



# **Development of Risk Management Model for Public Tenders**

**تطوير نموذج تقييم المخاطر للمناقصات العامة**

**By**

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## **ABSTRACT**

Due to the major investments made and proposed for large scale infrastructure developmental projects in the UAE by the government, public procurement has become not only challenging but also poised several identified, anticipated and unidentified risks that may lead to collusion, bid-rigging, fraud, corruption, mismanagement and or inefficient management prevail in the tender cycle management. This research aims to review and explore the influencing risk factors for risks in the public tenders, the use of risk management methodologies and techniques like EC, NIGP, OECD, and UNOPS, and the recently evolved international risk management standard ISO 31000:2009.

The methodology used with this research involved developing a Risk Management Model with an emphasis on public tenders based on the review and evaluation, applying that to the tender cycle that followed one of the UAE government major Infrastructure Project Dubai – Fujairah Highway linking Fujairah with the northern emirates and Abu Dhabi, and the determination of the risks experienced and ignored with their actual or potential impact.

The resulted outcome of this risk assessment study show that throughout the procurement cycle of the tender, various influencing risk factors whose level of risk impact was falling in “not acceptable limits” were ignored and that lead to several limitations in the procurement including financial loss and reputation impacts. The study also concluded that the model’s criteria can be used and applied for any major public procurement process with varying or redefining the consequences and likelihood of occurrence score and manage the risks associated with the procurement process effectively and efficiently. The research also recommended third party certification for procurement as it enables the organization to claim credibility in achieving competency in procurement, validates their risk assessment and management process, get the value for money for their procurement and win good reputation in the public.

**Key words:** Risk Management, Risk Assessment, Risk Management Model, Procurement in Public Sector.

## الخلاصة

بسبب الإستثمارات الضخمة التي تم إقترانها وإطلاقها للمشاريع الكبيرة المرتبطة بالبنية التحتية في دولة الإمارات العربية المتحدة، أصبحت العطاءات العامة ليس فقط تحدياً، بل تضمنت العديد من المخاطر المعروفة والمتوقعة وغير المعروفة والتي قد تؤدي إلى سوء إدارة دورة حياة العطاءات وحدثت أنواع من التحايل والإستغلال وعدم فعالية الإدارة. إن هدف هذا البحث هو استكشاف ومراجعة عوامل الخطورة المؤثرة بالعطاءات العامة، إستخدام منهجيات وأساليب إدارة المخاطر مثل EC و NIGP و OECD و UNOPS، بالإضافة إلى أبرز المواصفات الحديثة في إدارو المخاطر الأيزو 31000:2009.

تم إستخدام منهجية بحث تتضمن تطوير نموذج لإدارة المخاطر مع التركيز على العطاءات العامة مستنديين إلى المراجع والتقييم، تطبيق ذلك على دورة حياة العطاءات لأحد أبرز مشاريع البنية التحتية الرئيسية في دولة الإمارات وهو مشروع الطريق السريع دبي الفجيرة الذي يربط الفجيرة بالإمارات الشمالية وأبوظبي، بالإضافة إلى تحديد المخاطر التي تم التي تم ملاحظتها وتجاهلها مع نتائجها الفعلية والمتوقعة.

إن المخرج النهائي من دراسة تقييم المخاطر هذه تُظهر أنه خلال دورة حياة العطاءات هناك العديد من المخاطر التي أثرت بالمشروع والتي يصل مستوى تقييم خطورتها إلى "درجة غير مقبولة" تم تجاهلها وأدت إلى العديد من المحددات في العطاءات بما يشمل خسارة مالية وتأثيرات على سمعة المؤسسة. كما إستنتجت هذه الدراسة أن معايير النموذج يمكن إستخدامها وتطبيقها على أي عطاء عام رئيسي مع بعض الإختلافات في العواقب وإحتمالية الحدوث وإدارة المخاطر بفعالية وكفاءة. إن البحث يوصي بتطبيق إعتقاد من طرف ثالث والذي سيؤدي بالمؤسسات للحصول على إعتماذية في تحقيق الكفاءة بالعطاءات، التحقق من عملية إدارة وتقييم المخاطر، والحصول على قيمة بالإضافة للوصول لسمعة جيدة في العموم.

**الكلمات الرئيسية:** إدارة المخاطر، تقييم المخاطر، نماذج إدارة المخاطر، العطاءات في القطاع العام

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## Abbreviations and Definitions

EC	European Commission
IPWG	Interagency Procurement Working Group
ISO	International Organization for Standardization
MAPS	Methodology for Assessing Procurement Systems
NIGP	National Institute of Government Purchasing
OECD	Organization for Economic Co-operation and Development
OGC	Office of Government Commerce
UNOPS	United Nations Office for Project Services
UNPCDC	United Nations Procurement Capacity Development Centre
<b>Consequence</b>	Outcome of an event impacting objectives
	Notes:
	1. An event can lead to a range of consequences
	2. A consequence can be certain or uncertain and can have
<b>Control</b>	Outcome of an event impacting objectives
<b>Hazard</b>	A source of potential harm Note: Hazard can be a risk source
<b>Level of Risk</b>	Magnitude of a risk or combination of risks, expressed in terms of the combination of consequences and their likelihood.
<b>Likelihood</b>	<p>Chance of something happening. In risk management terminology, the word ‘likelihood’ is used to refer to the chance of something happening, whether defined, measured or determined objectively or subjectively, qualitatively or quantitatively, and described using general terms or mathematically [such as probability or frequency over a given time period]</p> <p>The English term ‘likelihood’ does not have a direct equivalent in some languages; instead the term ‘probability’ is often used. However, in English, ‘probability’ is often narrowly interpreted as a mathematical term. Therefore, in risk management terminology, ‘likelihood’ is used with the intent that it should have the same broad interpretation as the term ‘probability’ has in many languages other than English</p>
<b>Mitigation</b>	Measures taken in advance of, or after, a disaster aimed at decreasing or eliminating its impact on society and the environment (COAG 2004).
<b>Risk</b>	Effect of uncertainty on objectives
<b>Risk analysis</b>	Process to comprehend the nature of risk and to determine the level of risk
	Notes:
	1. An effect is a deviation from the expected - positive and/or negative

2. Objectives can have different aspects (such as financial, health and safety, and environmental goals) and can apply at different levels (such as strategic, organization-wide, project, product or process).

3. Risk is often characterized by reference to potential events and consequences, or a combination of these.

4. Risk is often expressed in terms of a combination of the consequences of an event (including changes in circumstances) and the associated likelihood of occurrence.

5. Uncertainty is the state, even partial, of deficiency of information related to, understanding or knowledge of an event, its consequence or likelihood

<b>Risk assessment</b>	overall process of risk identification, risk analysis and risk evaluation
<b>Risk evaluation</b>	Process of comparing the results of risk analysis with risk criteria to determine whether the risk and/or its magnitude is acceptable or tolerable Note: Risk evaluation assists the decision about risk treatment
<b>Risk identification</b>	process of finding, recognizing and describing risks Notes: 1 - Risk identification involves the identification of risk sources, events, their causes and their potential consequences 2 - Risk identification can involve historical data, theoretical analysis, informed and expert opinions, and stakeholders' needs.
<b>Risk management</b>	Coordinated activities to direct and control an organization with regard to risk
<b>Risk management plan</b>	Scheme within the risk management framework specifying the approach, the management components and resources to be applied to the management of risk. Notes: 1 Management components, typically include procedures, practices, assignment of responsibilities, sequence and timing of activities 2 The risk management plan can be applied to a particular product, process and project, and part or whole of the organization.
<b>Risk management process</b>	Systematic application of management policies, procedures and practices to the activities of communicating, consulting, establishing the context, and identifying, analyzing, evaluating, treating, monitoring and reviewing risk.
<b>Risk treatment</b>	Process to modify risk Note: 1. Risk treatment can involve: avoiding the risk by deciding not to start or continue with the activity that



gives rise to the risk  
 taking or increasing the risk in order to pursue an opportunity  
 removing the risk source  
 changing the likelihood  
 changing the consequence  
 sharing the risk with another party or parties [including contracts or risk financing]; and  
 retaining the risk by informed decision

2. Risk treatments that deal with negative consequences are sometimes referred to as 'risk mitigation', 'risk elimination', 'risk prevention' and 'risk reduction'

3. Risk treatment can create new risks or modify existing risks

**Stakeholder** Person or organization that can affect, be affected by, or perceive themselves to be affected by a decision or activity

Note: A decision maker can be a stakeholder

**Bid** A tender, proposal or quotation submitted in response to a solicitation from a participating buying organization. A bid covers the response to any of three principal methods of soliciting bids, i.e. Invitation to Tender, Request for Proposal and Request for Quotation.

**Bid Document** Components provide supporting information for a notice. They can be documents, attachments, questions and answers, physical items/samples, or blue prints. Also referred to as bid documents or documents/attachments.

**Closing Date (dd/mm/yyyy)** The date on which all submissions must be received by the public notices and then moved to the historical database (Former Opportunities) on Canadian Public Tenders.

**Documentation** A 'generic' term that includes document, attachment, and amendment.

**Procurement:** Describes an activity or department whereby an organization buys goods, works and services from outside suppliers.

**Proposal:** also known as a 'business proposal'. A sales document written by a supplier to a buyer, proactively proposing a product or service. In contrast with a formal competitive tender which is initiated by the buyer, in a proposal scenario the initiative comes from the supplier. The proposal is usually based on prior contact with or knowledge of that organization; in many cases the buyer may already be a client of the supplier. A proposal is typically non-competitive: it may lead to a contract without any other suppliers being involved.

**Request for Proposal (RFP)** an invitation issued by the buying organization to suppliers, inviting them to bid for a specific contract or piece of work.

**Tender**

Also known as 'competitive tender'. A formal, competitive process usually initiated by the Procurement function of an organization to put a contract or piece of work out to market. The purpose is to obtain offers from outside suppliers to deliver that contract.

**Works**

Usually relates to construction, demolition or civil engineering contracts.

# **Chapter 1 – Introduction**

## **1.1 Research Background**

Public procurement should demonstrate fairness, competition and value for money in the government organizations. This is possible only when procurement organization establish and implement effective and efficient procurement processes by incorporating adequate controls to promote competition and minimize the risks associated with fraud, corruption, waste, and the mismanagement of public funds and ensure value for money (UNOPS 2011). Risk may be a driver of strategic decisions, it may be a cause of uncertainty in the organization's processes or it may simply be embedded in the activities of the organization which requires be determining, assessing, containing and managing. The global financial crisis in 2008 also necessitated the organization to critically think about risks involved in their activities and better prepared for consequences of business decision making. Since that time, new risk management concepts and standards have been evolved with ISO 31000 'Risk management – Principles and guidelines' as the latest and one of such major international standards. Hence Risk management has become an increasingly important business driver and stakeholders have become much more concerned about the risks associated with the governmental organization' developmental projects, proposed and investments being made and public procurement process in particular to ensure and assure more transparency in spending of public funds and obtain value for money. Public procurement processes subjected to the risk assessment process enable the organizations to characterize the risks associate with their activities by (a) their nature and origin, (b) the likelihood of them occurring and (c) the potential consequences. Risk management is a process that has to deal with all these properties as any risk is to be assessed not only against the likelihood of its occurrence and the negative effects once they occur, but also weighed against the benefits out of the public tenders for various projects involved.

## **1.2 Purpose of the Research**

In line with the vision of transforming the UAE into one of the best countries in the world by 2021, several infrastructure developmental projects are completed, under execution and proposed for near future resulted in several high value public tenders representing a

significant part of the current economy in the Emirate of Abu Dhabi. It is an established fact that significant number of risks involved with Public Tenders related to all such major infrastructure projects. Those risks either identified or anticipated may be experienced during the execution of such projects many times due to simple mistakes in the pre-procurement planning and management or due to lack of effective procedures. Many studies are conducted at the planning stage of large scale public projects like infrastructure projects in the name of due diligence, feasibility etc. to know or anticipate the type and extent of potential risks involved in the project. However, a structured and closely defined criteria to assess the risks associated with the resulting public procurement tender cycle due to the requirements related to regulatory compliance, financial impact, public image and reputation, health, safety and environmental aspects and projects consequences with time, quality and costs is either not readily available or not in wide practice. Public Tenders require high level of consistency and transparency throughout the procurement cycle which otherwise may affect the reputation of procurement organization. In order to prevent any such damage to reputation, procuring organization shall execute a comprehensive risk assessment from pre-procurement planning stage so that areas that could affect the efficiency, effectiveness and transparency are identified, actions are taken to mitigate the likelihood of occurrence of the negative risks as well as their severity of such risks. Hence a need was felt to attempt to review various risks influencing factors, devise and develop a risk management model that shall be comprehensive enough to address all these aspects and apply the criteria on any one major public tender to know the depth of impact of unaccounted and ignored risks involved in such projects and suggest how they can be minimized and managed. Therefore, the present study **“Development of Risk Management Model for Public Tenders”** was undertaken to examine and evaluate various influencing risk factors in the public tenders to derive and implement risk preventive measures, as well as of measures aiming to reduce their negative effects in case of their occurrence.

### **1.3 Research Aims and objectives**

The aim of the research is to derive best fit risk management support tools that will contribute to effective and efficient risk management in the public tenders. The objectives of the present research are:

- To examine and evaluate various influencing factors that could affect the risks involved in the public tenders.
- To develop a risk assessment criteria and consequences matrix showing score depending up on their scale or magnitude of impact.
- To apply the developed risk management model criteria to a Public Tender related to the major Infrastructure Project Dubai – Fujairah Freeway linking Fujairah with the northern emirates and Abu Dhabi (for case study purposes).
- To derive and recommend risk preventive measures for implementation, as well as of measures aiming to reduce their negative effects in case of their occurrence in public tenders.

