Date refers to the date specified in the SCC when the Contractor is expected to have completed the Works. The Intended Completion Date may be revised only by the PROCURING ENTITY's Representative by issuing an extension of time or an acceleration order.
- 1.18. Materials are all supplies, including consumables, used by the Contractor for incorporation in the Works.
- 1.19. The Notice to Proceed is a written notice issued by the PROCURING ENTITY or the PROCURING ENTITY's Representative to the Contractor requiring the latter to begin the commencement of the work not later than a specified or determinable date.
- 1.20. Permanent Works all permanent structures and all other project features and facilities required to be constructed and completed in accordance with this Contract which shall be delivered to the PROCURING ENTITY and which shall remain at the Site after the removal of all Temporary Works.
- 1.21. Plant refers to the machinery, apparatus, and the like intended to form an integral part of the Permanent Works.
- 1.22. The PROCURING ENTITY is the party who employs the Contractor to carry out the Works stated in the SCC.
- 1.23. The PROCURING ENTITY's Representative refers to the Head of the PROCURING ENTITY or his duly authorized representative, identified in the SCC, who shall be responsible for supervising the execution of the Works and administering this Contract.
- 1.24. The Site is the place provided by the PROCURING ENTITY where the Works shall be executed and any other place or places which may be designated in the SCC, or notified to the Contractor by the PROCURING ENTITY's Representative as forming part of the Site.
- 1.25. Site Investigation Reports are those that were included in the Bidding Documents and are factual and interpretative reports about the surface and subsurface conditions at the Site.
- 1.26. Slippage is a delay in work execution occurring when actual accomplishment falls below the target as measured by the difference between the scheduled and actual accomplishment of the Work by the

Contractor as established from the work schedule. This is actually described as a percentage of the whole Works.

- 1.27. Specifications mean the description of Works to be done and the qualities of materials to be used, the equipment to be installed and the mode of construction.
 - 1.28. The Start Date, as specified in the SCC, is the date when the Contractor is obliged to commence execution of the Works. It does not necessarily coincide with any of the Site Possession Dates.
 - 1.29. A Subcontractor is any person or organization to whom a part of the Works has been subcontracted by the Contractor, as allowed by the PROCURING ENTITY, but not any assignee of such person.
 - 1.30. Temporary Works are works designed, constructed, installed, and removed by the Contractor that are needed for construction or installation of the Permanent Works.
 - 1.31. Work(s) refer to the Permanent Works and Temporary Works to be executed by the Contractor in accordance with this Contract, including (i) the furnishing of all labor, materials, equipment and others incidental, necessary or convenient to the complete execution of the Works; (ii) the passing of any tests before acceptance by the PROCURING ENTITY's Representative; (iii) and the carrying out of all duties and obligations of the Contractor imposed by this Contract as described in the SCC.
2. Interpretation
- 2.1. In interpreting the Conditions of Contract, singular also means plural, male also means female or neuter, and the other way around. Headings have no significance. Words have their normal meaning under the language of this Contract unless specifically defined. The PROCURING ENTITY's Representative will provide instructions clarifying queries about the Conditions of Contract.
 - 2.2. If sectional completion is specified in the SCC, references in the Conditions of Contract to the Works, the Completion Date, and the Intended Completion Date apply to any Section of the Works (other than references to the Completion Date and Intended Completion Date for the whole of the Works).
 - 2.3. The documents forming this Contract shall be interpreted in the following order of priority:
 - (a) Contract Agreement;
 - (b) Instructions to Bidders;
 - (c) Addenda to the Bidding Documents;
 - (d) Specifications;
 - (e) Drawings;
 - (f) Special Conditions of Contract;
 - (g) General Conditions of Contract; and
 - (h) Any other document listed in the SCC as forming part of this Contract.
3. Governing Language and Law
- 3.1. This Contract has been executed in the English language, which shall be the binding and controlling language for all matters relating to the meaning or interpretation of this Contract. All correspondence and

- other documents pertaining to this Contract which are exchanged by the parties shall be written in English.
- 3.2. This Contract shall be interpreted in accordance with the laws of the Republic of the Philippines.
4. Communications
 - 4.1. Communications between parties that are referred to in the Conditions shall be effective only when in writing. A notice shall be effective only when it is received by the concerned party.
 5. Possession of Site
 - 5.1. On the date specified in the SCC, the PROCURING ENTITY shall grant the Contractor possession of so much of the Site as may be required to enable it to proceed with the execution of the Works. If the Contractor suffers delay or incurs cost from failure on the part of the PROCURING ENTITY to give possession in accordance with the terms of this clause, the PROCURING ENTITY's Representative shall give the Contractor a Contract Time Extension and certify such sum as fair to cover the cost incurred, which sum shall be paid by PROCURING ENTITY.
 - 5.2. If possession of a portion is not given by the date stated in the SCC Clause 5.1, the PROCURING ENTITY will be deemed to have delayed the start of the relevant activities. The resulting adjustments in contract time to address such delay shall be in accordance with GCC Clause 46.
 - 5.3. The Contractor shall bear all costs and charges for special or temporary right-of-way required by it in connection with access to the Site. The Contractor shall also provide at his own cost any additional facilities outside the Site required by it for purposes of the Works.
 - 5.4. The Contractor shall allow the PROCURING ENTITY's Representative and any person authorized by the PROCURING ENTITY's Representative access to the Site and to any place where work in connection with this Contract is being carried out or is intended to be carried out.
 6. The Contractor's Obligations
 - 6.1. The Contractor shall carry out the Works properly and in accordance with this Contract. The Contractor shall provide all supervision, labor, Materials, Plant and Contractor's Equipment, which may be required. All Materials and Plant on Site shall be deemed to be the property of the PROCURING ENTITY.
 - 6.2. The Contractor shall commence execution of the Works on the Start Date and shall carry out the Works in accordance with the Program of Work submitted by the Contractor, as updated with the approval of the PROCURING ENTITY's Representative, and complete them by the Intended Completion Date.
 - 6.3. The Contractor shall be responsible for the safety of all activities on the Site.
 - 6.4. The Contractor shall carry out all instructions of the PROCURING ENTITY's Representative that comply with the applicable laws where the Site is located.
 - 6.5. The Contractor shall employ the key personnel named in the Schedule of Key Personnel, as referred to in the SCC, to carry out the

- supervision of the Works. The PROCURING ENTITY will approve any proposed replacement of key personnel only if their relevant qualifications and abilities are equal to or better than those of the personnel listed in the Schedule.
- 6.6. If the PROCURING ENTITY's Representative asks the Contractor to remove a member of the Contractor's staff or work force, for justifiable cause, the Contractor shall ensure that the person leaves the Site within seven (7) days and has no further connection with the Work in this Contract.
 - 6.7. During Contract implementation, the Contractor and his subcontractors shall abide at all times by all labor laws, including child labor related enactments, and other relevant rules.
 - 6.8. The Contractor shall submit to the PROCURING ENTITY for consent the name and particulars of the person authorized to receive instructions on behalf of the Contractor.
 - 6.9. The Contractor shall cooperate and share the Site with other contractors, public authorities, utilities, and the PROCURING ENTITY between the dates given in the schedule of other contractors particularly when they shall require access to the Site. The Contractor shall also provide facilities and services for them during this period. The PROCURING ENTITY may modify the schedule of other contractors, and shall notify the Contractor of any such modification thereto.
 - 6.10. Should anything of historical or other interest or of significant value be unexpectedly discovered on the Site, it shall be the property of the PROCURING ENTITY. The Contractor shall notify the PROCURING ENTITY's Representative of such discoveries and carry out the PROCURING ENTITY's Representative's instructions in dealing with them.
7. Performance Security
 - 7.1. The Performance Security shall be submitted to the PROCURING ENTITY not later than the date specified in the Letter of Acceptance and shall be issued in an amount and form as specified in the SCC, and denominated in the currency in which the contract price is payable. The Performance Security shall be valid for the period specified in the SCC.
 - 7.2. The Contractor, by entering into the Contract with the PROCURING ENTITY, acknowledges the right of the PROCURING ENTITY to institute action pursuant to Act 3688 against any subcontractor be they an individual, firm, partnership, corporation, or association supplying the Contractor with labor, materials and/or equipment for the performance of this Contract.
 8. Sub-Contracting
 - 8.1. Unless otherwise indicated in the SCC, the Contractor cannot subcontract more than fifty percent (50%) of the value of the Works,. Subcontracting of any portion of the Works does not relieve the Contractor of any liability or obligation under this Contract. The Contractor will be responsible for the acts, defaults, and negligence of any subcontractor, its agents, servants or workmen as fully as if these