## **1.4 Scope of Research**

The research scope covers the public tender related to the major Infrastructure Project Dubai – Fujairah Freeway linking Fujairah with the northern emirates and Abu Dhabi. This project has been handled by Ministry of Public Works UAE.

## **1.5 Rationale of Research**

The outcomes of the research will help in better understanding and identification of risks associated with public tender projects and its consequences and impacts on of the success of the projects. Additionally, the outcomes will assist project managers, risk managers, and procurement professionals in in setting appropriate risk management plans and mitigations that will assure better performance for the projects.

## **1.6Dissertation Structure**

The research report comprises of five chapters as detailed below:

- **Chapter 1 – Introduction:** provides research conceptual framework and background. It describes the rationale behind the research topic, the way it might contribute in practice and in the area of risk management in public procurement. The rest of the chapter raises the

research questions and outlines the aims and objectives of the study along with the structure of the study and dissertation report.

- **Chapter 2 – Literature Review:** portrays the information collected from literature to review various risks involved in public tendering process, risk management methodologies and techniques proposed and used by various people. This chapter provides culminated information related to outcomes of various studies related to risk management standards followed, various methodologies chosen or applied and proposed and used risk management support tools for risk management studies.
- **Chapter 3 – Methodology:** This chapter describes ways and means of the execution of research, methodologies chosen, justifications for choosing such methodologies and criteria followed for development of risk management model for public tenders.
- **Chapter 4 – Analysis of information, data, results and discussion:** depicts the results from application of thus developed risk assessment tool to the tender cycle that followed for major Infrastructure Project Dubai – Fujairah Freeway linking Fujairah with the northern emirates and Abu Dhabi. This chapter describes analysis of information and results to show how the procedures are executed in practice and what has been ignored or not taken into account in order to minimize the risks associated with different phases of the project cycle.
- **Chapter 5 –Conclusions, suggestions for future studies with recommendations:** This chapter outlines with derived conclusions of the study based on the information mentioned in the previous chapters and suggestions for future studies with recommendations.

## **Chapter 2 – Literature Review**

The purpose of the literature survey is to collect reasonably good volume of information relevant to the project from various project studies, research articles, case studies, user guides etc. contributed by various people in the past for similar studies. The purpose of literature survey and review also enables to compare information and data gathered with the results obtained from the present study. The literature survey followed by review covers the public tendering process and the risk management process including supporting tools used in the risk assessment in various public tenders. The public tendering process was comprehensively covered to examine how government companies act in the public tendering activities. The risk management process was adequately covered to present a comprehensive view of the risk management process so as to understand how an effective risk management support tools are devised and applied. The whole review was conducted in three categories to cover (i) Steps or stages in the Public Procurement; (ii) Risk Management in the Public Procurement; and (iii) Methods, Models and Tools used in Risk Assessment that applied for the Public Procurement.

### **2.1 Steps or stages in the Public Procurement**

Understanding of process steps or stages involved in the Public procurement along with their comprehensive descriptions, mentioned below, plays vital role to gather most appropriate information inputs required for development of risk assessment criteria and model (UNPCDC 2012):

1. Requirement identification – efficient procurement plan driven by needs assessment to formulate a demand or procurement need.
2. Determining procurement method – the method of procurement must be determined soon after the finalization of what is intended to purchase with the internal customers.
3. Procurement planning and strategy development - Once the principles governing the procurement process are established, a concrete procurement or call for tender document is prepared during the specification stage. During this stage using the following four types of criteria one can define how the tenderer with the best proposal will be selected to prepare a procurement contract (Dimitri et al 2006):
  - Supplier qualification criteria

- Minimum requirements for the products, services or public works
  - Award criteria for the products, services or public works
  - Contract provisions
4. Processing of procurement requisitions
  5. Legal complaint documents preparation and their publication
  6. Pre-bid meeting and site visit – transparent prequalification
  7. Bid submission and opening
  8. Bid evaluation
  9. Contract award recommendation
  10. Contract negotiations
  11. Contract Award

All the above major components of the procurement process are used for deciding what kind of enquiries should be made by procuring agency to determine whether any unacceptable risks inherently exist at each stage of procurement and how to identify and map those risks associated with various stages of the procurement cycle using checklists. An interesting concept of red flags indicators is applied by the public procurement agency in the procurement cycle to detect the suspected irregularities as well as ensure for effective record keeping and documentation. This system was also said to help procurement agency to organize and make available documents related to bidding, procedure, evaluation and award for the public (Kenneth 2010).

## **2.2 Risk Management in the Public Procurement**

High risks in the public procurement of major projects can be reduced and public procurement process is made transparent and efficient with a predefined pre-tender planning. High risks in the public procurement can also be reduced if the tender design of procurement agency ensures for more participation of bidders, transparency in communicating information and reducing the frequency of procurement (OECD 2008). Optimal allocation of risks between the authority and supplier(s) and consistency in risk management decision making also helps the procurement organizations to deliver efficient procurement (OGC 2008).



Articles presented by the United Nations from academia, governments, and private sector argued that the importance of policies and transparency enhancement measures including e-procurement starting from tender publicity, technical specifications, qualification criterion, awarding criteria, procurement procedures and regulations are well complemented by measures enhancing competition and helped in deterring collusive tendering (UNOPS 2012). Risks associated with competition issues should be considered at all key stages of the procurement process comprising pre-tender, tendering process, award and administration of contract and vendor management for all major and complex projects using pre-defined checklists. A comprehensive checklist covering all stages of the procurement shall be devised and used to ensure best value for money and successful outcomes from major procurement activities.

As none of the stages of public tendering process is risk free, it is appropriate to know the categories and types of such risks involved in public tendering process, which is as detailed below. Risks involved in the public procurement are predominantly segregated into two categories like strategic and operational risks. One is related to strategic risks comprising political, socio-economical, technological, regulatory, customer or public associated. The second one is related to the operational risk comprising professional, fiscal, regulatory, physical, contractual, technological and environmental associated. (Baldry 1998, Crawford & Helm 2009, William & Lewis 2008, Zhang 2005). The description of each category of risk is mentioned below:

#### (1) **Strategic Risks**

- *Political*: when failed to deliver government policy
- *Economic*: when organization capacity fell short to meet its financial commitments
- *Social*: failures related to the delivery of organization's services
- *Technological*: issues related to technological capacity of the organization
- *Legislative*: existing and likely changes in the regulations
- *Competitive*: issues related cost, quality or competitiveness of the services
- *Customer/public*: associated with the failure to meet the needs or expectations of customers or citizens

#### (2) **Operational Risks**

- *Professional*: issues related to procedures and practices adopted for procurement

- *Financial*: failures to secure financially viable and advantageous procurement outcome
- *Legal*: related to regulatory non-compliances
- *Physical*: related to health and safety and security, prevention of accidents and incidents
- *Contractual*: non-adherence to contracts to deliver goods, services or works to the agreed cost and specifications
- *Technological*: issues related to operations, work equipment, infrastructure
- *Environmental*: related to emissions and discharges, noise or other environmental issues applicable to operation including energy conservation and efficiency of those operations

Both strategic and operational kinds of risks can be internal or external based on the high level forum of Paris and Busan declarations, and good practices derived in public procurement involves putting in place risk mitigation measures to understand and manage the risks by identifying, assessing, prioritizing and managing risks (Rolfstm 2013). The risk mitigation strategies shall include accepting risks for low levels, transferring, reducing the likelihood of occurrence of risks and developing contingency plans (NIGP 2012; UNPCDC 2012).

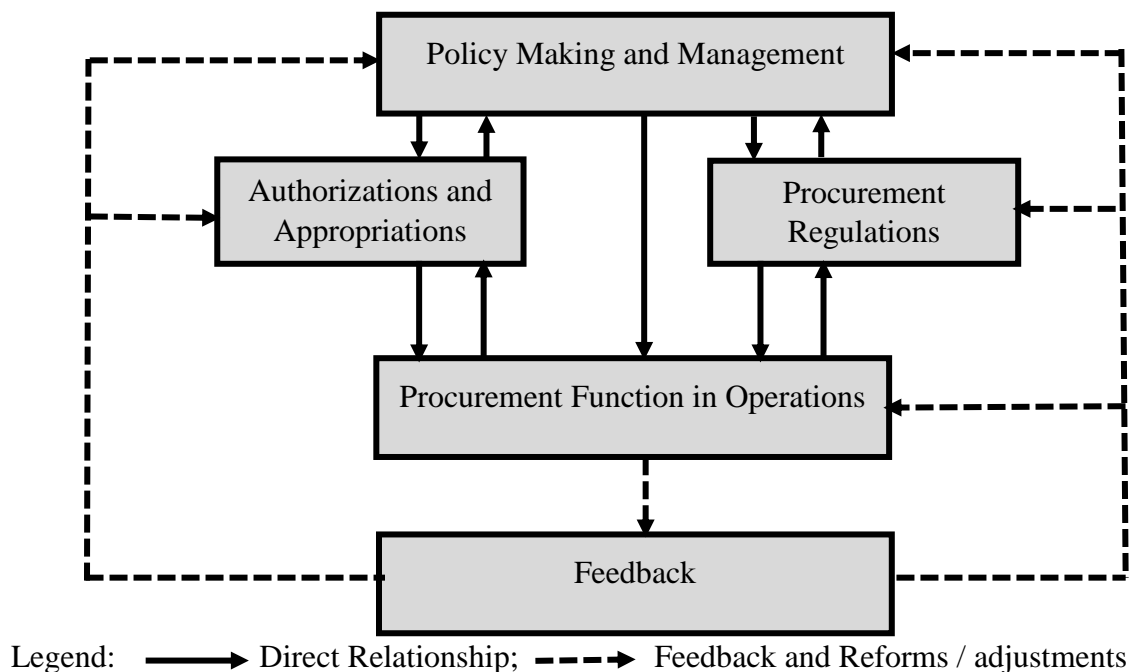
Frank et al (2008) has presented Common risk management principles that could be applied for risk assessment on various projects of pharmaceutical firms and risk mitigation working tools that can be used to bring and ensure consistency in the risk management decision making. Though, these studies were applied in pharmaceutical sector, most frequently used risk assessment methodologies with common risk management tools were presented to facilitate the users' evaluation of potential alternatives for their application.

Research Policy of European Commission (2010) illustrated various risk mitigation practices for risks in public procurement with case studies. Findings of this study reported how the innovative ways followed reduced the negative risks and better management of public procurement. Hence the measures suggested were reviewed in this report are used for the present study. Despite doing risk identification; the risks are being met mainly with mixed solutions in contracting strategies due to lack of a comprehensive risk-management tools (Tarmo&Veiko 2010). Therefore, this

study emphasized the need and use of comprehensive risk management tools in public procurement for innovative procurement.

### 2.3 Methods, Models and Tools used in Risk Assessment that applied for the Public Procurement

A risk management model devised for public procurement based on five elements related to policy, authorities, regulations; operational processes, methods, organizational structure, and procurement staff; and feedback is mentioned at *Figure 2.1* (Thai 2001). Both internal and external factors comprising market environment, legal and political environment, social, economic and other environmental factors were reviewed and lessons learned were described. Though this study helps procuring agency about what factors needs to be considered under risk threats, it was subjective and not addressed about risk assessment criteria to be applied.



**Figure (2.1) Public Procurement System** (Thai, 2001)

Benchmarking of the public procurement process can prevent anticipated risks associated with the public procurement process and improve the quality of procurement. Benchmarking of public procurement process was done based on five key principles namely value for money, ethics,

competition, transparency and accountability (Raymond 2008). However, most of the reforms derived through this benchmarking process were applied and found suitable more to developing countries where political (for eg. ethnic violence, communal harmony issues etc.) and bureaucratic instabilities (transfers, changes in government priorities etc.) are prevailing though such factors could be considered under risk assessment. Though this model was also subjective, it provided the criteria in the name of five key principles that can be applied to public procurement process.

Methodology for Assessing Procurement Systems (MAPS) based on twelve indicators under four pillars comprising Regulatory Framework, Institutional Framework and Management Capacity, Procurement Operations and Market Practices, and Integrity and Transparency of the Public Procurement System with a numeric scoring system on a scale of 0-3 points for defined criteria for each indicator was successfully applied for the Public Procurement Process (OECD 2010). This model has provided comprehensive coverage of procurement cycle with qualitative evaluation criteria based on scoring system for each indicator.

Another model based on three steps mentioned below was applied to conduct a study on Risk Management in the procurement phase of public-private partnership based large scale infrastructure project (Nelms 2012). The risk management process followed during the procurement phase included three steps that entailed (Cooper et al 2004):

- The development of a risk management plan
- Review and updating of the risks identified over each stage of the procurement process including the identification, characterization, quantification and mitigation of risk events through input from a diverse project team and reviewed by multiple parties internal and external to the project team; and
- Communication of the contents of the Risk Register and associated changes to key decision makers and stakeholders.

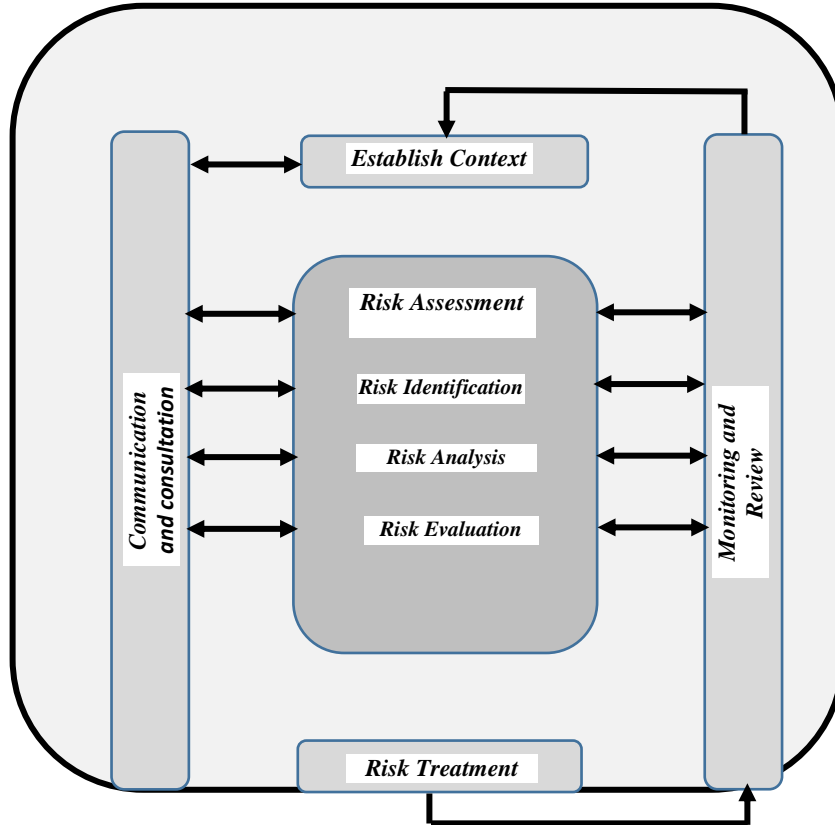
The model applied by Nelms (2012) has covered not only the (i) subjective assessment criteria based on five elements related to policy, authorities, regulations; operational processes, methods, organizational structure, and procurement staff; and feedback proposed by Thai (2001); (ii) five key benchmarking principles namely value for money, ethics, competition, transparency and accountability proposed by Raymond (2008); (iii) Methodology for Assessing Procurement Systems (MAPS) based on twelve indicators under four pillars comprising Regulatory Framework, Institutional Framework and Management Capacity, Procurement Operations and Market Practices, and Integrity and Transparency of the Public Procurement System with a numeric scoring system on a scale of 0-3 points for defined criteria for each indicator proposed by (OECD 2010), but also included consideration of risk mitigation events through internal and external participation of diversified people concerned for the project. All these models have discussed the criteria from subjective to quantitative and qualitative risk factors including various internal and external factors that influence the risks involved in the public procurement.

However, a set of criteria is required to follow within the application of risk management process for any purpose including for the purpose of public procurement projects for enabling effective analysis of potential risks associated with such project purposes. Zhaou and Duan (2008) have proposed a nine step generic risk management model based on life cycle logic, mentioned in the Table 2.1 that can be applied to public procurement projects for effective analysis of potential risks in the different phases of the projects.

<b>Steps</b>	<b>Description</b>
Step 1	Identify Issues, setting the context
Step 2	Asses Key Risk Areas
Step 3	Measure Likelihood and impact
Step 4	Rank risks
Step 5	Set desired results
Step 6	Develop options
Step 7	Select strategy
Step 8	Implement the strategy
Step 9	Monitor and evaluate and adjust

*Table (2.1):* Integrated Risk Management Model (Source: Zhao and Duan (2008, p1390)

These nine steps were found further simplified when a new International Standard for Risk Management was evolved as Figure 2.2 shows the Risk Management Process based on the International Standard ISO 31000:2009.



**Figure (2.2):** Risk Management Process based on the ISO 31000:2009 (ISO 31000:2009 standard)

Lewis (2012) has described the six phases of the International Standard ISO 31000:2009 standard for Risk Management – Principles and guidelines, Risk Management as follows for its application to Public Procurement:

1. **Establish Context:** Analysis of the project to identify potential problems, threats and weaknesses.
2. **Risk Assessment:** Assessment of the likelihood of each problem and threat occurring, and weakness arising, and its consequences. This is the “level of risk”.
3. **Risk Identification:** Deciding whether the level of risk is acceptable.
4. **Risk Analysis:** Selecting treatments for those problems, threats and weaknesses that pose unacceptable risk levels and therefore need managing.
5. **Risk Evaluation:** Implementation of the treatments.
6. **Risk Treatment:** Monitoring the effectiveness of the treatments, as well as the risks assessed as involving acceptable risk levels, to make sure they remain acceptable.

The knowledge factors like identification of risks for probability of occurrence, impact of risks, risks classification, risks perception, qualitative and quantitative risk assessment techniques all contribute for improvements in the risk management are determined by evaluating how risks were managed during the tendering process for large scale infrastructure projects. Organization should follow one approach for assessing the risks based on the knowledge factors, with a recommendation to make use of ISO 31000 for their risk management process (John and Johan 2012).

## **2.4 Risk Management Methodology**

A method is required to investigate how risk management is conducted in the tendering process for covering risks from strategic point of view to operational risks. Since a unique choice does not exist for conducting risk assessment, appropriate risk methodology has to be selected based on complexity of the project risks and depth of analysis required (Jin & Doloï 2008). Therefore from the literature review of the subjects conducted, various basic and advanced risk assessment supporting tools were evaluated and derived an integrated Risk Assessment Supporting Tool that covers hazards analysis and potential failure modes. Result of assessment of hazards identification for all activities is considered for evaluating the risks associated with each hazard (Gil and Tether 2011).

In summary, based on the literature survey, the following considerations were taken into account to develop a risk management model based on influencing factors for public tenders under the present study:

### ***a) Framing questions as risk assessment tools for all identified risks for***

- each stage of procurement, mentioned 2.1 of this report, as defined by UNPCDC (UNPCDC 2012), comprising identification of procurement requirements, method of procurement, qualification criteria of suppliers, preparation and publication of legal complaint documents, pre-bid meetings and site visits, submission, opening and evaluation bids, contract award recommendation, contract negotiations and contract award;



- Risks and risks mitigation measures including e-procurement for tender publicity, technical specifications, qualification criterion, awarding criteria, procurement procedures and regulations determined by UNOPS (UNOPS 2012) for all key stages of the procurement process,
- pre-defined checklists for pre-tender, tendering, award and administration of contract and vendor management stages of procurement and optimal allocation of risks between the authority and suppliers (OGC 2008),
- Methodology for Assessing Procurement Systems (MAPS) based on twelve indicators under four pillars comprising *Legislative and Regulatory Framework, Institutional Framework and Management Capacity, Procurement Operations and Market Practices, and Integrity and Transparency of Public Procurement System* (OECD 2010);

**b) *Identification of area of impact***

- for consequences of occurrence and magnitude of consequences for all the knowledge factors considered for identification of risks for their probability of occurrence, impact of risks, risks classification, risks perception, qualitative and quantitative risk assessment techniques suggested (John and Johan 2012), and five elements based risk management model comprising policy making and management, authorizations & appropriations, procurement regulations, procurement function in operations, feedback (Thai 2001);
- based on three step risk management model comprising Risk Management Plan, Risk Registers development and Communication of the risk register information to decision makers) (Nelms 2012);
- based on types of sources of risks in the public procurement and the measures suggested, draft standard of practice developed (NIGP 2012; UNPCDC 2012);

**c) *Identification of proposed risk mitigation or control measures to manage unacceptable risks***

- five key benchmarking principles suggested (value for money, ethics, competition, transparency and accountability) for mitigation of risks (Raymond 2008);

- Illustrations of various risk mitigation practices for risks in the public procurement with case studies from European Commission (Research Policy of European Commission 2010).

Based on the above information, checklists and case studies referred in this literature review were used to frame questions as tools. The elements, pillars, stages, steps proposed and used by the above researchers were combined to make a comprehensive criteria that covers all aspects under five areas of impact namely Regulatory Compliance, Financial Impact, Public Image and Reputation (equal treatment, non-discrimination, mutual recognition and transparency), Health, Safety and Environment, and Project Consequences (Time, Quality and Cost). The rating score with range 1 to 5 is given based on the magnitude or impact of the consequences of determined risks to form a Risk Management Model. The likelihood of occurrence of each risk identified, for which a question or set of questions were chosen as tool to assess the risk, a score of 1 to 5 was chosen according to the frequency of their possible occurrence defined as rare, possible, likely often and frequent or almost certain. The impact of all such resultant consequences for each risk was defined in the same score range 1 to 5 based on their tolerance level from insignificant, minor, moderate, major and catastrophic. Since the risk is the product of consequences and their likelihood of occurrence, a range of risks was defined from low risk (for score 1-3), moderate risk (for score 4-6), high risk (for score 8-12) and extreme risk (15-25). The criteria for evaluation of each risk is defined based on the risk level whether the activity of any stage of procurement process can be continued with no action required or continued but subjected to modification or continued with remedial planning and risk assessment, should not proceed and needs an alternative.

In addition to this, risk mitigation or control measures to manage unacceptable risks information was used to find the risk level based on individual interviews with concerned process owners or group of people involved in that procurement process stage of the project considered in this study.

The quantitative and financial limits chosen to assess the impact of consequences were based on the discussions with the people involved in the procurement of the project considered under this study.

This model not only gives the picture of what needs to be assessed at each stage of procurement cycle, present status for existing controls for the case study tender with its base risk levels and proposed controls with determined residual risk levels for public tenders.

The above methodology was used to devise and derive a methodology to conduct the proposed study comprising development of risk assessment criteria and tools and application of the developed risk management tool to major Infrastructure Project Dubai – Fujairah Freeway linking Fujairah with the northern emirates and Abu Dhabi a case study (however due to confidentiality of information security, values of the project or pricing / costing details are mentioned in this report though they were used for deriving conclusions and recommendations. The methodology chosen for conducting the risk assessment is mentioned in **Tables 3.1** and **3.2** while details criteria considered for development of risk management model is given in section 2.5 and 2.6.

Area impacted		Insignificant consequences (Score =1)	Minor consequences (Score = 2)	Moderate consequences (Score = 3)	Major consequences (Score = 4)	Catastrophic consequences (Score = 5)
<b>Regulatory Compliance</b>		No breach of regulatory requirements and no contractual non-compliance	Minor regulatory consequence with formal warning or instruction; contractual non-compliance with no litigation or penalty	Moderate regulatory or contractual non-compliance result in fines / penalties with a threat of litigation or prosecution	Major regulatory or contractual non-compliance with restrictions on operations with probable litigation or prosecution	Extreme regulatory and or contractual non-compliance that lead to termination of work with litigation and or penalties
<b>Financial Impact</b>		1% of budget or < AED 10000	2.5% of budget or < AED 50000	> 5% of budget or < AED 250000	> 10% of budget or < AED 500000	> 20% of budget or > AED 1 Million
<b>Public Image and Reputation (Equal treatment, non-discrimination, mutual recognition, transparency)</b>		No impact on reputation / staff morale or council with little or no public / local interest	Minimal customer / morale sensitivity and damage to reputation	Moderate impact to reputation may affect business activities	Significant damage to reputation and image	Catastrophic and irreparable damage to the image and reputation
<b>Health, Safety and Environment</b>		Superficial environmental damage and or first aid injuries	Reversible environmental damage for short term and or medical treatment cases	Reversible environmental damage for medium term and or lost time injuries or illness	Reversible environmental damage for long term and or multiple lost time injuries or hospitalization or illness	Major irreversible environmental damage and or permanent disabilities or fatalities
<b>Project Consequences</b>	<b>Time</b>	Insignificant impact on procurement cycle milestones	Minimum impact on procurement cycle milestones	Moderate impact on procurement cycle milestones	Major impact on procurement cycle milestones	Catastrophic impact on procurement cycle milestones
	<b>Quality</b>	Some non-key requirements not met	A key requirement not met	Few key requirements not met	A majority of key requirements may not be met	Major deficiencies with all deliverables. No requirements met.
	<b>Cost</b>	Justifiable additional costs that can be absorbed in the procurement cycle of the project budget	Justifiable additional costs requiring reprioritization and / or reallocation of project funds with delegation from Project Manager	Additional costs requiring submission for supplementary funding of project with delegation from Procurement Committee / Project Board	Significant additional costs to be approved by CEO / Board of Directors	100% budget expended without achieving any key deliverables. To be approved by Council

**Table (2.2):** Risk = Consequences score X Likelihood of occurrence

Probability / Likelihood of occurrence (from Table 2)	Consequences (from Table 1)				
	Insignificant (1)	Minor (2)	Moderate (3)	Major (4)	Catastrophic (5)
Rare (1)	1	2	3	4	5
Possible (2)	2	4	6	8	10
Likely (3)	3	6	9	12	15
Often (4)	4	8	12	16	20
Frequent / Almost certain (5)	5	10	15	20	25
15-25	Extreme risk (E)	Activity should not proceed in current form as this event is expected to occur more than once in a year with more than 80% chance of occurring, may need to look for alternative			
8-12	High risk (H)	Activity should be modified to include remedial planning and action and subject to detailed risk assessment as this event may occur in most circumstances once a year with 50-80% chance of occurring			
4-6	Moderate risk (M)	Activity can operate subject to management and / or modification as this event may occur once in 3 years with 30-50% chance of occurring			
1-3	Low risk (L)	No action required unless escalation of risk is possible as event may occur only in exceptional circumstances with less than 10% chance of occurring			

**Table (2.3):** Understanding likelihood of occurrence of the event and assigning a Risk Rating

## **2.5 Phases of Risk Management considered under the project**

According to Erridge et al (2001) Project Risk Management phases are redefined and followed based on the Risk Management phases prescribed by the international standard ISO 31000 mentioned at 3.1 of this report:

- (1) **Phase one:** Analysis to identify areas of risks, potential threats, problems and weaknesses, failure mode effects
- (2) **Phase two:** Base Risk Assessment
- (3) **Phase three:** Risk Rating
- (4) **Phase four:** Proposed Actions and controls / Safe guards to manage the unacceptable risks
- (5) **Phase five:** Residual Risk Assessment & Rating after implementing controls
- (6) **Phase six:** Remarks or Costs (if required) based on monitoring the effectiveness of the controls enforced

## **2.6 The tendering cycle stages examined and analyzed under the project**

The complete tender cycle was considered to identify areas of risks, potential problems, threats and weaknesses is as below in the following sections (Dallas 2005).The following information are proposed it to help in appropriately define the risks within each phase of the cycle.