- were the Contractor's own acts, defaults, or negligence, or those of its agents, servants or workmen.
- 8.2. All subcontracting arrangements as disclosed and identified during the eligibility check shall not be changed during the implementation of this Contract.
9. Liquidated Damages
- 9.1. The Contractor shall pay liquidated damages to the PROCURING ENTITY at the rate per day stated in the SCC for each day that the Completion Date is later than the Intended Completion Date. The total amount of liquidated damages shall not exceed the amount defined in the SCC. The PROCURING ENTITY may deduct liquidated damages from payments due to the Contractor. Payment of liquidated damages shall not affect the Contractor. Once the cumulative amount of liquidated damages reaches ten percent (10%) of the amount of this Contract, the PROCURING ENTITY shall rescind this Contract, without prejudice to other courses of action and remedies open to it.
- 9.2. If the Intended Completion Date is extended after liquidated damages have been paid, the Engineer of the PROCURING ENTITY shall correct any overpayment of liquidated damages by the Contractor by adjusting the next payment certificate. The Contractor shall be paid interest on the overpayment, calculated from the date of payment to the date of repayment, at the rates specified in GCC Clause 39.1
10. Site Investigation Reports
- 10.1. The Contractor, in preparing the Bid, shall rely on any Site Investigation Reports referred to in the SCC supplemented by any information obtained by the Contractor.
11. The PROCURING ENTITY, Licenses and Permits
- 11.1. The PROCURING ENTITY shall, if requested by the Contractor, assist him in applying for permits, licenses or approvals, which are required for the Works.
12. Contractor's Risk and Warranty Security
- 12.1. The Contractor shall assume full responsibility for the Works from the time project construction commenced up to final acceptance by the PROCURING ENTITY and shall be held responsible for any damage or destruction of the Works except those occasioned by force majeure. The Contractor shall be fully responsible for the safety, protection, security, and convenience of his personnel, third parties, and the public at large, as well as the Works, Equipment, installation, and the like to be affected by his construction work.
- 12.2. The defects liability period for infrastructure projects shall be one year from project completion up to final acceptance by the PROCURING ENTITY. During this period, the Contractor shall undertake the repair works, at his own expense, of any damage to the Works on account of the use of materials of inferior quality within ninety (90) days from the time the Head of the PROCURING ENTITY has issued an order to undertake repair. In case of failure or refusal to comply with this mandate, the PROCURING ENTITY shall undertake such repair works and shall be entitled to full reimbursement of expenses incurred therein upon demand.

In case the Contractor fails to comply with the preceding paragraph, it shall suffer perpetual disqualification from participating in any public bidding and its property or properties shall be subject to attachment or garnishment proceedings to recover the costs. All payables of the PROCURING ENTITY in the Contractor's favor shall be offset to recover the costs.

- 12.3. After final acceptance of the Works by the PROCURING ENTITY, the Contractor shall be held responsible for structural defects and/or failure of the completed project within the following warranty periods from final acceptance, except those occasioned by force majeure and those caused by other parties:
- (a) Permanent Structures: Fifteen (15) years
Buildings of types 4 (steel, iron, concrete, or masonry construction with walls, ceilings, and permanent partitions of incombustible fire resistance) and 5 (steel, iron, concrete, or masonry construction), steel and concrete bridges, flyovers, concrete aircraft movement areas, ports, dams, diversion tunnels, causeways, wharves, piers, dikes, filtration and treatment plants, sewerage systems, power plants, transmission and communication towers, railway system, and other similar structures;
 - (b) Semi-Permanent Structures: Five (5) years
Buildings of types 1 (wooden), 2 (wood with 1 hour fire resistance), and 3 (masonry and wood construction), concrete roads, asphalt roads, river control, drainage, irrigation and drainage canals, municipal ports and river landing, deep wells, rock causeway, pedestrian overpass, and other similar structures; and
 - (c) Other Structures: Two (2) years
Bailey and wooden bridges, shallow wells, spring developments, and other similar structures.
- 12.4. The Contractor shall be required to put up a warranty security in the form of cash, bank guarantee, letter of credit, GSIS or surety bond callable on demand, in accordance with the following schedule:
- | Form of Warranty | Minimum Amount in Percentage (%) of Total Contract Price |
|--|--|
| 1. Cash deposit, cash bond or letter of credit | Five Percent (5%) |
| 2. Bank guarantee | Ten Percent (10%) |
| 3. Surety bond | Thirty Percent (30%) |
- 12.5. The warranty security shall be stated in Philippine Pesos and shall remain effective during the applicable warranty period provided in GCC Clause 12.3.
- 12.6. In case of structural defects/failure occurring during the applicable warranty period provided in GCC Clause 12.3, the PROCURING ENTITY shall undertake the necessary restoration or reconstruction works and shall be entitled to full reimbursement by the parties found to be liable, of expenses incurred therein upon demand, without prejudice to the filing of appropriate administrative, civil, and/or criminal charges against the responsible persons as well as the

forfeiture of the warranty security posted in favor of the PROCURING ENTITY.

For purposes of this clause, the term “structural defects” shall mean major faults/flaws/deficiencies in one or more key structural elements of the Works which may lead to structural failure of the completed elements or structure. The term “structural failures” is defined as an occurrence where one or more key structural elements in an infrastructure facility fails or collapses, thereby rendering the facility or part thereof incapable of withstanding the design loads, and/or endangering the safety of the users or the general public.

13. PROCURING ENTITY’s Risk
 - 13.1. From the Start Date until the Certificate of Final Acceptance has been issued, the following are risks of the PROCURING ENTITY:
 - (a) The risk of personal injury, death, or loss of or damage to property (excluding the Works, Plant, Materials, and Equipment), which are due to:
 - (a.1) any type of use or occupation of the Site authorized by the PROCURING ENTITY after the official acceptance of the works; or
 - (a.2) negligence, breach of statutory duty, or interference with any legal right by the PROCURING ENTITY or by any person employed by or contracted to him except the Contractor.
 - (b) The risk of damage to the Works, Plant, Materials, and Equipment to the extent that it is due to a fault of the PROCURING ENTITY or in the PROCURING ENTITY’s design, or due to war or radioactive contamination directly affecting the country where the Works are to be executed.
14. Insurance
 - 14.1. The Contractor shall, under his name and at his own expense, obtain and maintain, for the duration of this Contract, the following insurance coverage:
 - (a) Contractor’s All Risk Insurance;
 - (b) Transportation to the project Site of Equipment, Machinery, and Supplies owned by the Contractor;
 - (c) Personal injury or death of Contractor’s employees; and
 - (d) Comprehensive insurance for third party liability to Contractor’s direct or indirect act or omission causing damage to third persons.
 - 14.2. The Contractor shall provide evidence to the PROCURING ENTITY’s Representative that the insurances required under this Contract have been effected and shall, within a reasonable time, provide copies of the insurance policies to the PROCURING ENTITY’s Representative. Such evidence and such policies shall be provided to the PROCURING ENTITY through the PROCURING ENTITY’s Representative.
 - 14.3. The Contractor shall notify the insurers of changes in the nature, extent, or program for the execution of the Works and ensure the adequacy of the insurances at all times in accordance with the terms of this Contract and shall produce to the PROCURING ENTITY’s

Representative the insurance policies in force including the receipts for payment of the current premiums.

The above insurance policies shall be obtained from any reputable insurance company approved by the PROCURING ENTITY's Representative.

- 14.4. If the Contractor fails to obtain and keep in force the insurances referred to herein or any other insurance which he may be required to obtain under the terms of this Contract, the PROCURING ENTITY may obtain and keep in force any such insurances and pay such premiums as may be necessary for the purpose. From time to time, the PROCURING ENTITY may deduct the amount it shall pay for said premiums including twenty five percent (25%) therein from any monies due, or which may become due, to the Contractor, without prejudice to the PROCURING ENTITY exercising its right to impose other sanctions against the Contractor pursuant to the provisions of this Contract.
- 14.5. In the event the Contractor fails to observe the above safeguards, the PROCURING ENTITY may, at the Contractor's expense, take whatever measure is deemed necessary for its protection and that of the Contractor's personnel and third parties, and/or order the interruption of dangerous Works. In addition, the PROCURING ENTITY may refuse to make the payments under GCC Clause 39 until the Contractor complies with this Clause.
- 14.6. The Contractor shall immediately replace the insurance policy obtained as required in this Contract, without need of the PROCURING ENTITY's demand, with a new policy issued by a new insurance company acceptable to the PROCURING ENTITY for any of the following grounds:
- (a) The issuer of the insurance policy to be replaced has:
 - (a.1) become bankrupt;
 - (a.2) been placed under receivership or under a management committee;
 - (a.3) been sued for suspension of payment; or
 - (a.4) been suspended by the Insurance Commission and its license to engage in business or its authority to issue insurance policies cancelled; or
 - (b) Where reasonable grounds exist that the insurer may not be able, fully and promptly, to fulfill its obligation under the insurance policy.
15. Termination for Default of Contractor
- 15.1. The PROCURING ENTITY shall terminate this Contract for default when any of the following conditions attend its implementation:
- 15.2. Due to the Contractor's fault and while the project is on-going, it has incurred negative slippage of fifteen percent (15%) or more in accordance with Presidential Decree 1870, regardless of whether or not previous warnings and notices have been issued for the Contractor to improve his performance;
- 15.3. Due to its own fault and after this Contract time has expired, the Contractor incurs delay in the completion of the Work after this Contract has expired; or