### **2.6.1 General Information**

The following are general information to be considered during procurement projects:

- a) *Organization*: for availability of appropriate information on procurement, awareness levels of staff for updated rules and assigned responsibilities to procurement staff (Hodgkinson 2001).
- b) *Delegation of authority*: Existence or enforcement status of delegated authorities
- c) *Quality control*: Status of establishment and enforcement of internal quality and control mechanism (Barki et al 2001).
- d) *Training*: How organization ensures competence of staff for procurement process and how the training needs are identified, training is provided and effectiveness is evaluated (Barki et al 2001)

- e) *Procurement policies*: Whether controls exist over outsourced procurement, and existence and adherence to the laid down criteria for selection and evaluation of supplies and suppliers (Chan 2011).
- f) *E-Procurement applications*: Does the organization have a computerized procurement monitoring and administration system or not? (Loosemore 2007)

## 2.6.2 Pre-Tender

- Pre-Tender Planning: What is the consultation mechanism with stakeholders to have a foolproof mechanism for procurement of public tenders (Crawford & Helm 2009)
- Market research: How market research is conducted, results are considered for benchmarking and analyzing the organizational needs etc (Fischer et al 2010).
- Developing specifications: How organization ensures for specifications made are appropriate, complete and meet the anticipated outcomes of the tender being proposed (Fischer et al 2010).
- Document preparation: Does the organization have and use standardized and controlled formats?
- Instructions to Bidders (ITBs) (Hillson 2003)
  - How organization ensures for availability and communication of complete information necessary to prepare responsive bids
  - How organization ensures for well-defined qualification criteria
  - How organization ensures for adequate coverage of conditions of contract and review need for enforcement of special conditions
- Pre-qualification (Dash 2011)
  - How organization reviews and decides whether pre-qualification process is required or not
  - How organization ensures for transparent pre-qualification process and provides equal opportunity to all potential bidders
  - How organization ensures for continued sustenance of bidders compliance post prequalification
  - How organization ensures for maintenance and updating of list of approved qualified suppliers

- What are intermittent checks that exist for financial information provided by the bidders
- Is there any pre-defined registration process exist and being followed in the organisation
- How entry of new comers is assured
- Advertisement (Spedding& Rose 2011)
  - How organization ensures for competitive bidding process, widely publicizing the tender
  - Ensure to give sufficient and reasonably practical time to respond
  - Ensure for effective communication process for responding to any queries that potential bidders may have
- Communication between Bidders and the government procurement agency (Spedding& Rose 2011)
  - Method of communication and timelines for responding to queries
  - Timely communication of accurate information to bidders
  - Ensure for enough time to bidders to revise bids and keep records of amendments related to bids
  - Ensure for keeping records of communication
- Receipt of bids and opening (Edwards & Bowen 2005)
  - How received bids are secured at the organisation
  - How procedure for opening of bids is ensured and adhered
- Bid examination and evaluation (Aritua et al)
  - How evaluating committees are formed? What are the competence criteria for it?
  - Any ad hoc evaluating committees exist for bid evaluations?
  - Is there any set criteria established and followed for bid evaluation?
  - How they record unaccounted deviations followed for evaluation criteria or ensure for keeping records to demonstrate actual criteria was followed with justifications
  - Timely completion on target dates for evaluations within the original bid validity period
  - How they handle situations like absence of bid evaluation reports or failure to state reasons for rejecting bids, failure to state reasons for acceptance or rejection of bidders qualifications
  - How situations where failure to notice or take in to account of differences between goods and works are handled?



- Contract award and effectiveness (Uher&Toakley 1999)
  - How it is ensured that whether lowest evaluated bidder is qualified to perform and execute the contract
  - How they handle situations when negotiations are conducted with bidders after completion of bidder selection
  - How they ensure legal compliance when they failed to obtain all government approvals required before award of contracts
  - What is the criteria followed for working out the performance security / bond amount
  - How they ensure for taking into account of differences between goods and works

### **2.6.3 Post Procurement**

- Contract administration (Aritua et al 2011)
  - What kind of procurement system exists? Computerized procurement / contract monitoring systems exist and used?
  - How they ensure to make payments on time to suppliers, to retain the credibility of preferred customer
  - What is the mechanism exist for ensuring and assuring for quality and quantity checks and monitoring for keeping schedules
  - How the change control is applied and how they handle when they fail to follow change mechanism which may lead to loss of money and or time
- Disputes management (Cruz & Marques 2013)
  - How organization resolves disagreements informally
  - How organization handles disputes according to contract conditions
- Contract performance (Lewis 2012)
  - How clarity is ensured over obligations under the contract
  - How they ensure for responding in timed manner and document all actions of contractual import
  - How they ensure misuse of contractual remedies / exemptions given under special circumstances
  - How they monitor time and price keeping during the contract completion cycle
  - How they granting extensions without considering whether delays are attributable or not
  - How incoming inspection is conducted and mechanism or procedure is followed

- How they monitor supply disruptions
- What kind of compliance check mechanism exist or followed for procurement
- Record keeping (Fischer et al 2010)
  - How situations like missing of records or failure to keep the records up to date, missing or failure to maintain appeal records or records required for contracts compliance are handled, missing of records or failure to keep the records up to date,
  - What are the controls exists on database
  - How periodic reports are generated and maintained and who is responsible for record keeping
- Selection of consultants (Jin &Doloi 2008)
  - What is the selection criteria for hiring consultancy services or administration of consultation contracts
  - How organization ensure for following procedure or selection of consultant from other than the qualified ones is not done
  - What is the selection process and evaluation criteria
  - How it is ensured that terms of reference defined for the assignment are relevant and adequate
  - Technical or financial criteria established is adequate
  - Have well-defined weight age for technical criteria
  - How it is ensured that technical evaluation is done before opening of price bids
  - How it is ensured that standard conditions of contract can adequately protect the interests of the client
  - Working out inaccurate / incorrect compensations
  - Have defined criteria to seek proposals / performance and or advance payments from consultants
  - How it is ensured that there is no violation of conflict of interest
  - How it is ensured that competent persons or committees are used for evaluation
  - What are the consequences in case of breaching of evaluating criteria
  - Application of consistent criteria
  - Recording of all essential details during evaluations
  - To keep the time schedules for evaluations i.e. before validity period of proposals

- Procurement performance (Williams & Lewis 2008)
  - How organization monitors dissatisfaction or satisfaction levels in the services delivered
  - How organization ensures for availability of appropriate information over procurement needs
  - How organization ensures for use of competent staff
  - How organization ensures for providing adequate training
  - How organization checks whether planning was effective
  - How organization ensures for following established methods and procedures
  - Status of establishment and adherence to the standard procurement documents
  - Laid down well-defined technical specifications
  - Follow Shorter and sound contract approval procedures
  - Delegation of contracting authority
  - How organization handles influence of higher level officials
  - inadequate appeals mechanism
  - Corruption or no transparency issues handling

The proposed comprehensive risk management tool for analyzing identified areas of risks, potential problems, threats and weaknesses, likelihood of each problem with consequences, deciding risk factor whether level of risk is acceptable or not, selecting and implementing controls to manage the risks and monitoring their effectiveness are mentioned in *Annexure 1*. The collection of risk presented in Annexure 1 has been collected from the different references.

## **Chapter 3 Research Methodology**

Many literatures have covered the risk management in general, but few have covered the risk management in public tenders. The purpose of this research is to find out the risks that affect the public tenders, devise and apply a risk assessment model to one of the major public tenders within UAE.

The research methodology has been defined as the approach of acquiring knowledge and producing and testing the theories in addition to examining the relationship between the theoretical background and research case (Blaikie 1993). According to Saunders et al. (2007) have mentioned that there are five stages required to conduct a successful research which are Research Philosophy, Research approach, Research strategy, Data collection, and Data analysis.

### **3.1 Research Philosophy**

According to Saunders et al. (2007), the research philosophy is the creation of knowledge and its nature, which test the rationale of the research. He also mentioned that there two major research philosophies that are used in business and management field which are:

- The Positivism Philosophy: with this type the researcher is assumed to be an independent person, and not biased to the research topic, and usually integrated with the deductive or inductive approach.
- The Interpretive Philosophy: with this type the researcher has to recognize the variances among individuals, and this type is regularly used to examine the organizational behavior, marketing and people management.

And since this research is related to business and management field, the positivism has been used in this research, while the other philosophy is used when required.

### **3.2 Research Approach**

As per Sanders et al. (2007), there are two research approaches are typically used in researches which are

- The Inductive Approach: within this type of approaches, the researcher gathers data and put theory as a result of the data analysis, and typically used for investigative researches.
- The Deductive Approach: within this type, the researcher develops a theory that is subject to test, and typically this type is used for testing and proving the hypothesis.

Since the aim of the research is to assess and analyze the risk management model on the Freeway Dubai- Fujairah project, the positivism and deductive approaches are used and that will definitely support realization of the objectives of the research.

### **3.3 Research strategy**

The research strategies are usually categorized into five categories which are the case studies and used when research question in the form of How or Why, the Field experiments which are used when the research question in the form of How or Why, surveys which are used when the research question in the form of Who, What, Where, How Many, or How Much, the Archival methods: which are used when the research question in the form of Who, What, Where, How Many, or How Much, and History which are used when research question in the form of How, Why.

Hence the research questions can be stated in two forms which are 1. How do the risks affect the public tenders? Or, 2. What are the risks that affect the public tenders?, then all types of research's strategies are applicable for this research, but:

- Experiments, Archival analysis and histories were not appropriate because of the type of the research that does not need experimental or events studies.
- The use of single case study is proper as the researcher has an access for one of the big public tenders in UAE. Therefore it is the best for this type of the research.
- Multiple case studies can suitable for the objectives of the research as studying different cases can be selected and give relevant conclusions and results. But due to the fact of cultural conditions not all organization can provide access to researcher to study the public tenders and will not provide required information.
- The surveys can be an appropriate research strategy as well as it provide different cases with different point of views that will lead to relevant results and conclusions. However, and

according to Sanders et al 2007 surveys have some pitfalls which is the accuracy of the replies as respondents might afford responses quickly without considering the influence on the research results. In addition to the fact there are limited experiences in the field of risk management and its assessment.

According to the above mentioned discussion the single case study has been used, and the qualitative research approach is applied.

### **3.4 Data Collection**

According to Saunders *et al.* (2007) there are three ways for data collection which are:

- The Structured Interviews: within this way a comprehensive set of questions and queries are utilized, while the researcher prepares a list of all possible answers for each question.
- The Semi-Structured Interviews: within this way a list of subjects and theme questions are set prior the interviews.
- The Unstructured Interviews: this way involve are informal and thorough interviews, and there are no prior set of questions prepared.

According to the type of the research that required data collection, a mixed approach of the structured, semi-structured, and unstructured interviews were used as below:

- A list of detailed questions with all possible answers have been prepared to help managing the interviews and support the final collection of data that help in better analysis and support concurring strong results.
- Open ended questions have been used in order to get better results from the interviewee which can be help in to choose the correct answer according to the pre-pared list on answers. Moreover, some interviewees were keen to know more about subject which has led to discussions in a semi-structured way.
- The unstructured interviews were been used where it was easily accessible due to personal relationships and results out of these interviews were recorded to the data collection sheet.

The researcher's work at the same organization that has the case project, and has an open access to the information and data needed. The data collection including the three types of interviews: structured, semi-structured, and unstructured. The three interview methods are utilized to realize the purpose of the research including preparing a list of questions that support understanding the situation and real case for the Freeway Dubai- Fujairah Road, and further information are collected by the researcher through his access to the project staff and the accessibility to the documents of the project.

To help the process of data collection and simplify the interviews, the researcher has prepared a list of questions and themes. On the other hand the researcher has used the different formulas of questioning using open and the closed questions. While the samples are selected from the case population, and different personnel were chosen from the Freeway Dubai Fujairah project.

### **3.5 Data Analysis**

According Saunders *et al.* (2007) involve three main steps which are the data reduction through which the resulted information are put together and are summarized in the data sheet to be easily presented and observed, data display through which all data are displayed into one sheet to simplify analysis into conclusions and results, and drawing conclusions and recommendations through which the results are tabulated in line with the literature and drive the conclusions and recommendations.

### **3.6 Research Phases**

The following steps and phases have been used for this research:

1. Literature Review.
2. Devising Risk Management Model for Public Tenders.
3. Data collection.
4. Applying Risk Model to the Freeway Dubai Fujairah Project.
5. Drawing general and specific conclusions and recommendations.