- 15.4. The Contractor:
- (a) abandons the contract Works, refuses or fails to comply with a valid instruction of the PROCURING ENTITY or fails to proceed expeditiously and without delay despite a written notice by the PROCURING ENTITY;
 - (b) does not actually have on the project Site the minimum essential equipment listed on the Bid necessary to prosecute the Works in accordance with the approved Program of Work and equipment deployment schedule as required for the project;
 - (c) does not execute the Works in accordance with this Contract or persistently or flagrantly neglects to carry out its obligations under this Contract;
 - (d) neglects or refuses to remove materials or to perform a new Work that has been rejected as defective or unsuitable; or
 - (e) sub-lets any part of this Contract without approval by the PROCURING ENTITY.
- 15.5. All materials on the Site, Plant, Equipment, and Works shall be deemed to be the property of the PROCURING ENTITY if this Contract is rescinded because of the Contractor's default.
16. Termination for Default of PROCURING ENTITY
- 16.1. The Contractor may terminate this Contract with the PROCURING ENTITY if the works are completely stopped for a continuous period of at least sixty (60) calendar days through no fault of its own, due to any of the following reasons:
- (a) Failure of the PROCURING ENTITY to deliver, within a reasonable time, supplies, materials, right-of-way, or other items it is obligated to furnish under the terms of this Contract; or
 - (b) The prosecution of the Work is disrupted by the adverse peace and order situation, as certified by the Armed Forces of the Philippines Provincial Commander and approved by the Secretary of National Defense.
17. Termination for Other Causes
- 17.1. The PROCURING ENTITY may terminate this Contract, in whole or in part, at any time for its convenience. The Head of the PROCURING ENTITY may terminate this Contract for the convenience of the PROCURING ENTITY if he has determined the existence of conditions that make Project Implementation economically, financially or technically impractical and/or unnecessary, such as, but not limited to, fortuitous event(s) or changes in law and National Government policies.
- 17.2. The PROCURING ENTITY or the Contractor may terminate this Contract if the other party causes a fundamental breach of this Contract.
- 17.3. Fundamental breaches of Contract shall include, but shall not be limited to, the following:
- (a) The Contractor stops work for twenty eight (28) days when no stoppage of work is shown on the current Program of Work and the stoppage has not been authorized by the PROCURING ENTITY's Representative;

- (b) The PROCURING ENTITY's Representative instructs the Contractor to delay the progress of the Works, and the instruction is not withdrawn within twenty eight (28) days;
- (c) The PROCURING ENTITY shall terminate this Contract if the Contractor is declared bankrupt or insolvent as determined with finality by a court of competent jurisdiction. In this event, termination will be without compensation to the Contractor, provided that such termination will not prejudice or affect any right of action or remedy which has accrued or will accrue thereafter to the PROCURING ENTITY and/or the Contractor. In the case of the Contractor's insolvency, any Contractor's Equipment which the PROCURING ENTITY instructs in the notice is to be used until the completion of the Works;
- (d) A payment certified by the PROCURING ENTITY's Representative is not paid by the PROCURING ENTITY to the Contractor within eighty four (84) days from the date of the PROCURING ENTITY's Representative's certificate;
- (e) The PROCURING ENTITY's Representative gives Notice that failure to correct a particular Defect is a fundamental breach of Contract and the Contractor fails to correct it within a reasonable period of time determined by the PROCURING ENTITY's Representative;
- (f) The Contractor does not maintain a Security, which is required;
- (g) The Contractor has delayed the completion of the Works by the number of days for which the maximum amount of liquidated damages can be paid, as defined in the GCC Clause 9; and
- (h) In case it is determined prima facie by the PROCURING ENTITY that the Contractor has engaged, before or during the implementation of the contract, in unlawful deeds and behaviors relative to contract acquisition and implementation, such as, but not limited to, the following:
 - (h.1) corrupt, fraudulent, collusive and coercive practices as defined in ITB Clause 2.1(a);
 - (h.2) drawing up or using forged documents;
 - (h.3) using adulterated materials, means or methods, or engaging in production contrary to rules of science or the trade; and
 - (h.4) any other act analogous to the foregoing.

17.4. The Funding Source or the PROCURING ENTITY, as appropriate, will seek to impose the maximum civil, administrative and/or criminal penalties available under the applicable law on individuals and organizations deemed to be involved with corrupt, fraudulent, or coercive practices.

17.5. When persons from either party to this Contract gives notice of a fundamental breach to the PROCURING ENTITY's Representative in order to terminate the existing contract for a cause other than those listed under GCC Clause 17.3, the PROCURING ENTITY's Representative shall decide whether the breach is fundamental or not.

- 17.6. If this Contract is terminated, the Contractor shall stop work immediately, make the Site safe and secure, and leave the Site as soon as reasonably possible.
18. Procedures for Termination of Contracts
- 18.1. The following provisions shall govern the procedures for the termination of this Contract:
- (a) Upon receipt of a written report of acts or causes which may constitute ground(s) for termination as aforementioned, or upon its own initiative, the Implementing Unit shall, within a period of seven (7) calendar days, verify the existence of such ground(s) and cause the execution of a Verified Report, with all relevant evidence attached;
 - (b) Upon recommendation by the Implementing Unit, the Head of the PROCURING ENTITY shall terminate this Contract only by a written notice to the Contractor conveying the termination of this Contract. The notice shall state:
 - (b.1) that this Contract is being terminated for any of the ground(s) afore-mentioned, and a statement of the acts that constitute the ground(s) constituting the same;
 - (b.2) the extent of termination, whether in whole or in part;
 - (b.3) an instruction to the Contractor to show cause as to why this Contract should not be terminated; and
 - (b.4) special instructions of the PROCURING ENTITY, if any.

The Notice to Terminate shall be accompanied by a copy of the Verified Report;
 - (c) Within a period of seven (7) calendar days from receipt of the Notice of Termination, the Contractor shall submit to the Head of the PROCURING ENTITY a verified position paper stating why the contract should not be terminated. If the Contractor fails to show cause after the lapse of the seven (7) day period, either by inaction or by default, the Head of the PROCURING ENTITY shall issue an order terminating the contract;
 - (d) The PROCURING ENTITY may, at anytime before receipt of the Bidder's verified position paper to withdraw the Notice to Terminate if it is determined that certain items or works subject of the notice had been completed, delivered, or performed before the Contractor's receipt of the notice;
 - (e) Within a non-extendible period of ten (10) calendar days from receipt of the verified position paper, the Head of the PROCURING ENTITY shall decide whether or not to terminate this Contract. It shall serve a written notice to the Contractor of its decision and, unless otherwise provided in the said notice, this Contract is deemed terminated from receipt of the Contractor of the notice of decision. The termination shall only be based on the ground(s) stated in the Notice to Terminate; and
 - (f) The Head of the PROCURING ENTITY may create a Contract Termination Review Committee (CTRC) to assist him in the discharge of this function. All decisions recommended by the

CTRC shall be subject to the approval of the Head of the PROCURING ENTITY.

19. Force Majeure, Release From Performance
 - 19.1. For purposes of this Contract the terms “force majeure” and “fortuitous event” may be used interchangeably. In this regard, a fortuitous event or force majeure shall be interpreted to mean an event which the Contractor could not have foreseen, or which though foreseen, was inevitable. It shall not include ordinary unfavorable weather conditions; and any other cause the effects of which could have been avoided with the exercise of reasonable diligence by the Contractor.
 - 19.2. If this Contract is discontinued by an outbreak of war or by any other event entirely outside the control of either the PROCURING ENTITY or the Contractor, the PROCURING ENTITY’s Representative shall certify that this Contract has been discontinued. The Contractor shall make the Site safe and stop work as quickly as possible after receiving this certificate and shall be paid for all works carried out before receiving it and for any Work carried out afterwards to which a commitment was made.
 - 19.3. If the event continues for a period of eighty four (84) days, either party may then give notice of termination, which shall take effect twenty eight (28) days after the giving of the notice.
 - 19.4. After termination, the Contractor shall be entitled to payment of the unpaid balance of the value of the Works executed and of the materials and Plant reasonably delivered to the Site, adjusted by the following:
 - (a) any sum to which the Contractor is entitled under GCC Clause 27.1;
 - (b) the cost of his suspension and demobilization;
 - (c) any sum to which the PROCURING ENTITY is entitled.
 - 19.5. The net balance due shall be paid or repaid within a reasonable time period from the time of the notice of termination.
20. Resolution of Disputes
 - 20.1. If the Contractor believes that a decision taken by the PROCURING ENTITY’s Representative was either outside the authority given to the PROCURING ENTITY’s Representative by this Contract or that the decision was wrongly taken, the decision shall be referred to the Arbiter indicated in the SCC within fourteen (14) days of the notification of the PROCURING ENTITY’s Representative’s decision.
 - 20.2. Any and all disputes arising from the implementation of this Contract covered by the R.A. 9184 and its IRR-A shall be submitted to arbitration in the Philippines according to the provisions of Republic Act 9285, otherwise known as the “Alternative Dispute Resolution Act of 2004”: Provided, however, That, disputes that are within the competence of the Construction Industry Arbitration Commission to resolve shall be referred thereto. The process of arbitration shall be incorporated as a provision in this Contract that will be executed pursuant to the provisions of the Act and its IRR-A: Provided, further, That, by mutual agreement, the parties may agree in writing to resort to other alternative modes of dispute resolution. Additional instructions on resolution of disputes, if any, shall be indicated in the SCC.
21. Suspension of Loan, Credit, Grant, or Appropriation