### **3.7 Assumptions, clarifications and limitations of the study**

Consequences score given at Tables 4.1, 4.2, and 4.3 for each risk not necessarily reflects every area impacted because score is given even a single area is impacted. The scores given shall not be

considered as final and standard, though the risk parameters considered were comprehensive enough to apply for any public tender. Therefore, issue mentioned under *Phase 1* of the Tables 4.1, 4.3, and 4.5 shall be referred to understand the score given is in the context of which area is likely to be impacted. Proposed actions mentioned under *Phase 4* require customization based on the type, complexity and value of proposed public tender. Since pre-tender information is not available for the tender considered under this study, residual risk assessment results score mentioned under *Phase 5* shall not be treated as accurate since it is forecast based on the assumption that proposed actions under *Phase 4* of the table mentioned at ***Annexure I*** are exist and followed. In real case where full tender cycle information is available, it would be relatively easy for application of this model with more accurate score (closer to actual risk levels) and also enable to estimate and present cost analysis under *Phase 6*.



## **Chapter 4 – Analysis of information, data, results and discussion**

The comprehensive risk management tool developed for analyzing identified areas of risks, potential problems, threats and weaknesses, likelihood of each problem with consequences, deciding risk factor whether level of risk is acceptable or not, selecting and implementing controls to manage the risks and monitoring their effectiveness is applied to the public tender for major Infrastructure Project Dubai – Fujairah Freeway linking Fujairah with the northern emirates and Abu Dhabi. This chapter depicts the results from application of the risk management tool to the tender cycle of this project. The analysis also shows how existing procedures were executed in reality and how it should have been performed to minimize the risks associated with different phases of the project cycle. The results are mentioned in the Table 4.1. The following documents related to the public tender under current study were reviewed to determine the most appropriate score for each risk identified throughout the tender cycle.

### **4.1 Review of documents related to various phases of the tender cycle**

The criteria laid down and followed under the following documents was reviewed for the adequacy, relevance to the selected public tender to determine the prevailing risks and significant risks that are addressed, unaccounted and ignored in other form as risk assessment was not done for this tender:

1. Instructions to tenderers
2. Financial proposal
3. Form of agreement
4. Documented correspondence related to execution for questions and answers from bidders
5. Tender analysis report
6. Services required from the consultant
7. Report about the developing and installation of side rocks edge protection project for Dubai Fujairah highway
8. Technical expert opinion about the geology of the project (rock edges)
9. Technical report with recommendations for Dubai Fujairah highway project
10. Financial analysis of consultation services for Dubai Fujairah highway project
11. Dispute report from contractor
12. Technical comparison sheet for protection of Dubai Fujairah highway sides

## 4.2 Analysis of Results

Due to confidentiality of information the pricing information is not being reported in the study, but all the valuable information required for application the developed risk management tool was taken in to account. Structured interviews were conducted with concerned personnel involved at each stage of procurement with set of questions mentioned at *Annexure 1* and possible answers to adjudge the risk levels involved in that process. Where, personnel could not give proper answers for questions or not sure of the risk scores for risk involved in that process, semi-structured interviews were conducted based on the questions chosen from the case studies referred in this study to enable them to judge and suggest appropriate score for the risks identified. Information was also gathered through unstructured interviews with concern support staff of procurement process either to cross check the information collected and confirm the risk levels identified for that stage of procurement or to clarify when outcome of interview was in doubt or requires further probing to ascertain the facts. The outcome of analysis of all such information gathered is detailed below:

Though the project was of high value and complex project in nature since the freeway has to be built by breaking the mountain range, tender planning phase was found very weak in the context of the following:

1. Public tender cycle ignored the important phase of pre-qualification process, hence missed out to choose a competitively priced and competent contractor, and there was no mechanism to verify prior to contract award if a successful bidder continue to meet prequalification requirements including technical and financial capability to perform.
2. Lack of complete information for preparation of responsive bids, qualification criteria and hence to effective evaluation of bids. This was happened due to missing of information over clarifications, minutes of the pre-bid meets, and modifications of the documents, their prompt communication to all prospective bidders. Since no criteria established, bid evaluations was not thorough and bid evaluation reports does not contain all essential information (i.e. a clear and complete description of the evaluation process, including the reasons for rejecting any bid as non-responsive, how the stated evaluation criteria were applied, and how the successful bidder's qualifications were verified)?

3. Failed to lay down right specifications as the work involved breaking mountains with no pre-geological survey or assessment was conducted to assess the work load and hence financial requirements. This lead to the situation of failure for laying down the right specifications for expected outcomes of the work. Since there were no output based specifications determined, it lead to insufficient details available to market to respond to the requirements.
4. No evidence of efforts towards this tender work for pre-research or for data collection related to the similar projects built in similar conditions elsewhere. Lack of technical knowhow for construction of roads in mountain range and agreed for unpriced works with contractor due to lack of technical knowhow (geological survey and assessment) hence had significant increase in the project costs. This lead to the failure for appointing a competent committee for bid evaluation and bidders credentials and qualifications.
5. Participation of only four bidders for such high value and large scale project shows lack of appropriate communication or invitation of bids. This has led to the situation of bidding was not competitive and unsure of widely publicizing the tender and tender information.
6. Unaccounted works related to protection of broken sides of the mountains on both sides of the road being built lead to failure in estimating costs of the project and calculation of tendering price. This has gone in the advantage of contractor with disruptions in contractor's orderly performance with inadequate contract administration lead to variations in work, claims and disputes.
7. Failed to identify or anticipate risks due to lack of risk assessment criteria and do the quantitative and qualitative risk analysis of the project. This lead to the situation of failure for handling obligations under the contract.
8. Lack of internal mechanism for quality and quantity checks for works and for monitoring schedule keeping by contractor throughout the tender cycle due to shortage of experienced, trained and competent professional procurement staff.

9. A poor definition of conditions of contract, generic in nature and not specific to the project this was problem was aggravated due to untrained procurement staff.
10. Failure to define appropriate conditions of contract leads to disputes related to contract conditions and end-up with paying more to the contractor
11. Failed to evaluate whether lowest bidder is qualified to perform the contract satisfactorily, as the contractor had to change during the process.
12. Unavailability of qualified or competent technical procurement committee
13. Poor technical evaluation of bidders before the financial bids are opened due to lack of well-defined technical specification and weight age for the selection parameters
14. Negotiations were conducted with bidders after selection
15. Change of contractor before execution of work
16. Lack of predefined selection and evaluation criteria for consultancy services.

According to the above stated analysis points, an identification for the consequences and the likelihood have been identified within Table (4.1) using the risk assessment model that been proposed by different researches. This Table shows the results from application of Risk Management tool for analyzing identified areas of risks, potential problems, threats and weaknesses, likelihood of each problem with consequences, deciding risk factor whether level of risk is acceptable or not, selecting and implementing controls to manage the risks and monitoring their effectiveness.

The analysis will take place using the guidelines and phases discussed within section 2.9 and as the following sections. The estimation for severity and likelihood has been set in accordance with the analysis of the procurement and perceptions of the procurement staff.

#### **4.2.1 General Information**

This information is general risks that usually face the procurement and does not come under specific phases of the procurement. The analyses of the risks are as clarified with Table (4.1) on the Freeway Dubai Fujairah procurement lifecycle.

#	Procurement Stage	Area of Risk	Severity	Likelihood	Risk Level
1	Organization	Shortages of suitable information about procurement / staff are not updated about the rules, responsibilities and other matters related to their assigned tasks.	4	3	12
2	Delegation of authority	Lack of reasonably delegated contracting authorities	4	1	4
3	Quality control	Lack of internal quality and control mechanism	4	3	12
4	Training	Staff incompetence / lack of adequate training in procurement	4	3	12
5	Procurement policies	Inadequate controls over outsourced procurement / lack of criteria for selection and evaluation	5	3	15
6	e-Procurement applications	Lack of computerized procurement monitoring and administration	3	4	12

**Table (4.1):** Risk Analysis for Freeway Dubai Fujairah Procurement (General Information)

Accordingly, there are four risk rated at high risk, and one at extreme risk while there are one at moderate risk level. The actions proposed can help reduce the level of risks according to the risk rating. Therefore the residual risks after the actions can be as illustrated in Table (4.2), and there five high and extremes risks can be at moderate level after implementing of the proposed actions.

#	Area of Risk	Proposed actions	Severity	Likelihood	Risk Level
1	Shortages of suitable information about procurement / staff are not updated about the rules, responsibilities and other matters related to their assigned tasks.	Ensure for availability of well-defined procurement information Conduct staff awareness training	2	2	4
2	Lack of reasonably delegated contracting authorities	Ensure for establishing delegated contracting authorities and their communication	4	1	1
3	Lack of internal quality and control mechanism	Establish and enforce internal quality control system	2	2	4
4	Staff incompetence / lack of adequate training in procurement	Conduct training needs identification Provide adequate training and evaluation of effectiveness	2	2	4
5	Inadequate controls over outsourced procurement / lack of criteria for selection and evaluation	Define and follow criteria for selection and evaluation of suppliers	2	2	4
6	Lack of computerized procurement monitoring and administration	Adopt computerized procurement for efficient tracking of key steps in procurement process	2	2	4

**Table (4.2):**Residual Risks for Freeway Dubai Fujairah Procurement (General Information)

### 4.2.2 Pre-Tender

These are the risks that faced the Freeway Dubai Fujairah procurement on the pre-tender phase, which involve the maximum number of risks that face procurement. The analyses of the risks are as clarified with Table (4.3).

#	Procurement Stage	Area of Risk	Severity	Likelihood	Risk Level
1	Pre-Tender Planning	No consultations with stake holders may lead to poor procurement strategy	4	3	12
2	Lack of market research	No market research was conducted (benchmarking, analyzing the organizational needs etc...)	4	3	12
3	Developing specifications	Lack of clarity on specifications or desired outcomes	5	3	15
4	Document preparation	Lack of standardized formats	2	4	8
5	Instructions to Bidders (ITBs)	Lack of complete information necessary to prepare responsive bids	4	2	8
6	Instructions to Bidders (ITBs)	Ill-defined qualification criteria	4	3	12
7	Instructions to Bidders (ITBs)	Poor definition of conditions of contract	4	3	12
8	Pre-qualification	Absence of pre-qualification process	4	4	16
9	Pre-qualification	Lack of fair and transparent pre-qualification process	2	2	4
10	Pre-qualification	Failure to ensure continued sustenance bidders compliance post prequalification	4	2	8
11	Pre-qualification	Lack of maintenance and updating of list of qualified suppliers	2	3	6
12	Pre-qualification	No intermittent check exist for financial information	4	1	4
13	Pre-qualification	Lack of registration process	3	3	9
14	Pre-qualification	Entry of new comers restricted hence loss of potential	3	2	6
15	Advertisement	Failure to follow competitive bidding process	3	3	9
16	Advertisement	Failure to give sufficient time to respond	2	1	2
17	Advertisement	Communication failure	2	2	4
18	Communication between Bidders and the government procurement agency	No response or delayed response to queries	1	1	1
19	Communication between Bidders and the government	Failure for timely communication of information to bidders	2	2	4

#	Procurement Stage	Area of Risk	Severity	Likelihood	Risk Level
	procurement agency				
20	Communication between Bidders and the government procurement agency	Not given enough time to bidders to revise bids	3	1	3
21	Communication between Bidders and the government procurement agency	Failure to keep records of communication	4	2	8
22	Receipt of bids and opening	Failure to secure received bids	4	1	4
23	Receipt of bids and opening	Fail to follow procedure for opening of bids	3	2	6
24	Bid examination and evaluation	No existence of qualified evaluating committees	4	2	8
25	Bid examination and evaluation	Lack of ad hoc evaluating committees for bid evaluations	2	2	4
26	Bid examination and evaluation	Failure to follow set criteria for bid evaluation	3	3	9
27	Bid examination and evaluation	Unaccounted deviations followed for evaluation criteria or failure to record actual criteria followed with justifications	3	3	9
28	Bid examination and evaluation	Missing of target dates for completion of evaluations within the original bid validity period	3	3	9
29	Bid examination and evaluation	Absence of bid evaluation reports or failure to state reasons for rejecting bids, failure to state reasons for acceptance or rejection of bidders qualifications	3	1	3
30	Bid examination and evaluation	Failure to notice or take in to account of differences between goods and works	3	2	6
31	Contract award and effectiveness	Failure to determine whether lowest evaluated bidder is qualified to perform execute	3	2	6
32	Contract award and effectiveness	Negotiations conducted with bidders after selection	3	3	9
33	Contract award and effectiveness	Failure to obtain all government approvals before award of contracts	3	3	9
34	Contract award and effectiveness	No criteria followed for working out the performance security / bond amount	3	2	6

#	Procurement Stage	Area of Risk	Severity	Likelihood	Risk Level
35	Contract award and effectiveness	Failure to notice or take in to account of differences between goods and works	3	2	6

**Table (4.3):** Risk Analysis for Freeway Dubai Fujairah Procurement (Pre-Tender)

Accordingly, there are 16 risk rated at high risk, and 2 at extreme risk while there are 13 at moderate risk level, and 4 at low level rating. The actions proposed can help reduce the level of risks according to the risk rating. Therefore the residual risks after the actions can be as illustrated in Table (4.4). There are one of the risk that still have high residual risk rating even after the implementation of the proposed actions for risk mitigation.