- 21.1. In the event that the Funding Source suspends the Loan, Credit, Grant, or Appropriation to the PROCURING ENTITY, from which part of the payments to the Contractor are being made:
 - (a) The PROCURING ENTITY is obligated to notify the Contractor of such suspension within seven (7) days of having received the suspension notice.
 - (b) If the Contractor has not received sums due it for work already done within forty five (45) days from the time the Contractor's claim for payment has been certified by the PROCURING ENTITY's Representative, the Contractor may immediately issue a suspension of work notice in accordance with SCC Clause 44.2.
22. PROCURING ENTITY's Representative's Decisions
 - 22.1. Except where otherwise specifically stated, the PROCURING ENTITY's Representative will decide contractual matters between the PROCURING ENTITY and the Contractor in the role representing the PROCURING ENTITY.
 - 22.2. The PROCURING ENTITY's Representative may delegate any of his duties and responsibilities to other people, except to the Arbitrator, after notifying the Contractor, and may cancel any delegation after notifying the Contractor.
23. Approval of Drawings and Temporary Works by the PROCURING ENTITY's Representative
 - 23.1. All Drawings prepared by the Contractor for the execution of the Temporary Works, are subject to prior approval by the PROCURING ENTITY's Representative before its use.
 - 23.2. The Contractor shall be responsible for design of Temporary Works.
 - 23.3. The PROCURING ENTITY's Representative's approval shall not alter the Contractor's responsibility for design of the Temporary Works.
 - 23.4. The Contractor shall obtain approval of third parties to the design of the Temporary Works, when required by the PROCURING ENTITY.
24. Acceleration and Delays Ordered by the PROCURING ENTITY's Representative
 - 24.1. When the PROCURING ENTITY wants the Contractor to finish before the Intended Completion Date, the PROCURING ENTITY's Representative will obtain priced proposals for achieving the necessary acceleration from the Contractor. If the PROCURING ENTITY accepts these proposals, the Intended Completion Date will be adjusted accordingly and confirmed by both the PROCURING ENTITY and the Contractor.
 - 24.2. If the Contractor's Financial Proposals for an acceleration are accepted by the PROCURING ENTITY, they are incorporated in the Contract Price and treated as a Variation.
25. Extension of the Intended Completion Date
 - 25.1. The PROCURING ENTITY's Representative shall extend the Intended Completion Date if a Variation is issued which makes it impossible for the Intended Completion Date to be achieved by the Contractor without taking steps to accelerate the remaining work, which would cause the Contractor to incur additional costs. Unless

- specified in the SCC, no payment shall be made for any event which may warrant the extension of the Intended Completion Date.
- 25.2. The PROCURING ENTITY's Representative shall decide whether and by how much to extend the Intended Completion Date within twenty one (21) days of the Contractor asking the PROCURING ENTITY's Representative for a decision thereto after fully submitting all supporting information. If the Contractor has failed to give early warning of a delay or has failed to cooperate in dealing with a delay, the delay by this failure shall not be considered in assessing the new Intended Completion Date.
26. Right to Vary
- 26.1. The PROCURING ENTITY's Representative with the prior approval of the PROCURING ENTITY may instruct Variations, up to a maximum cumulative amount of ten percent (10%) of the original contract cost.
- 26.2. Variations shall be valued as follows:
- (a) At a lump sum price agreed between the parties;
 - (b) where appropriate, at rates in this Contract;
 - (c) in the absence of appropriate rates, the rates in this Contract shall be used as the basis for valuation; or failing which
 - (d) at appropriate new rates, equal to or lower than current industry rates and to be agreed upon by both parties and approved by the Head of the PROCURING ENTITY.
27. Contractors Right to Claim
- 27.1. If the Contractor incurs cost as a result of any of the events under GCC Clause 13, the Contractor shall be entitled to the amount of such cost. If as a result of any of the said events, it is necessary to change the Works, this shall be dealt with as a Variation.
28. Dayworks
- 28.1. Subject to GCC Clause 42 on Variation Order, and if applicable as indicated in the SCC, the Dayworks rates in the Contractor's Bid shall be used for small additional amounts of work only when the PROCURING ENTITY's Representative has given written instructions in advance for additional work to be paid for in that way.
- 28.2. All work to be paid for as Dayworks shall be recorded by the Contractor on forms approved by the PROCURING ENTITY's Representative. Each completed form shall be verified and signed by the PROCURING ENTITY's Representative within two days of the work being done.
- 28.3. The Contractor shall be paid for Dayworks subject to obtaining signed Dayworks forms.
29. Early Warning
- 29.1. The Contractor shall warn the PROCURING ENTITY's Representative at the earliest opportunity of specific likely future events or circumstances that may adversely affect the quality of the work, increase the Contract Price, or delay the execution of the Works. The PROCURING ENTITY's Representative may require the Contractor to provide an estimate of the expected effect of the future event or circumstance on the Contract Price and Completion Date. The

- estimate shall be provided by the Contractor as soon as reasonably possible.
- 29.2. The Contractor shall cooperate with the PROCURING ENTITY's Representative in making and considering proposals for how the effect of such an event or circumstance can be avoided or reduced by anyone involved in the work and in carrying out any resulting instruction of the PROCURING ENTITY's Representative.
30. Program of Work
- 30.1. Within the time stated in the SCC, the Contractor shall submit to the PROCURING ENTITY's Representative for approval a Program of Work showing the general methods, arrangements, order, and timing for all the activities in the Works.
- 30.2. An update of the Program of Work shall show the actual progress achieved on each activity and the effect of the progress achieved on the timing of the remaining work, including any changes to the sequence of the activities.
- 30.3. The Contractor shall submit to the PROCURING ENTITY's Representative for approval an updated Program of Work at intervals no longer than the period stated in the SCC. If the Contractor does not submit an updated Program of Work within this period, the PROCURING ENTITY's Representative may withhold the amount stated in the SCC from the next payment certificate and continue to withhold this amount until the next payment after the date on which the overdue Program of Work has been submitted.
- 30.4. The PROCURING ENTITY's Representative's approval of the Program of Work shall not alter the Contractor's obligations. The Contractor may revise the Program of Work and submit it to the PROCURING ENTITY's Representative again at any time. A revised Program of Work shall show the effect of any approved Variations; and if allowed, any Compensation Event.
- 30.5. When the Program of Work is updated, the Contractor shall provide the PROCURING ENTITY's Representative with an updated cash flow forecast. The cash flow forecast shall include different currencies, as defined in the Contract, converted as necessary using the Contract exchange rates.
- 30.6. All Variations shall be included in updated Program of Work produced by the Contractor.
31. Management Conferences
- 31.1. Either the PROCURING ENTITY's Representative or the Contractor may require the other to attend a Management Conference. The Management Conference shall review the plans for remaining work and deal with matters raised in accordance with the early warning procedure.
- 31.2. The PROCURING ENTITY's Representative shall record the business of Management Conferences and provide copies of the record to those attending the Conference and to the PROCURING ENTITY. The responsibility of the parties for actions to be taken shall be decided by the PROCURING ENTITY's Representative either at the Management Conference or after the Management Conference and stated in writing to all who attended the Conference.

32. Bill of Quantities
 - 32.1. The Bill of Quantities shall contain items of work for the construction, installation, testing, and commissioning of work to be done by the Contractor.
 - 32.2. The Bill of Quantities is used to calculate the Contract Price. The Contractor is paid for the quantity of the work done at the rate in the Bill of Quantities for each item.
 - 32.3. If the final quantity of any work done differs from the quantity in the Bill of Quantities for the particular item and is not more than twenty five percent (25%) of the original quantity, provided the aggregate changes for all items do not exceed ten percent (10%) of the Contract price, the PROCURING ENTITY's Representative shall make the necessary adjustments to allow for the changes subject to applicable laws, rules, and regulations.
 - 32.4. If requested by the PROCURING ENTITY's Representative, the Contractor shall provide the PROCURING ENTITY's Representative with a detailed cost breakdown of any rate in the Bill of Quantities.
33. Instructions, Inspections and Audits
 - 33.1. The PROCURING ENTITY's personnel shall at all reasonable times during construction of the Work be entitled to examine, inspect, measure and test the materials and workmanship, and to check the progress of the construction.
 - 33.2. If the PROCURING ENTITY's Representative instructs the Contractor to carry out a test not specified in the Specification to check whether any work has a defect and the test shows that it does, the Contractor shall pay for the test and any samples. If there is no defect, the test shall be a Compensation Event.
 - 33.3. The Contractor shall permit the Funding Source named in the SCC to inspect the Contractor's accounts and records relating to the performance of the Contractor and to have them audited by auditors appointed by the Funding Source, if so required by the Funding Source.
34. Identifying Defects
 - 34.1. The PROCURING ENTITY's Representative shall check the Contractor's work and notify the Contractor of any defects that are found. Such checking shall not affect the Contractor's responsibilities. The PROCURING ENTITY's Representative may instruct the Contractor to search uncover defects and test any work that the PROCURING ENTITY's Representative considers below standards and defective.
35. Cost of Repairs
 - 35.1. Loss or damage to the Works or Materials to be incorporated in the Works between the Start Date and the end of the Defects Liability Periods shall be remedied by the Contractor at the Contractor's cost if the loss or damage arises from the Contractor's acts or omissions.
36. Correction of Defects
 - 36.1. The PROCURING ENTITY's Representative shall give notice to the Contractor of any defects before the end of the Defects Liability Period, which begins at Completion Date up to final acceptance by the PROCURING ENTITY, unless otherwise specified in the SCC. The

- Defects Liability Period shall be extended for as long as defects remain to be corrected.
- 36.2. Every time notice of a defect is given, the Contractor shall correct the notified defect within the length of time specified in the PROCURING ENTITY's Representative's notice.
 - 36.3. The Contractor shall correct the defects which he notices himself before the end of the Defects Liability Period.
 - 36.4. The PROCURING ENTITY shall certify that all defects have been corrected. If the PROCURING ENTITY considers that correction of a defect is not essential, he can request the Contractor to submit a quotation for the corresponding reduction in the Contract Price. If the PROCURING ENTITY accepts the quotation, the corresponding change in the SCC is a Variation.
37. **Uncorrected Defects**
- 37.1. The PROCURING ENTITY shall give the Contractor at least fourteen (14) days notice of his intention to use a third party to correct a Defect. If the Contractor does not correct the Defect himself within the period, the PROCURING ENTITY may have the Defect corrected by the third party. The cost of the correction will be deducted from the Contract Price.
 - 37.2. The use of a third party to correct defects that are uncorrected by the Contractor will in no way relieve the Contractor of its liabilities and warranties under the Contract.
38. **Advance Payment**
- 38.1. The PROCURING ENTITY shall, upon a written request of the contractor which shall be submitted as a contract document, make an advance payment to the contractor in an amount not to exceed fifteen percent (15%) of the total contract price, to be made in lump sum or, at the most two, installments according to a schedule specified in the SCC.
 - 38.2. The advance payment shall be made only upon the submission to and acceptance by the PROCURING ENTITY of an irrevocable standby letter of credit of equivalent value from a commercial bank, a bank guarantee or a surety bond callable upon demand, issued by a surety or insurance company duly licensed by the Insurance Commission and confirmed by the PROCURING ENTITY.
 - 38.3. The advance payment shall be repaid by the Contractor by deducting a percentage equal to that used for the advance payment from periodic progress payments to be made to the Contractor.
 - 38.4. The contractor may reduce his standby letter of credit or guarantee instrument by the amounts refunded by the Monthly Certificates in the advance payment.
39. **Progress Payments**
- 39.1. The Contractor may submit a request for payment for Work accomplished. Such request for payment shall be verified and certified by the PROCURING ENTITY's Representative. Except as otherwise stipulated in the SCC, materials and equipment delivered on the site but not completely put in place shall not be included for payment.
 - 39.2. The PROCURING ENTITY shall have the right to deduct from the Contractor's progress billing such amount as may be necessary to

cover third party liabilities, as well as uncorrected discovered defects in the project.

- 39.3. Payments shall be adjusted by deducting therefrom the amounts for advance payments and retention. The PROCURING ENTITY shall pay the Contractor the amounts certified by the PROCURING ENTITY's Representative within twenty eight (28) days from the date each certificate was issued. Unless otherwise indicated in the SCC, no payment of interest for delayed payments and adjustments shall be made by the PROCURING ENTITY.
- 39.4. Items of the Works for which a price of "0" (zero) has been entered will not be paid for by the PROCURING ENTITY and shall be deemed covered by other rates and prices in the Contract.
40. Payment Certificates
- 40.1. The Contractor shall submit to the PROCURING ENTITY's Representative monthly statements of the estimated value of the work executed less the cumulative amount certified previously.
- 40.2. The PROCURING ENTITY's Representative shall check the Contractor's monthly statement and certify the amount to be paid to the Contractor.
- 40.3. The value of Work executed shall:
- (a) be determined by the PROCURING ENTITY's Representative;
 - (b) comprise the value of the quantities of the items in the Bill of Quantities completed; and
 - (c) include the valuations of approved variations.
- 40.4. The PROCURING ENTITY's Representative may exclude any item certified in a previous certificate or reduce the proportion of any item previously certified in any certificate in the light of later information.
41. Retention
- 41.1. The PROCURING ENTITY shall retain from each payment due to the Contractor an amount equal to a percentage thereof using the rate as specified in SCC Clause 41.2.
- 41.2. Progress payments are subject to retention of ten percent (10%), unless otherwise specified in the SCC, referred to as the "retention money." Such retention shall be based on the total amount due to the Contractor prior to any deduction and shall be retained from every progress payment until fifty percent (50%) of the value of Works, as determined by the PROCURING ENTITY, are completed. If, after fifty percent (50%) completion, the Work is satisfactorily done and on schedule, no additional retention shall be made; otherwise, the ten percent (10%) retention shall again be imposed using the rate specified herefore.
- 41.3. The total "retention money" shall be due for release upon final acceptance of the Works. The Contractor may, however, request the substitution of the retention money for each progress billing with irrevocable standby letters of credit from a commercial bank, bank guarantees or surety bonds callable on demand, of amounts equivalent to the retention money substituted for and acceptable to the PROCURING ENTITY, provided that the project is on schedule and is satisfactorily undertaken. Otherwise, the percentage retained shall be made. Said irrevocable standby letters of credit, bank guarantees and/or surety bonds, to be posted in favor of the PROCURING

ENTITY shall be valid for a duration to be determined by the concerned implementing office/agency or PROCURING ENTITY and will answer for the purpose for which the retention is intended, i.e., to cover uncorrected discovered defects and third party liabilities.

- 41.4. On completion of the whole Works, the Contractor may substitute retention money with an “on demand” Bank guarantee in a form acceptable to the PROCURING ENTITY.

42. Variation Orders

- 42.1. Variation Orders may be issued by the PROCURING ENTITY to cover any increase/decrease in quantities, including the introduction of new work items that are not included in the original contract or reclassification of work items that are either due to change of plans, design or alignment to suit actual field conditions resulting in disparity between the preconstruction plans used for purposes of bidding and the “as staked plans” or construction drawings prepared after a joint survey by the Contractor and the PROCURING ENTITY after award of the contract, provided that the cumulative amount of the Variation Order does not exceed ten percent (10%) of the original project cost. The addition/deletion of Works should be within the general scope of the project as bid and awarded. A Variation Order may either be in the form of a Change Order or Extra Work Order.
- 42.2. A Change Order may be issued by the implementing official to cover any increase/decrease in quantities of original Work items in the contract.
- 42.3. An Extra Work Order may be issued by the implementing official to cover the introduction of new work necessary for the completion, improvement or protection of the project which were not included as items of Work in the original contract, such as, where there are subsurface or latent physical conditions at the site differing materially from those indicated in the contract, or where there are duly unknown physical conditions at the site of an unusual nature differing materially from those ordinarily encountered and generally recognized as inherent in the Work or character provided for in the contract.
- 42.4. Any cumulative Variation Order beyond ten percent (10%) shall be subject of another contract to be bid out if the works are separable from the original contract. In exceptional cases where it is urgently necessary to complete the original scope of work, the Head of the PROCURING ENTITY may authorize the Variation Order beyond ten percent (10%) but not more than twenty percent (20%) subject to the guidelines to be determined by the GPPB: Provided, however, That appropriate sanctions shall be imposed on the designer, consultant or official responsible for the original detailed engineering design which failed to consider the Variation Order beyond ten percent (10%).
- 42.5. In claiming for any Variation Order, the Contractor shall, within seven (7) calendar days after such work has been commenced or after the circumstances leading to such condition(s) leading to the extra cost, and within twenty-eight (28) calendar days deliver a written communication giving full and detailed particulars of any extra cost in order that it may be investigated at that time. Failure to provide either of such notices in the time stipulated shall constitute a waiver by the

contractor for any claim. The preparation and submission of Variation Orders are as follows:

- (a) If the Head of the PROCURING ENTITY believes that a Change Order or Extra Work Order should be issued, he shall prepare the proposed Order accompanied with the notices submitted by the Contractor, the plans therefore, his computations as to the quantities of the additional works involved per item indicating the specific stations where such works are needed, the date of his inspections and investigations thereon, and the log book thereof, and a detailed estimate of the unit cost of such items of work, together with his justifications for the need of such Change Order or Extra Work Order, and shall submit the same to the PROCURING ENTITY's Representative.
 - (b) The PROCURING ENTITY's Representative, upon receipt of the proposed Change Order or Extra Work Order shall immediately instruct the technical staff of the PROCURING ENTITY to conduct an on-the-spot investigation to verify the need for the Work to be prosecuted. A report of such verification shall be submitted directly to the PROCURING ENTITY's Representative.
 - (c) The PROCURING ENTITY's Representative, after being satisfied that such Change Order or Extra Work Order is justified and necessary, shall review the estimated quantities and prices and forward the proposal with the supporting documentation to the Head of PROCURING ENTITY for consideration.
 - (d) If, after review of the plans, quantities and estimated unit cost of the items of work involved, the proper office of the procuring entity empowered to review and evaluate Change Orders or Extra Work Orders recommends approval thereof, the PROCURING ENTITY's Representative, believing the Change Order or Extra Work Order to be in order, shall approve the same.
 - (e) The timeframe for the processing of Variation Orders from the preparation up to the approval by the Head of the PROCURING ENTITY concerned shall not exceed thirty (30) calendar days.
43. Contract Completion
- 43.1. Once the project reaches an accomplishment of ninety five (95%) of the total contract amount, the PROCURING ENTITY may create an inspectorate team to make preliminary inspection and submit a punch-list to the Contractor in preparation for the final turnover of the project. Said punch-list will contain, among others, the remaining Works, Work deficiencies for necessary corrections, and the specific duration/time to fully complete the project considering the approved remaining contract time. This, however, shall not preclude the claim of the PROCURING ENTITY for liquidated damages.
44. Suspension of Work

- 44.1. The PROCURING ENTITY shall have the authority to suspend the work wholly or partly by written order for such period as may be deemed necessary, due to force majeure or any fortuitous events or for failure on the part of the Contractor to correct bad conditions which are unsafe for workers or for the general public, to carry out valid orders given by the PROCURING ENTITY or to perform any provisions of the contract, or due to adjustment of plans to suit field conditions as found necessary during construction. The Contractor shall immediately comply with such order to suspend the work wholly or partly.
- 44.2. The Contractor or its duly authorized representative shall have the right to suspend work operation on any or all projects/activities along the critical path of activities after fifteen (15) calendar days from date of receipt of written notice from the Contractor to the district engineer/regional director/consultant or equivalent official, as the case may be, due to the following:
- (a) There exist right-of-way problems which prohibit the Contractor from performing work in accordance with the approved construction schedule.
 - (b) Requisite construction plans which must be owner-furnished are not issued to the contractor precluding any work called for by such plans.
 - (c) Peace and order conditions make it extremely dangerous, if not possible, to work. However, this condition must be certified in writing by the Philippine National Police (PNP) station which has responsibility over the affected area and confirmed by the Department of Interior and Local Government (DILG) Regional Director.
 - (d) There is failure on the part of the PROCURING ENTITY to deliver government-furnished materials and equipment as stipulated in the contract.
 - (e) Delay in the payment of Contractor's claim for progress billing beyond forty-five (45) calendar days from the time the Contractor's claim has been certified to by the procuring entity's authorized representative that the documents are complete unless there are justifiable reasons thereof which shall be communicated in writing to the Contractor.
- 44.3. In case of total suspension, or suspension of activities along the critical path, which is not due to any fault of the Contractor, the elapsed time between the effective order of suspending operation and the order to resume work shall be allowed the Contractor by adjusting the contract time accordingly.
45. Payment on Termination
- 45.1. If the Contract is terminated because of a fundamental breach of Contract by the Contractor, the PROCURING ENTITY's Representative shall issue a certificate for the value of the work done and Materials ordered less advance payments received up to the date of the issue of the certificate and less the percentage to apply to the value of the work not completed, as indicated in the SCC. Additional Liquidated Damages shall not apply. If the total amount due to the