#	Area of Risk	Proposed actions	Severity	Likelihood	Risk Level
1	No consultations with stake holders may lead to poor procurement strategy	Have consultations with stake holders and take opinions and feedback	3	2	6
2	No market research were conducted (benchmarking, analyzing the organizational needs etc...)	Market engagement while establishing requirements and procurement strategy in such a way that avoids giving unfair advantage to one or few suppliers, compliant with procurement regulations, ensure that strategy helps to achieve value for money	2	1	2
3	Lack of clarity on specifications or desired outcomes	<ul style="list-style-type: none"> <li>Provide sufficient details to market to respond to the requirements</li> <li>Use of outcome or output based specifications and specify exactly what is required</li> <li>Is the approach based on what authorities want to achieve rather how a supplier is to provide it</li> <li>Where applicable, ensure that whether existing or accepted industry standard is specified?</li> </ul>	2	2	4
4	Lack of standardized formats	Make available standardized documents for goods, works (construction) and other types of contracts or select and use international contract formats	1	2	2
5	Lack of complete information necessary to prepare responsive bids	Ensure that evaluation criteria and their method of application exist and they are understood by the bidders	2	1	2
6	Ill-defined qualification criteria	Ensure that defined qualification criteria is appropriate and clearly described	2	2	4



#	Area of Risk	Proposed actions	Severity	Likelihood	Risk Level
7	Poor definition of conditions of contract	Ensure that conditions of contract are adequate and ensure proper rules and tools of protection to the government without making unnecessary risk on bidders	2	2	4
8	Absence of pre-qualification process	Review and conduct pre-qualifications whenever required	2	4	8
9	Lack of fair and transparent pre-qualification process	Establish and follow fair and transparent pre-qualification process	1	1	1
10	Failure to ensure continued sustenance bidders compliance post prequalification	Have mechanism to confirm just before contract award if a successful bidder continues to meet pre-qualification requirements/needs?	1	2	2
11	Lack of maintenance and updating of list of qualified suppliers	Does the entity maintains updated list of qualified suppliers, updated market information	1	2	2
12	No intermittent check exist for financial information	Dose the financial information requested regularly and carefully evaluated to assess a bidder's financial competency to execute?	2	1	2
13	Lack of registration process	Establish and follow process of registration	2	2	4
14	Entry of new comers restricted hence loss of potential	Ensure that the registration process is open any time for newcomers?	2	1	2
15	Failure to follow competitive bidding process	Ensure that contracts required competitive bidding are publicly advertised?	1	2	2
16	Failure to give sufficient time to respond	Ensure for sufficient time is allowed to obtain documents and preparing bids	1	1	1
17	Communication failure	Add instructions to make the useful use of use of publications or websites which are available to the public and are known to the private sector as sources of information for public tenders	1	2	2
18	No response or delayed response to queries	Dose the request(s) for clarifications are answered directly and are they completely documented properly such as (written form)?	1	1	1
19	Failure for timely communication of information to bidders	Are clarifications, minutes of the pre-bid conference, if any, and modifications of the documents promptly communicated to all prospective bidders?	1	1	1
20	Not given enough time to bidders to revise bids	Are bidders afforded sufficient times to revise their bids following a modification of the documents?	1	1	1
21	Failure to keep records of communication	Do procuring organizations maintain records of all communications with the bidders / vendors (before and after the	2	1	2

#	Area of Risk	Proposed actions	Severity	Likelihood	Risk Level
		deadline for submission)?			
22	Failure to secure received bids	Dose the procurement department securely store the received bids before the deadline?	2	1	2
23	Fail to follow procedure for opening of bids	<ul style="list-style-type: none"> <li>• Are public bid openings conducted in committee? Is there a tenders opening committee?</li> <li>• If so, dose the opening committee meet at a specified place and time closely to the deadline of submission</li> <li>• What is the information that the opening committee read them out at the opening time? Is the minutes of meetings kept?</li> <li>• Do bid opening procedures differ for goods, works, services or consultation etc... (Other type contracts)? If so, how?</li> </ul>	1	1	1
24	No existence of qualified evaluating committees	Are committees qualified for conducting the evaluations?	2	1	2
25	Lack of ad hoc evaluating committees for bid evaluations	Are evaluating committees appointed based on the nature of tender for each evaluation?	2	1	2
26	Failure to follow set criteria for bid evaluation	Is the exercise of bid evaluations carried out based on the specified criteria in the tender documents?	2	2	4
27	Unaccounted deviations followed for evaluation criteria or failure to record actual criteria followed with justifications	Is the selected bidder's qualification to perform the contract/tender determined only on the basis of the stated criteria in the tendering documents? (See above) If not, what other criteria are considered?	2	2	4
28	Missing of target dates for completion of evaluations within the original bid validity period	Are evaluations usually accomplished within the original bid validity period?	2	2	4
29	Absence of bid evaluation reports or failure to state reasons for rejecting bids, failure to state reasons for acceptance or rejection of bidders qualifications	Are reports of bid evaluation containing all important information (i.e. clear and complete description of the evaluation process, mentioning the reasons for rejecting any bid as non-responsive, how the stated evaluation criteria were applied, and how the selected bidder's qualifications were verified)?	1	1	1
30	Failure to notice or take in to account of differences between goods and works	Describe any note worthy differences between goods, works and services procurement relating to the previous point	1	2	2
31	Failure to determine	The lowest price evaluated bid from	2	2	4

#	Area of Risk	Proposed actions	Severity	Likelihood	Risk Level
	whether lowest evaluated bidder is qualified to perform execute	the bidder - who was determined to be qualified to execute the contract satisfactorily- shall be awarded the contract?			
32	Negotiations conducted with bidders after selection	Are negotiations performed with bidders, afore or after selection?	1	2	2
33	Failure to obtain all government approvals before award of contracts	Any additional Governmental approvals are required before making contracts to be effective?	1	2	2
34	No criteria followed for working out the performance security / bond amount	Is performance security bonds required (in a reasonable amount and in a reasonable format)?	1	1	1
35	Failure to notice or take in to account of differences between goods and works	Describe any differences between goods, works and services relating to the previous point	1	1	1

**Table (4.4):** Residual Risks for Freeway Dubai Fujairah Procurement (Pre-Tender)

#### 4.2.3 Post Procurement

These are the risks that faced the Freeway Dubai Fujairah procurement on the post procurement phases, which involve high number of risks. The analyses of the risks are as clarified with Table (4.5).

#	Procurement Stage	Area of Risk	Severity	Likelihood	Risk Level
1	Contract administration	Lack of computerized procurement / contract monitoring systems	2	2	4
2	Contract administration	Failure to make payments on time to suppliers, losing credibility of preferred customer	2	3	6
3	Contract administration	No or weaker mechanism for quality and quantity checks and no monitoring for keeping schedules	3	3	9
4	Contract administration	No change management or failure to follow change mechanism hence lead to loss of money and or time	4	3	12
5	Disputes management	Failure to resolve disagreements informally	3	3	9
6	Disputes management	Failure to handle disputes according to contract conditions	3	3	9
7	Contract performance	No clarity over obligations under the contract	2	4	8

#	Procurement Stage	Area of Risk	Severity	Likelihood	Risk Level
8	Disputes management	Failure to respond in timed manner, failure to document all actions of contractual import	3	2	6
9	Disputes management	Misuse of contractual remedies	3	3	9
10	Disputes management	Failure to monitor time and price keeping during the contract completion cycle	2	4	8
11	Disputes management	Granting extensions without considering whether delays are attributable or not	3	3	9
12	Disputes management	Improper incoming inspection followed	3	3	9
13	Disputes management	Failure to monitor or ignoring supply disruptions	3	2	6
14	Disputes management	No compliance check mechanism exist or followed for procurement	3	2	6
15	Record keeping	Missing of records or failure to keep the records up to date, missing or failure to maintain appeal records or records required for contracts compliance	3	3	9
16	Record keeping	Missing of records or failure to keep the records up to date,	2	2	4
17	Record keeping	Lack of controls on database	3	2	6
18	Record keeping	Failure to generate and maintain periodic reports or lack of clarity over responsibility for record keeping	3	2	6
19	Selection of consultants	Lack of well-defined selection criteria for hiring consultancy services or administration of consultation contracts	3	4	12
20	Selection of consultants	Failure to follow procedure or selection of consultant from other than the qualified ones	2	2	4
21	Selection of consultants	Lack of selection process and evaluation criteria	4	3	12
22	Selection of consultants	Inadequate or irrelevant terms of reference defined for the assignment	5	2	10
23	Selection of consultants	Missing of criteria either technical or financial	4	2	8
24	Selection of consultants	Lack of well-defined weight age for technical criteria	3	3	9
25	Selection of consultants	Failure to do the technical evaluation before opening of price bids	5	2	10
26	Selection of consultants	Lack of standard conditions of contract and or inadequate to protect the interests of the client	4	1	4
27	Selection of consultants	Working out inaccurate / incorrect compensations	4	2	8
28	Selection of consultants	Is there any criteria defined to seek proposals / performance and or advance payments from consultants	2	2	4
29	Selection of consultants	Lack of or failure to follow conflict of interest	4	2	8
30	Selection of consultants	Use of incompetent persons or committees for evaluation	5	3	15
31	Selection of consultants	Breaching of evaluating criteria	4	3	12

#	Procurement Stage	Area of Risk	Severity	Likelihood	Risk Level
32	Selection of consultants	Applied inconsistent criteria	4	2	8
33	Selection of consultants	Failure to record essential details during evaluations	4	3	12
34	Selection of consultants	Failure to keep the time schedules for evaluations i.e. before validity period of proposals	4	3	12
35	Procurement performance	Failure to monitor dissatisfaction or satisfaction levels	3	2	6
36	Procurement performance	Lack of appropriate information over procurement needs	2	3	6
37	Procurement performance	Use of incompetent staff	4	3	12
38	Procurement performance	Lack of adequate training	2	2	4
39	Procurement performance	Failure to check whether planning was effective	3	3	9
40	Procurement performance	Follow poor methods and procedures	4	2	8
41	Procurement performance	Failure to establish and follow standard procurement documents	3	3	9
42	Procurement performance	Lack of well-defined technical specifications	5	2	10
43	Procurement performance	Weaker or lengthy contract approval procedures	2	2	4
44	Procurement performance	No delegation of contracting authority	3	3	9
45	Procurement performance	Influence of higher level officials	3	3	9
46	Procurement performance	No or inadequate appeals mechanism	2	3	6
47	Procurement performance	Corruption or no transparency	4	2	8

**Table (4.5):** Risk Analysis for Freeway Dubai Fujairah Procurement (Post- Procurement)

Accordingly, there are 30 risk rated at high risk, and 1 at extreme risk while there are 16 at moderate risk level, and no risks where rates at low level. The actions proposed can help reduce the level of risks according to the risk rating. Therefore the residual risks after the actions can be as illustrated in Table (4.6). There are no risks that still have high residual risk rating even after the implementation of the proposed actions for risk mitigation.

#	Area of Risk	Proposed actions	Severity	Likelihood	Risk Level
1	Lack of computerized procurement / contract	What are the systems used for monitoring contracts (manual or	1	1	1

#	Area of Risk	Proposed actions	Severity	Likelihood	Risk Level
	monitoring systems	computerized)?			
2	Failure to make payments on time to suppliers, losing credibility of preferred customer	Are the payments done on time in general? What is the time shall be lapsed from invoice submission date to final payment?	1	2	2
3	No or weaker mechanism for quality and quantity checks and no monitoring for keeping schedules	Are appropriate procedures to monitor delivery of goods and services to verify quantity, quality and timeliness in place?	2	3	6
4	No change management or failure to follow change mechanism hence lead to loss of money and or time	Are contract changes and/or variations handled immediately in accordance with the contract terms and conditions and available practice (i.e. change/variation orders are given and/or confirmed in writing, constructive change orders are prohibited, unit rates in the contract are honored but the supplier or contractor is allowed to agree to any new unit rates introduced and the completion schedule for each change or variation, etc.)?	2	3	6
5	Failure to resolve disagreements informally	Dose the Informal negotiations followed to resolve disagreements with making a good faith attempts?	2	2	4
6	Failure to handle disputes according to contract conditions	If the informal negotiations fails, are the resulting disputes handled in accordance with the contract conditions and applied laws?	2	2	4
7	No clarity over obligations under the contract	Are claims of supplier and contractor handled fairly based on their obligations under the contract?	2	2	4
8	Failure to respond in timed manner, failure to document all actions of contractual import	Are contract administrators have the necessary skills in resolving problems and dealing with unforeseen situations arising during the implementation of the contract? Do they effectively document all actions of contractual import taken by the purchase during implementation of the contract?	2	2	4
9	Misuse of contractual remedies	Are contractual remedies utilized effectively and in accordance with the contract terms conditions?	2	2	4
10	Failure to monitor time and price keeping during the contract completion cycle	The outcomes of contracts generally delivered as scheduled and within the originally approved contract price? Or is cost and time overruns frequent? If so, in which sectors and for which types of contracts? Are fair final acceptance procedures implemented and certificates issued in a timely manner?	2	3	6

#	Area of Risk	Proposed actions	Severity	Likelihood	Risk Level
11	Granting extensions without considering whether delays are attributable or not	Are contracts generally managed in a fair and reasonable manner (e.g. the purchaser grants extensions of time when delays are contribute to its un-timely action, fair payments is paid to balance the additional costs caused by its mistakes, etc.)	2	2	4
12	Improper incoming inspection followed	Are under-inspection, over-inspection and/or improper rejection of deliverables (goods, material or method to carry out the work) a common problem?	2	2	4
13	Failure to monitor or ignoring supply disruptions	Are disruptions of the supplier's or contractors common?	2	1	2
14	No compliance check mechanism exist or followed for procurement	Are audits /evaluations of procurement conducted? If so, describe scope, frequency, who do them out, etc.	2	1	2
15	Missing of records or failure to keep the records up to date, missing or failure to maintain appeal records or records required for contracts compliance	Does the procuring organization keep a complete record of the process for contracts to be awarded on the basis of competitive bidding? This would include but not limited to ("e.g. copies of public advertisements, prequalification documents (if used), the prequalification evaluation report documenting any decisions not to prequalify certain potential bidders, the bidding documents and any addenda, a record of any pre-bid meetings, the bid opening minutes, the final bid evaluation report (including a detailed record of the reasons used to accept or reject each bid, copies of bids, appeals against procedures or award recommendations, a signed copy of the final contract and any performance and advance payment securities issued, etc.")	1	1	1
16	Missing of records or failure to keep the records up to date,	Are proper contract administration records kept? ("These would include contractual notices issued by the supplier, contractor, purchaser or employer; a detailed record of all change or variation orders issued affecting the scope, quantities, timing or price of the contract; records of invoices and payments; certificates of inspection, acceptance and completion; records of claims and disputes and their outcome;	1	1	1