- PROCURING ENTITY exceeds any payment due to the Contractor, the difference shall be a debt payable to the PROCURING ENTITY.
- 45.2. If the Contract is terminated for the PROCURING ENTITY's convenience or because of a fundamental breach of Contract by the PROCURING ENTITY, the PROCURING ENTITY's Representative shall issue a certificate for the value of the work done, Materials ordered, the reasonable cost of removal of Equipment, repatriation of the Contractor's personnel employed solely on the Works, and the Contractor's costs of protecting and securing the Works, and less advance payments received up to the date of the certificate.
 - 45.3. The net balance due shall be paid or repaid within twenty eight (28) days from the notice of termination.
 - 45.4. If the Contractor has terminated the Contract under GCC Clauses 16 or 17, the PROCURING ENTITY shall promptly return the Performance Security to the Contractor.
46. Extension of Contract Time
- 46.1. Should the amount of additional work of any kind or other special circumstances of any kind whatsoever occur such as to fairly entitle the contractor to an extension of contract time, the PROCURING ENTITY shall determine the amount of such extension; provided that the PROCURING ENTITY is not bound to take into account any claim for an extension of time unless the Contractor has, prior to the expiration of the contract time and within thirty (30) calendar days after such work has been commenced or after the circumstances leading to such claim have arisen, delivered to the PROCURING ENTITY notices in order that it could have investigated them at that time. Failure to provide such notice shall constitute a waiver by the Contractor of any claim. Upon receipt of full and detailed particulars, the PROCURING ENTITY shall examine the facts and extent of the delay and shall extend the contract time completing the contract work when, in the PROCURING ENTITY's opinion, the findings of facts justify an extension.
 - 46.2. No extension of contract time shall be granted the Contractor due to (a) ordinary unfavorable weather conditions and (b) inexcusable failure or negligence of Contractor to provide the required equipment, supplies or materials.
 - 46.3. Extension of contract time may be granted only when the affected activities fall within the critical path of the PERT/CPM network.
 - 46.4. No extension of contract time shall be granted when the reason given to support the request for extension was already considered in the determination of the original contract time during the conduct of detailed engineering and in the preparation of the contract documents as agreed upon by the parties before contract perfection.
 - 46.5. Extension of contract time shall be granted for rainy/unworkable days considered unfavorable for the prosecution of the works at the site, based on the actual conditions obtained at the site, in excess of the number of rainy/unworkable days pre-determined by the PROCURING ENTITY in relation to the original contract time during the conduct of detailed engineering and in the preparation of the contract documents as agreed upon by the parties before contract

perfection, and/or for equivalent period of delay due to major calamities such as exceptionally destructive typhoons, floods and earthquakes, and epidemics, and for causes such as non-delivery on time of materials, working drawings, or written information to be furnished by the PROCURING ENTITY, non-acquisition of permit to enter private properties within the right-of-way resulting in complete paralyzation of construction activities, and other meritorious causes as determined by the PROCURING ENTITY's Representative and approved by the Head of the PROCURING ENTITY. Shortage of construction materials, general labor strikes, and peace and order problems that disrupt construction operations through no fault of the Contractor may be considered as additional grounds for extension of contract time provided they are publicly felt and certified by appropriate government agencies such as DTI, DOLE, DILG, and DND, among others. The written consent of bondsmen must be attached to any request of the Contractor for extension of contract time and submitted to the PROCURING ENTITY for consideration and the validity of the Performance Security shall be correspondingly extended.

47. Price Adjustment
 - 47.1. Except for extraordinary circumstances as determined by NEDA and approved by the GPPB, no price adjustment shall be allowed unless otherwise specified in the SCC.
48. Completion
 - 48.1. The Contractor shall request the PROCURING ENTITY's Representative to issue a certificate of Completion of the Works, and the PROCURING ENTITY's Representative will do so upon deciding that the work is completed.
49. Taking Over
 - 49.1. The PROCURING ENTITY shall take over the Site and the Works within seven (7) days from the date the PROCURING ENTITY's Representative issues a certificate of Completion.
50. Operating and Maintenance Manuals
 - 50.1. If "as built" Drawings and/or operating and maintenance manuals are required, the Contractor shall supply them by the dates stated in the SCC.
 - 50.2. If the Contractor does not supply the Drawings and/or manuals by the dates stated in the SCC, or they do not receive the PROCURING ENTITY's Representative's approval, the PROCURING ENTITY's Representative shall withhold the amount stated in the SCC from payments due to the Contractor.

APPENDIX B
Allocation of specific risks on different
International Standard Forms of Contract

A. Construction-related risks (Contractor Competence, Quality/Mistakes in Work)

1. AIA A201-1997
 - a. Articles 2.3.1 & 2.4.1 – Contractor has a total of *10 days* after the initial notice from the owner to correct any deficiencies. Thereafter, the owner may take-over the works and the reasonable cost of correcting deficiencies be deducted on payments. Owner may also issue a written order to the contractor to stop the work if the contractor persistently fails to carry out the works.
 - b. Article 3.3.1 – Contractor shall be solely responsible for and have control over construction means, methods, techniques, sequences and procedures and for coordinating all portions of the work under the contract.
 - c. Article 3.9.1 – Contractor shall employ a competent superintendent, as a representative, and necessary assistants.
 - d. Article 4.2.3 – Architect, as representative of the owner, will have control over or charge of and will not be responsible for acts or omissions of the contractor, subcontractors, or their agents or employees, or any other persons or entities performing portions of the work.
 - e. Article 4.2.4 – Owner and contractor shall endeavor to communicate with each other through the Architect about matters arising out of or relating to the contract.
 - f. Article 12.2.1.1 – Contractor shall promptly correct work rejected by the architect or failing to conform to the requirements of the Contract Documents, whether discovered before or after Substantial Completion and whether or not fabricated, installed or completed.
 - g. Article 14.2.1.1 – Owner may terminate the contract if the contractor persistently or repeatedly refuses or fails to supply enough properly skilled workers or proper materials.
2. Australian Standard
 - a. Sub-Clause 14.1 & 29.1 – Contractor shall be responsible for care of the whole of works from and including the date of commencement to the date of practical completion, and outstanding works and items after the date of practical completion. Contractor shall use suitable new materials and proper and tradesman-like workmanship.
 - b. Clause 20 – Owner shall ensure that there is a superintendent, and that the superintendent fulfills all aspects of the role and functions reasonably and in good faith.
 - c. Clause 22 – Contractor shall superintend works personally or by a competent representative.
 - d. Sub-Clause 29.3 – Superintendent may direct the contractor on cases of defective works to do any one or more of the following (including times for commencement and completion): a) remove the material from site; b) demolish the work; c) reconstruct, replace or correct the

work; and d) not deliver it to the site. If the contractor fails to comply with such a direction; and that failure has not been made good within 8 days after the contractor receives written notice from the superintendent, the principal may have that work rectified by others and moneys due from the contractor to the owner.

3. FIDIC

- a. Clause 2.3 & 3.1 – Engineer shall be appointed by the owner, who shall exercise the authority attributable to the engineer as specified in the contract. Owner shall make certain that his personnel cooperate with the contractor.
- b. Clause 4.1 & 17.2 – Contractor shall complete the works, provide the things and services required for the completion, be responsible for the methods of construction, assure that the works be fit for purposes intended in the contract. Contractor shall take full responsibility for the care of the works and goods from the commencement date until the taking-over certificate is issued.
- c. Clause 4.3 & 6.9 – Contractor shall appoint a contractor's representative and shall not revoke this appointment without the prior consent of the engineer. Contractor's personnel shall be aptly qualified in their respective trades. The engineer may require the contractor to terminate incompetent personnel.
- d. Clause 4.6 – Contractor shall maintain a good working environment with the employer's personnel, nominated subcontractors, and public authorities.
- e. Clause 7.1, 7.3, 7.5 & 7.6 – Works shall be carried out in the manner specified in the contract and in conformity with good practice. Owner's personnel shall be entitled to have full access of the site to inspect the works. Engineer may reject the plant, materials or workmanship he would find defective or otherwise not in accordance with the contract. The engineer may instruct the contractor to remove and re-execute works not in accordance with the contract and execute works which is urgently required for safety purposes.
- f. Clause 4.9 – Contractor shall establish a quality assurance system, which the engineer can audit.
- g. Clause 11.2 & 11.4 – Works requiring remedy for defects shall be executed at the risk and cost of the contractor. If the contractor fails to remedy any defect within a reasonable time, the owner may carry out the out the work himself, deduct a reasonable cut from the contract price, or terminate the contract.
- h. Clause 15.2 – Owner shall be entitled to terminate the contract if the contractor abandons the works or otherwise plainly demonstrates the intention not to continue performance of his obligations under the contract.

4. JCT SBC/XQ

- a. Clause 2.1, Sub-Clause 2.3.2 & 2.3.3 – Contractor shall carry out and complete the works in a proper and workmanlike manner. Workmanship for the works shall be of standards described in the

specification/ work schedules or to the reasonable satisfaction of the architect/ contract administrator.

- b. Sub-Clause 2.20.1 – No extension shall be given to an error, divergence, omission or discrepancy in the contractor’s proposals.
- c. Clause 3.2 – Contractor shall ensure that he has on the site a competent person-in-charge.
- d. Clause 3.3 – Owner may appoint an individual to act as his representative to exercise all the functions ascribed to the owner in these conditions.
- e. Clause 3.6 – Contractor shall remain wholly responsible for carrying out and completing the Works in all respects in accordance with these conditions. That responsibility shall not be affected by the architect/contract administrator or the clerk of works at any time going onto or carrying out any inspection of the works or any work in preparation on site.
- f. Clause 3.19 – Where there is any failure to comply to 2.1 in regard to the carrying out of work in a proper and workmanlike manner, owner may issue instructions to remedy the deficiency without any addition to the contract sum and extension of time.

5. NEC3 June 2005

- a. Clause 10.1 – The owner, the contractor, the project manager and the supervisor shall act as stated in this contract in a spirit of mutual trust and cooperation.
- b. Clause 25.2 – Any cost incurred by the owner as a result of the contractor not providing the services and other things which he is to provide is assessed by the project manager and paid by the contractor.
- c. Clause 60.1 – Contractor will be compensated if the project manager or the supervisor does not reply to a communication from the contractor within the contracted period.

B. Financial/ Economical risks (Inflation, Delayed Payment on Contracts)

1. AIA A201-1997

- a. Article 9.7.1 – If the architect does not issue a certificate of payment, through no fault of the contractor, within *7 days* after receipt of the contractor’s application for payment, or if the owner does not pay the contractor within *7 days* after the date established in the contract documents the amount certified by the architect or awarded by arbitration, then the contractor may, upon *7 additional days’* written notice to the owner and architect, stop the work until payment of the amount owed has been received. The contract time shall be extended appropriately and the contract sum shall be increased by the amount of the contractor’s reasonable costs of shut-down, delay and start-up, plus interest as provided for in the contract documents.
- b. Article 13.6.1 – Payments due and unpaid under the contract documents shall bear interest from the date payment is at such rate as the parties may agree upon in writing or, in the absence thereof, at the legal rate prevailing from time to time at the place where the project is located.

- c. Article 14.1.1.3 – Contractor may terminate the contract if the work is stopped for a period of 30 days because the architect has not issued a certificate for payment, or because the owner has not made payment of a certificate for payment within the time stated in the contract documents.

2. Australian Standard

- a. Sub-Clause 5.2 – Security shall be subject to recourse by party who remains unpaid after the time for payment where at least *5 days* have elapsed since that party notified the other party of intention to have recourse.
- b. Sub-Clause 37.5 – Interest shall be due and payable after the date of default in payment. Interest rate shall be agreed by both parties, and it shall be 18% per annum if nothing is agreed.

3. FIDIC

- a. Clause 14.7 – Owner shall pay the contractor the advance payment within *42 days* after letter of acceptance or *21 days* after accepting performance security, interim payments within *56 days* after the engineer receives statement, and final payment within *56 days* after the owner received payment certificate.
- b. Clause 14.8 – Contractor is entitled to receive financing charges compounded monthly on the amount unpaid during the period of the delay of payment.
- c. Clause 16.1 – Contractor may suspend work, after *21 days' notice*, if the engineer fails to certify the interim payment certificates or the owner fails to comply with their financial arrangements.
- d. Clause 16.2 – Contractor shall be entitled to terminate the contract if the engineer fails, within *56 days* after receiving a Statement and supporting documents, to issue the relevant payment certificate; and if the contractor does not receive the amount due under an interim payment certificate within *42 days* after the expiry of the time.

4. JCT SBC/XQ

- a. Sub-Clause 4.13.6 – Owner shall pay to the contractor simple interest thereon at the interest rate for the period if there is a failure to pay the amount, or any part of it, due to the contractor by the final date of its payment.
- b. Clause 4.14 – Contractor may suspend performance of the contract if there is a failure by the owner to pay after *7 days* of the final date for payment.
- c. Clause 4.21 – Fluctuations shall be dealt with the application of Schedule 7 in accordance to whichever of the following is stated in the Contract Particulars to apply: Fluctuations Option A: contribution, levy and tax fluctuations, or Fluctuations Option B: labour and materials cost and tax fluctuations, or Fluctuations Option C: formula adjustment.
- d. Sub-Clause 8.9.1.1 – Contractor may terminate the contract after a notice and reasonable time if the owner does not pay by the final date

for payment the amount properly due to the contractor in respect of any certificate.

5. NEC3 June 2005

- a. Clause 51.2 & 51.4 – Each certified payment is made within *3 weeks* of the assessment date or within another period stated in the contract. If a certified payment is late, or if a payment is late because the project manager does not issue a certificate which he should issue, interest is paid on the late payment. Interest is calculated on a daily basis at the interest rate and is compounded annually.
- b. Clause 91.4 – The Contractor may terminate if the owner has not paid an amount certified by the project manager within *13 weeks* of the date of the certificate.
- c. Secondary Option Clauses – Different formulas have been prepared and it is up to both parties which price adjustment options to implement in the contract to deal with inflation.

C. Natural/ Environmental risks (Acts of God (*Force Majeure*), Environmental Hazards of the Project

1. AIA A201-1997

- a. Article 3.15.1 – Contractor shall keep the premises and surrounding area free from accumulation of waste materials or rubbish caused by operations under the contract.
- b. Article 4.3.7.2 – Claims on adverse weather conditions shall be documented by data substantiating that weather conditions were abnormal for the period of time, could not have been reasonably anticipated and had no adverse effect on the scheduled construction.
- c. Article 10.2.1.3 – Contractor shall take reasonable precautions for safety of and shall provide reasonable protection to other property at the site or adjacent thereto, such as trees, shrubs, lawns, walks, pavements, roadways, structures, and utilities not designated for removal, relocation or replacement in the course of construction.

2. Australian Standard

- a. Clause 12 – Contractor shall take measures necessary to protect people and property, and prevent nuisance and unreasonable noise and disturbance. If the contractor damages property, the contractor shall promptly rectify the damage and pay any compensation which the law requires the contractor to pay.
- b. Clause 13 – Superintendent may take action if urgent action is necessary to protect works, other property or people and the contractor fails to take the action. Costs will be due from the contractor to the owner if the action was action which the contractor should have taken.
- c. Clause 15.1 – Contractor shall indemnify the Principal against claims in respect to personal injury or death or loss of, or damage to, any other property, arising out of carrying out of the works.

3. FIDIC:
 - a. Clause 4.14 & 4.18 – Contractor shall uphold the safeguard of the environment and minimize the damage and nuisance resulting from his operations. Contractor shall not impede the convenience of the public and the public’s access of roads or footpaths irrespective whether they are public or of the owner or of others.
 - b. Clause 17.3 & 17.4 – Contractor is entitled to extension of time & payment for any cost plus reasonable profit for a delay caused by any operation of the forces of nature which is unforeseeable or against which an experienced contractor could not reasonably have been expected to have taken adequate preventive precautions.
 - c. Clause 19.2 & 19.4 – Parties shall be excused performance of obligations if prevented by force majeure from doing them. Contractor shall be entitled an extension of time for a delay caused by Force Majeure.

4. JCT SBC/XQ
 - a. Sub-Clause 2.29.7 & 2.29.12 – Exceptionally adverse conditions & Force Majeure are considered relevant events on clauses 2.27 & 2.28.
 - b. Sub-Clause 8.11.1 – Either party may terminate the contract if carrying out of the works is suspended for the relevant continuous period due to force majeure.
 - c. Clause 6.2 – Contractor is liable for the injury or damage to property caused by execution of the works.

5. NEC3 June 2005
 - a. Clause 60.1.19 – An event which stops the contractor from completing the works, which neither Party could prevent nor an experienced contractor would have judged at the contract date to have such a small chance of occurring is considered a compensation event.
 - b. Clause 81.1 – The risks which are not carried by the employer are carried by the contractor. Therefore, risks under the category of natural/ environmental risks are to be borne by the contractor since no relevant provisions was seen.

D. Political/ Legal risks (Cost of Legal Processes, Permits and Ordinances, Political Intervention, Sight Access/Right-of-Way)

1. AIA A201-1997
 - a. Article 3.7.1 – Contractor shall secure and pay for the building permit and other permits and governmental fees, licenses and inspections necessary for proper execution and completion of the works.
 - b. Article 14.1.1 – Contractor may terminate the contract if the work is stopped for a period of *30 days* because of an issuance of an order of a court or other public authority having jurisdiction which requires all work to be stopped.
 - c. Article 2.2.2 – Owner shall secure and pay for necessary approvals, easements, assessments and charges required for construction, use or occupancy of permanent structures or for permanent exchanges in existing facilities.

2. Australian Standard
 - a. Sub-Clause 14.3 – Owner is liable for the consequences due from martial law or confiscation order of any government or public authority.
 - b. Sub-Clause 24.1 – Owner shall before the expiry of the contracted time give the contractor possession of sufficient site for commencement of the works. Delay by the owner in giving possession shall not be a breach of the contract.