#	Area of Risk	Proposed actions	Severity	Likelihood	Risk Level
		etc.”)			
17	Lack of controls on database	For small contracts or purchase orders for goods procured using cash procedures, is a catalogue / list maintained showing the current market price for usually/frequently needed items?	2	1	2
18	Failure to generate and maintain periodic reports or lack of clarity over responsibility for record keeping	Are timely mannered reports developed about procurement activities? Who prepare them and for whom?	2	1	2
19	Lack of well-defined selection criteria for hiring consultancy services or administration of consultation contracts	Are procuring organization capable of carrying out a professional selection process for consultation services? Do these organizations manage consultation contracts effectively?	2	3	6
20	Failure to follow procedure or selection of consultant from other than the qualified ones	Is the comparing competitive proposals submitted by a list of qualified firms the base of choosing the successful consultation firm? Where does the organization obtain the necessary information to develop lists? What the other methods are used and when they are used.	1	2	2
21	Lack of selection process and evaluation criteria	Dose the selection process and evaluation criteria described properly in requests for proposals?	2	2	4
22	Inadequate or irrelevant terms of reference defined for the assignment	Are the requirements of the assignment clearly and completely, including background, scope and objectives, deliverables, time frame, anticipated staff-time, and government contributions described properly in terms of reference?	2	1	2
23	Missing of criteria either technical or financial	Is the selection factor(s) established only on technical concerns or also on price?	2	1	2
24	Lack of well-defined weight age for technical criteria	Are technical criteria detailed and appropriate and their relative weights reasonable?	3	2	6
25	Failure to do the technical evaluation before opening of price bids	Are technical evaluations completed before opening and consideration of price proposals If price is also a selection factor? Are the relative weights chosen for each factor applicable?	2	1	2
26	Lack of standard conditions of contract and or inadequate to protect the interests of the client	Dose the organization has standard conditions of contract? Are these conditions ensure fairness and equitable to the consultant? Do	2	1	2



#	Area of Risk	Proposed actions	Severity	Likelihood	Risk Level
		these conditions protect the interests of the organization?			
27	Working out inaccurate / incorrect compensations	How the buying organizations compensate the consultant? And in what form (unit base or Lump sum or milestones)?	2	1	2
28	Is there any criteria defined to seek proposals / performance and or advance payments from consultants	Is it required from the consultants to submit proposal, performance and/or advance payment securities?	1	1	1
29	Lack of or failure to follow conflict of interest	Is the Conflict of interest policy provision included in the conditions of contract? (If so, explain/describe)	2	1	2
30	Use of incompetent persons or committees for evaluation	Is there an evaluation committee with appropriate expertise?	2	2	4
31	Breaching of evaluating criteria	Before conducting the evaluation, are the general criteria detailed into sub criteria agreed by the evaluating committee?	2	1	2
32	Applied inconsistent criteria	Are the evaluators applied all criteria fairly, consistently and impartially? Are the score sheets kept as part of the procurement record?	2	1	2
33	Failure to record essential details during evaluations	Are the evaluation reports containing necessary details of the process, results, and issues to be taken up during contract negotiations?	2	2	4
34	Failure to keep the time schedules for evaluations i.e. before validity period of proposals	Are the evaluations accomplished within the time originally requested for the validity of proposals?	2	2	4
35	Failure to monitor dissatisfaction or satisfaction levels	Perception of contractors /consultants /suppliers for the public tender as fair and efficient in their procurement practices	1	2	2
36	Lack of appropriate information over procurement needs	Poor information about procurement needs	1	2	2
37	Use of incompetent staff	Lack of experienced professionals	2	2	4
38	Lack of adequate training	Poor training of procurement staff	1	2	2
39	Failure to check whether planning was effective	Lack of procurement planning	2	2	4
40	Follow poor methods and procedures	Poor procurement methods and procedures	2	2	4
41	Failure to establish and follow standard	Lack of good standard procurement documents	2	2	4

#	Area of Risk	Proposed actions	Severity	Likelihood	Risk Level
	procurement documents				
42	Lack of well-defined technical specifications	Poor technical specifications (Goods only? Works?)	2	2	4
43	Weaker or lengthy contract approval procedures	Cumbersome contract approval procedures	1	3	3
44	No delegation of contracting authority	Lack of clear delegation of contracting authority	2	2	4
45	Influence of higher level officials	Interference by higher level officials	2	2	4
46	No or inadequate appeals mechanism	Inadequate appeals mechanism	1	2	2
47	Corruption or no transparency	Lack of anti-corruption measures and enforcement	2	2	4

**Table (4.6):** Residual Risks for Freeway Dubai Fujairah Procurement (Post- Procurement)

## **Chapter Five: Conclusions and Recommendations**

### **5.1 Conclusions**

According to the analysis and discussion in section 4 of this research paper, there are many risks that affected the Freeway Dubai Fujairah road and have not been considered by the project team during and before starting the project. Section 5.1.1 includes general conclusions for the risk management model and the section 5.1.2 includes the specific conclusions to the freeway Dubai Fujairah Road.

#### **5.1.1 General Conclusions**

The following are conclusions resulted out from the reviewing various literatures and researches conducted in the field:

- The risk assessment is a vital part of any project, and this part in becoming more vital with large projects, and hence public procurements are usually big and large projects, the risk management for this project is an important part that might lead to negative consequences.
- The project team in public procurement has to have a risk management plan that includes proper identifications of risk, quantifying risk, setting priorities, and strategies to be used to mitigate risks. This shall be a crucial part of any projects.
- The risk identification is a critical part for the success of risk management plan, therefore the risks identification shall be done through involving team members and using appropriate techniques such as focus groups, brainstorming, etc...
- The proposed risk management model can be a valuable asset for any public tenders, however the risk consequence and likelihood vary between projects.
- Procedure chosen for procurement, publicizing means of the tender, bid evaluation process, awarding of tender works and monitoring and evaluation of post-award events play vital role in fairness and transparency for procurement to obtain value for money.
- Competent, project specific procurement committee members shall be ensured for every major public tender for effective and efficient review of general and specific requirements of a particular purchase from legal, technical and financial standpoint, and take into consideration various elements to ensure transparency, fairness and accountability in the process.

- It is worth to make a review of whether pre-qualification process is required for the proposed public tender and conduct risk assessment. Public Procurement Cycle requires a thorough and comprehensive risk assessment to prevent or minimize the risks associated with procurement to obtain value for money.
- Risk assessment criteria or the tools being chosen shall require validation prior to their application to the tender cycle of any major complex project depending on type of project as this will also allow to make project specific conditions of contract to prevent or reduce any conflicts with bidders, contractors, consultants, stakeholders and any other interested parties or loss of value.
- Risks rating are equal at all phases of procurement, and the post procurement phase have the highest number of risks and the and more than half of them are with risk rating that exceed 8 which that it is at high risk rating.
- The mitigation actions to bridge the risk can ensure smooth implementation of the procurement and minimize the residual risks to the minimal level, however not all of the risks can removed as still some residual risks need to be monitored to remove the risks.

### **5.1.2 Specific Conclusions**

The analysis of risk for the Freeway Dubai Fujairah project has shown many areas that have not been considered during the implementation of the project; and the following was concluded:

- Although the project team within has done a wonderful job and the project has achieved its objectives, however there was many gaps that has not been properly managed during the project, and this involve:
  - Risks that have not been considered within the project and have not been identified or mitigated and caused some negative consequences.
  - Risks that have not been properly quantified in terms of impact, and therefore it caused bad consequences.
  - Risks that have quantified but not been monitored and proper mitigation plans have not been put in place.
- The project seems not to have proper procedures applied during the work of project committee, as it is noted that there are clear risk management plan has been used by contracting team.

- The project seems to have different risks during the tender lifecycle of the project, and most of the risks proposed in the model were applicable to the projects.
- The project analysis shows have specified that the resulted risks were in the following rating:
  - Around 4.5% of the risks where in the extreme risks and at range of more than 15 risk rating.
  - Around 56.8% of the risks where rated at risk rating of (8-14) at high risk.
  - More than 34% of the risks where rated at risk rating (4-6) at moderate risk.
  - 4.5 % of the risks where in the low level of risks at rate of (1-3).
- The actions that bee specified to mitigate the risks show high level of efficiency, and the residual risk rating have resulted with the following:
  - Around 1% of the residual risks are with high risk ratings.
  - Around 43.2% of the residual risks are with moderate risk ratings.
  - Around 55.6% of residual risks are with low risk ratings.
- There was no clear strategy to mitigate risks based on the risk rating level and no clear classifications for the mitigation strategy have been used.

## **5.2 Recommendations**

The recommendations below have been developed based the receiver and as per the following:

### **5.2.1 Recommendation for Procurement Staff**

- A clear risk management methodology/ mechanism are required to be developed, implemented, and followed to ensure the appropriate and effective implementation of the procurement lifecycle.
- Appropriate risk identification and assessment need to be developed for each project before proceeding with the procurement utilizing the public procurement risk model. Such identification and assessment can be developed through the concerned team and through brainstorming or focus group meetings. The output shall be risk register which also have be to updated and monitored throughout the entire procurement lifecycle.
- Clear risk management strategy and mitigation plans have to be developed and classified in accordance with the risks rating (Very High, High, Moderate, and Low).

- A lesson learning process shall be in place as such process can help improving the future projects by learning from the obstacles, failures, and areas for improvements occurred in the previous procurements.
- Special focus need to be given on the following areas as it gives the high sources of risks for procurements:
  - Inadequate controls over outsourced procurement/ lack of criteria for selection and evaluation.
  - Lack of clarity on specifications or desired outcomes.
  - Absence of pre-qualification process.
  - Use of incompetent persons or committees for evaluation.

### **5.2.2 Recommendations for Decision Makers**

- Public procurements usually huge and high cost, therefore supporting the procurement teams will have definite positive impact on the overall procurement efficiency and effectiveness.
- A third party certification for procurement could be a good option for the benefit of the organization involved in public procurement. Certification is the process by which the public purchaser demonstrates a standard of competency for the benefit of the public. Certification reflects established standards and competencies for those engaged in governmental purchasing, and attest to the purchaser's ability to obtain maximum value for the public money. Certification also validates the risk assessment and analysis adopted by the organization and provides valuable inputs for improvement through gaps and non-compliances.

### **5.2.3 Recommendations for Further Studies**

- Apply the risk management model developed in this study to more number of projects to validate and update so that it can be customized further to evaluate and contain risks associated with high value complex projects.
- Investigate what kind of risk management techniques are being used in different categories (major categories like oil & gas, construction, service sectors like logistics, retail sector etc.) of industries with reasons for their chose and application of such techniques. This may give an opportunity to study and find whether any possibility of introducing a sector specific

practices and techniques that can be applied as risk management tool(s) to minimize or prevent the risks involved in public tendering.

- Assessing the impact of developing software using the criteria suggested in this study for easy evaluation of risks as well as applying simulation studies for risk management.

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**Annexure 1: The Risk Management Model for Public Procurements**

S. No	Procurement stage	Analysis to identify areas of risks, potential threats, problems and weaknesses, failure mode effects  <b>(Phase 1)</b>	Base Risk Assessment & Rating <b>(Phase 2 and Phase 3)</b>				Proposed Actions and controls / Safe guardsto manage the unacceptable risks  <b>(Phase 4)</b>	Residual Risk Assessment & Ratingafter implementing controls <b>(Phase 5)</b>			Remarks or Costs (if required) based on monitoring the effectiveness of the controls enforced <b>(Phase 6)</b>
			Consequences or severity of harm (S)	Likelihood of occurrence (L)	Risk level (S*L)	Is the level of risk acceptable? (Yes / No)		Consequences or severity of harm (S)	Likelihood of occurrence (L)	Risk level (S*L)	
1	<b>General information</b>										
1.1	Organisation	Shortage of suitable information about procurement / staff are not updated about the rules , responsibilities and other matters related to their assigned tasks					Ensure for availability of well-defined procurement information  Conduct staff awareness training				
1.2	Delegation of authority	Lack of reasonably delegated contracting authorities					Ensure for establishing delegated contracting authorities and their communication				

S. No	Procurement stage	Analysis to identify areas of risks, potential threats, problems and weaknesses, failure mode effects <b>(Phase 1)</b>	Base Risk Assessment & Rating <b>(Phase 2 and Phase 3)</b>				Proposed Actions and controls / Safe guardsto manage the unacceptable risks <b>(Phase 4)</b>	Residual Risk Assessment & Ratingafter implementing controls <b>(Phase 5)</b>			Remarks or Costs (if required) based on monitoring the effectiveness of the controls enforced <b>(Phase 6)</b>
			Consequences or severity of harm (S)	Likelihood of occurrence (L)	Risk level (S*L)	Is the level of risk acceptable? (Yes / No)		Consequences or severity of harm (S)	Likelihood of occurrence (L)	Risk level (S*L)	
1.3	Quality control	Lack of internal quality and control mechanism					Establish and enforce internal quality control system				
1.4	Training	Staff incompetence / lack of adequate training in procurement					Conduct training needs identification  Provide adequate training and evaluation of effectiveness				
1.5	Procurement policies	Inadequate controls over outsourced procurement / lack of criteria for selection and evaluation					Define and follow criteria for selection and evaluation of suppliers				