3. FIDIC
 - a. Clause 1.6 – Costs of stamp duties and similar charges (if any) imposed by law in connection with entry into the contract agreement shall be borne by the owner.
 - b. Clause 1.13 – Owner shall have obtained (or shall obtain) the planning, zoning or similar permission for the permanent works, and any other permission. Contractor shall give all notices, pay all taxes, duties and fees, and obtain all permits, licenses and approvals, as required by the laws in relation to the execution and completion of the works.
 - c. Clause 2.1 – Contractor is entitled to extension of time & payment for any cost plus reasonable profit for a delay caused by owner’s failure to give any such right or possession of the site.
 - d. Clause 2.2 & 11.7 – Owner shall provide assistance to the contractor’s application for any permits, licenses or approvals required by the law. Contractor shall have right of access of the Works until the issuance of the Performance Certificate.
 - e. Clause 4.6 – Contractor shall maintain a good working environment with public authorities. Unforeseeable costs from these collaborations may entitle a variation.
 - f. Clause 4.13 & 4.15 – Contractor shall bear all costs and charges for special and/or temporary rights-of-way which he may require, including those for access to the Site. Contractor shall be deemed to be satisfied with the access routes to the site and shall be responsible for the maintenance for his use of access routes.
 - g. Clause 17.3 & 17.4 – Contractor is entitled to extension of time & payment for any cost plus reasonable profit for a delay caused by war, hostilities (whether declared or not), invasion, act of foreign enemies.

4. JCT SBC/XQ
 - a. Sub-Clause 2.29.3 & 2.29.6 – Deferment of the giving of possession of the site and carrying out by a statutory undertaker of work in pursuance of its statutory obligations in relation to the works are considered relevant events on clauses 2.27 & 2.28.
 - b. Clause 8.6 – Owner shall be entitled by notice to the contractor to terminate the contract if the contractor shall have committed an offence under the Prevention of Corruptions Act 1889 to 1916, or, where the Employer is a Local Authority, shall have given any fee or reward the receipt of which is an offence under sub-section (2) of section 117 of the Local Government Act 1972.

- c. Sub-Clause 8.11.1 – Either party after a prolonged suspension may terminate the contract if the government directly affects the execution of the works.

5. NEC3 June 2005

- a. Clause 33.1 – Owner allows access to and use of each part of the site to the contractor which is necessary for the work included in this contract.
- b. Clause 60.1 – Contractor will be compensated if the owner does not allow access to and use of a part of the site on its access date.

E. Settlement Delays (Change Order Negotiations, Delays in Resolving Contractual Issues, Delays in Resolving Litigation/ Arbitration Disputes)

1. AIA A201-1997

- a. Article 4.3.3 – Contractor shall proceed diligently with performance of the contract and the owner shall continue to make payments pending final resolution of a claim.
- b. Article 4.4.1, 4.5.1, 4.5.3, 4.6.1 – Architect has *30 days* to issue a decision before the claim be forwarded to mediation, arbitration or litigation. Mediation should come before arbitration or the institution of legal or equitable proceedings by either party. The parties shall share the mediator's fee and any filing fees equally.
- c. Article 8.3.1 – Contract time shall be extended for a reasonable time if the contractor is delayed pending mediation and arbitration.

2. Australian Standard

- a. Sub-Clause 42.2 – Both parties shall confer at least once to resolve the dispute or to agree on methods of doing so within *14 days* after receiving a notice of dispute. If the dispute has not been resolved within *28 days* of the notice of dispute, that dispute shall be and is hereby referred to arbitration.

3. FIDIC

- a. Clause 20.1 – Contractor shall give notice within *28 days* and prepare the details within *42 days* after becoming aware of any event or circumstance that he considers himself to be entitled to any extension of time and additional payment.
- b. Clause 20.4 – Either Party may refer a dispute to the dispute adjudication board for its decision. Board shall give its decision within *84 days* or within a period proposed by board. Dissatisfied party may give notice of dissatisfaction after *28 days*.
- c. Clause 20.5 & 20.6 – Arbitration may be commenced after *56 days* from the notice of dissatisfaction. Obligation of the parties, the engineer and board shall not be altered by reason of any arbitration being conducted during the progress of works.

4. JCT SBC/XQ:

- a. Clause 4.23 – Contractor may make written application to the architect/ contract administrator matters materially affecting regular progress.
- b. Clause 9.1, 9.2 & 9.3 – Parties may choose whether disputes be resolved by mediation, adjudication or arbitration.

5. NEC3 June 2005

a. Option W1 The adjudication

- i. W1.3 Disputes are notified and referred to the adjudicator between *2 and 4 weeks* after the notification. The times for notifying and referring a dispute may be extended if the contractor and the project manager agree to the extension before the notice or referral is due. The adjudicator decides the dispute and notifies the parties and the project manager of his decision and his reasons within *4 weeks* of the end of the period for receiving information. This four week period may be extended if the parties agree. Unless and until the adjudicator has notified the parties of his decision, the parties, the project manager and the supervisor proceed as if the matter disputed was not disrupted.
- ii. W1.4 If the adjudicator does not notify his decision within the time provided by this contract, a party may notify the other party that he intends to refer the dispute to the tribunal. A party may not refer a dispute to the tribunal and unless this notification is given within *4 weeks* of the date by which the adjudicator should have notified his decision.

b. Option W2 The adjudication

- i. W2.3 Within *7 days* of a party giving a notice of adjudication he refers the dispute to the adjudicator, provides the adjudicator with supporting documents. Any further information is provided within *14 days* of the referral. This period may be extended if the adjudicator and the parties agree. The adjudicator decides the dispute and notifies the parties and the project manager of his decision and his reasons within *28 days* of the dispute referred to him. This period may be extended by up to *14 days* with the consent of the referring party or by any other period agreed by the parties. Unless and until the adjudicator has notified the parties of his decision, the parties, the project manager and the supervisor proceed as if the matter disputed was not disputed. If the adjudicator does not make his decision and notify it to the parties within the time provided by this contract, the parties and the adjudicator may agree to extend the period for making his decision.

F. Third Party risks (Third Party Delays/Public Disorder, Rebel Tax)

1. AIA A201-1997

- a. Article 14.1.2 – Contractor may terminate the contract if the work is stopped for a period of *30 days* because of an act of government, such as declaration of national emergency which requires all Work to be stopped.

2. Australian Standard

- a. Sub-Clause 14.3 Owner is liable for the consequences from war, invasion, acts of foreign enemies, hostilities (whether war be declared or not), civil war, rebellion, revolution, insurrection or military or usurped power, martial law or confiscation order of any Government or public authority.

3. FIDIC

- a. Clause 17.3 & 17.4 – Contractor is entitled to extension of time & payment for any cost plus reasonable profit for a delay caused by rebellion terrorism, revolution, insurrection, military or usurped power, or civil war, riot, commotion or disorder within the country by persons other than the contractor's personnel and other employees of the contractor and subcontractors.
- b. Clause 15.2 – Owner shall be entitled to terminate the contract if the contractor gives or offers (directly or indirectly) to any person any bribe, gift, gratuity, commission or other thing of value, as an inducement or reward. Owner has *14 days' notice* period before terminating the Contract.

4. JCT SBC/XQ

- a. Sub-Clause 2.29.9 – Civil commotion or threat of terrorism and/or the activities of the relevant authorities in dealing with such event or threat are considered relevant events on clauses 2.27 & 2.28.
- b. Sub-Clause 8.11.1 – Either party after a prolonged suspension may terminate the contract if civil commotion or the use or threat of terrorism and/or the activities of the relevant authorities dealing with such event or threat affects the execution of the works.

5. NEC3 June 2005

- a. Clause 80.1 – Loss or damage to the works, plants and materials due to war, civil war, revolution, insurrection, military or usurped power, strikes, riots and civil commotion not confined to the contractor's employees or radioactive contamination are owner's risks.
- b. Clause 60.1.19 – An event which stops the contractor from completing the works, which neither Party could prevent nor an experienced contractor would have judged at the contract date to have such a small chance of occurring is considered a compensation event.
- c. Clause 81.1 – The risks which are not carried by the employer are carried by the contractor. Therefore, risks under the category of third party risks are to be borne by the contractor since no relevant provisions was seen.

BIOGRAPHY

Joel Cesarius V. Reyes was born on December 28, 1984. He is the youngest son among four children of Jose B. Reyes and his wife Olivia V. Reyes. He grew up in Parañaque, Philippines, just within the capital of the country where he experienced a busy lifestyle in one of the developing cities at this particular time.

Joel attended his elementary and secondary education at the Don Bosco Technical Institute of Makati, where at a young age he received not only academic training but also technical education. He started gaining some success as he was consistently recognized for his academic & technical excellence. Having a technical background and father who's a Civil Engineer, he realized that he also wanted to pursue the Civil Engineering field and enrolled at De La Salle University-Manila. Academic success continued when he made it every semester to the Dean's List and graduated Honorable Mention of his class.

His on-the-job-training was with Ayala Land, Inc., the top real estate company in the Philippines. Having the special work ethic, one of his superiors acknowledged and rewarded him by offering a position in the company even before his graduation from the university. Realizing this rare opportunity, he accepted the humble position even before taking his professional licensure examination. Perhaps one of his biggest accomplishments to date is when he placed 3rd among thousands of examiners in the country despite having a busy schedule over his fellow students. This opened doors for him as he was encouraged and assisted by his professors in the university to pursue postgraduate education.