S. No	Procurement stage	Analysis to identify areas of risks, potential threats, problems and weaknesses, failure mode effects <b>(Phase 1)</b>	Base Risk Assessment & Rating <b>(Phase 2 and Phase 3)</b>				Proposed Actions and controls / Safe guardsto manage the unacceptable risks <b>(Phase 4)</b>	Residual Risk Assessment & Ratingafter implementing controls <b>(Phase 5)</b>			Remarks or Costs (if required) based on monitoring the effectiveness of the controls enforced <b>(Phase 6)</b>
			Consequences or severity of harm (S)	Likelihood of occurrence (L)	Risk level (S*L)	Is the level of risk acceptable? (Yes / No)		Consequences or severity of harm (S)	Likelihood of occurrence (L)	Risk level (S*L)	
1.6	e-Procurement applications	Lack of computerized procurement monitoring and administration					Adopt computerized procurement for efficient tracking of key steps in procurement process				
2	<b>Pre-Tender</b>										
2.1	Pre-Tender Planning	No consultations with stake holders may lead to poor procurement strategy					Have consultations with stake holders and take opinions and feedback				
2.2	Lack of market research	No market research were conducted (benchmarking, analyzing the organizational needs etc...)					Market engagement while establishing requirements and procurement strategy in such a way that avoids giving unfair advantage to one or few suppliers, compliant with procurement regulations, ensure that strategy helps to achieve value for money				



S. No	Procurement stage	Analysis to identify areas of risks, potential threats, problems and weaknesses, failure mode effects <b>(Phase 1)</b>	Base Risk Assessment & Rating <b>(Phase 2 and Phase 3)</b>				Proposed Actions and controls / Safe guardsto manage the unacceptable risks <b>(Phase 4)</b>	Residual Risk Assessment & Ratingafter implementing controls <b>(Phase 5)</b>			Remarks or Costs (if required) based on monitoring the effectiveness of the controls enforced <b>(Phase 6)</b>
			Consequences or severity of harm (S)	Likelihood of occurrence (L)	Risk level (S*L)	Is the level of risk acceptable? (Yes / No)		Consequences or severity of harm (S)	Likelihood of occurrence (L)	Risk level (S*L)	
2.3	Developing specifications	Lack of clarity on specifications or desired outcomes					Provide sufficient details to market to respond to the requirements				
2.3	Developing specifications	Lack of clarity on specifications or desired outcomes					Use of outcome or output based specifications and specify exactly what is required				
2.3	Developing specifications	Lack of clarity on specifications or desired outcomes					Is the approach based on what authorities want to achieve rather how a supplier is to provide it				
2.3	Developing specifications	Lack of clarity on specifications or desired outcomes					Where applicable, ensure that whether existing or accepted industry standard is specified?				

S. No	Procurement stage	Analysis to identify areas of risks, potential threats, problems and weaknesses, failure mode effects <b>(Phase 1)</b>	Base Risk Assessment & Rating <b>(Phase 2 and Phase 3)</b>				Proposed Actions and controls / Safe guardsto manage the unacceptable risks <b>(Phase 4)</b>	Residual Risk Assessment & Ratingafter implementing controls <b>(Phase 5)</b>			Remarks or Costs (if required) based on monitoring the effectiveness of the controls enforced <b>(Phase 6)</b>
			Consequences or severity of harm (S)	Likelihood of occurrence (L)	Risk level (S*L)	Is the level of risk acceptable? (Yes / No)		Consequences or severity of harm (S)	Likelihood of occurrence (L)	Risk level (S*L)	
2.4	Document preparation	Lack of standardized formats					Make available standardized documents for goods, works (construction) and other types of contracts or select and use international contract formats				
2.5	Instructions to Bidders (ITBs)	Lack of complete information necessary to prepare responsive bids					Ensure that evaluation criteria and their method of application exist and they are understood by the bidders				
2.5	Instructions to Bidders (ITBs)	Ill-defined qualification criteria					Ensure that defined qualification criteria is appropriate and clearly described				
2.5	Instructions to Bidders (ITBs)	Poor definition of conditions of contract					Ensure that conditions of contract are adequate and ensure proper rules and tools of protection to the government without making unnecessary risk on bidders				

S. No	Procurement stage	Analysis to identify areas of risks, potential threats, problems and weaknesses, failure mode effects <b>(Phase 1)</b>	Base Risk Assessment & Rating <b>(Phase 2 and Phase 3)</b>				Proposed Actions and controls / Safe guardsto manage the unacceptable risks <b>(Phase 4)</b>	Residual Risk Assessment & Ratingafter implementing controls <b>(Phase 5)</b>			Remarks or Costs (if required) based on monitoring the effectiveness of the controls enforced <b>(Phase 6)</b>
			Consequences or severity of harm (S)	Likelihood of occurrence (L)	Risk level (S*L)	Is the level of risk acceptable? (Yes / No)		Consequences or severity of harm (S)	Likelihood of occurrence (L)	Risk level (S*L)	
2.6	Pre-qualification	Absence of pre-qualification process					Review and conduct pre-qualifications whenever required				
2.6	Pre-qualification	Lack of fair and transparent pre-qualification process					Establish and follow fair and transparent pre-qualification process				
2.6	Pre-qualification	Failure to ensure continued sustenance bidders compliance post prequalification					Have mechanism to confirm just before contract award if a successful bidder continues to meet pre-qualification requirements/needs?				

S. No	Procurement stage	Analysis to identify areas of risks, potential threats, problems and weaknesses, failure mode effects <b>(Phase 1)</b>	Base Risk Assessment & Rating <b>(Phase 2 and Phase 3)</b>				Proposed Actions and controls / Safe guardsto manage the unacceptable risks <b>(Phase 4)</b>	Residual Risk Assessment & Ratingafter implementing controls <b>(Phase 5)</b>			Remarks or Costs (if required) based on monitoring the effectiveness of the controls enforced <b>(Phase 6)</b>
			Consequences or severity of harm (S)	Likelihood of occurrence (L)	Risk level (S*L)	Is the level of risk acceptable? (Yes / No)		Consequences or severity of harm (S)	Likelihood of occurrence (L)	Risk level (S*L)	
2.6	Pre-qualification	Lack of maintenance and updation of list of qualified suppliers					Does the entity maintains updated list of qualified suppliers, updated market information				
2.6	Pre-qualification	No intermittent check exist for financial information					Dose the financial information requested regularly and carefully evaluated to assess a bidder's financial competency to execute?				
2.6	Pre-qualification	Lack of registration process					Establish and follow process of registration				
2.6	Pre-qualification	Entry of new comers restricted hence loss of potential					Ensure that the registration process is open any time for newcomers?				
2.7	Advertisement	Failure to follow competitive bidding process					Ensure that contracts required competitive bidding are publicly advertised?				

S. No	Procurement stage	Analysis to identify areas of risks, potential threats, problems and weaknesses, failure mode effects <b>(Phase 1)</b>	Base Risk Assessment & Rating <b>(Phase 2 and Phase 3)</b>				Proposed Actions and controls / Safe guardsto manage the unacceptable risks <b>(Phase 4)</b>	Residual Risk Assessment & Ratingafter implementing controls <b>(Phase 5)</b>			Remarks or Costs (if required) based on monitoring the effectiveness of the controls enforced <b>(Phase 6)</b>
			Consequences or severity of harm (S)	Likelihood of occurrence (L)	Risk level (S*L)	Is the level of risk acceptable? (Yes / No)		Consequences or severity of harm (S)	Likelihood of occurrence (L)	Risk level (S*L)	
2.7	Advertisement	Failure to give sufficient time to respond					Ensure for sufficient time is allowed to obtain documents and preparing bids				
2.7	Advertisement	Communication failure					Add instructions to make the useful use of use of publications or websites which are available to the public and are known to the private sector as sources of information for public tenders				
2.8	Communication between Bidders and the government procurement agency	No response or delayed response to queries					Dose the request(s) for clarifications are answered directly and are they completely documented properly such as (written form)?				

S. No	Procurement stage	Analysis to identify areas of risks, potential threats, problems and weaknesses, failure mode effects <b>(Phase 1)</b>	Base Risk Assessment & Rating <b>(Phase 2 and Phase 3)</b>				Proposed Actions and controls / Safe guardsto manage the unacceptable risks <b>(Phase 4)</b>	Residual Risk Assessment & Ratingafter implementing controls <b>(Phase 5)</b>			Remarks or Costs (if required) based on monitoring the effectiveness of the controls enforced <b>(Phase 6)</b>
			Consequences or severity of harm (S)	Likelihood of occurrence (L)	Risk level (S*L)	Is the level of risk acceptable? (Yes / No)		Consequences or severity of harm (S)	Likelihood of occurrence (L)	Risk level (S*L)	
2.7	Communication between Bidders and the government procurement agency	Failure for timely communication of information to bidders					Are clarifications, minutes of the pre-bid conference, if any, and modifications of the documents promptly communicated to all prospective bidders?				
2.7	Communication between Bidders and the government procurement agency	Not given enough time to bidders to revise bids					Are bidders afforded sufficient times to revise their bids following a modification of the documents?				
2.7	Communication between Bidders and the government procurement agency	Failure to keep records of communication					Do procuring organizations maintain records of all communications with the bidders / vendors (before and after the deadline for submission)?				

S. No	Procurement stage	Analysis to identify areas of risks, potential threats, problems and weaknesses, failure mode effects <b>(Phase 1)</b>	Base Risk Assessment & Rating <b>(Phase 2 and Phase 3)</b>				Proposed Actions and controls / Safe guardsto manage the unacceptable risks <b>(Phase 4)</b>	Residual Risk Assessment & Ratingafter implementing controls <b>(Phase 5)</b>			Remarks or Costs (if required) based on monitoring the effectiveness of the controls enforced <b>(Phase 6)</b>
			Consequences or severity of harm (S)	Likelihood of occurrence (L)	Risk level (S*L)	Is the level of risk acceptable? (Yes / No)		Consequences or severity of harm (S)	Likelihood of occurrence (L)	Risk level (S*L)	
2.8	Receipt of bids and opening	Failure to secure received bids					Dose the procurement department securely store the received bids before the deadline?				
2.8	Receipt of bids and opening	Fail to follow procedure for opening of bids					Are public bid openings conducted in committee? Is there a tenders opening committee?				
2.8	Receipt of bids and opening	Fail to follow procedure for opening of bids					If so, dose the opening committee meet at a specified place and time closely to the deadline of submission?				
2.8	Receipt of bids and opening	Fail to follow procedure for opening of bids					What is the information that the opening committee read them out at the opening time? Is the minutes of meetings kept?				
2.8	Receipt of bids and opening	Fail to follow procedure for opening of bids					Do bid opening procedures differ for goods, works, services or consultation etc... (Other type contracts)? If so, how?				
2.9	Bid examination and evaluation	No existence of qualified evaluating committees					Are committees qualified for conducting the evaluations?				

S. No	Procurement stage	Analysis to identify areas of risks, potential threats, problems and weaknesses, failure mode effects <b>(Phase 1)</b>	Base Risk Assessment & Rating <b>(Phase 2 and Phase 3)</b>				Proposed Actions and controls / Safe guardsto manage the unacceptable risks <b>(Phase 4)</b>	Residual Risk Assessment & Ratingafter implementing controls <b>(Phase 5)</b>			Remarks or Costs (if required) based on monitoring the effectiveness of the controls enforced <b>(Phase 6)</b>
			Consequences or severity of harm (S)	Likelihood of occurrence (L)	Risk level (S*L)	Is the level of risk acceptable? (Yes / No)		Consequences or severity of harm (S)	Likelihood of occurrence (L)	Risk level (S*L)	
2.9	Bid examination and evaluation	Lack of ad hoc evaluating committees for bid evaluations					Are evaluating committees appointed based on the nature of tender for each evaluation?				
2.9	Bid examination and evaluation	Failure to follow set criteria for bid evaluation					Is the exercise of bid evaluations carried out based on the specified criteria in the tender documents?				
2.9	Bid examination and evaluation	Unaccounted deviations followed for evaluation criteria or failure to record actual criteria followed with justifications					Is the selected bidder's qualification to perform the contract/tender determined only on the basis of the stated criteria in the tendering documents? (See above) If not, what other criteria are considered?				



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2.9	Bid examination and evaluation	Missing of target dates for completion of evaluations within the original bid validity period					Are evaluations usually accomplished within the original bid validity period?				
2.9	Bid examination and evaluation	Absence of bid evaluation reports or failure to state reasons for rejecting bids, failure to state reasons for acceptance or rejection of bidders qualifications					Are reports of bid evaluation containing all important information (i.e. clear and complete description of the evaluation process, mentioning the reasons for rejecting any bid as non-responsive, how the stated evaluation criteria were applied, and how the selected bidder's qualifications were verified)?				

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2.9	Bid examination and evaluation	Failure to notice or take in to account of differences between goods and works					Describe any noteworthy differences between goods, works and services procurement relating to the previous point				
2.10	Contract award and effectiveness	Failure to determine whether lowest evaluated bidder is qualified to perform execute					The lowest price evaluated bid from the bidder - who was determined to be qualified to execute the contract satisfactorily- shall be awarded the contract?				
2.10	Contract award and effectiveness	Negotiations conducted with bidders after selection					Are negotiations performed with bidders, afore or after selection?				

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2.10	Contract award and effectiveness	Failure to obtain all government approvals before award of contracts					Any additional Governmental approvals are required before making contracts to be effective?				
2.10	Contract award and effectiveness	No criteria followed for working out the performance security / bond amount					Is performance security bonds required (in a reasonable amount and in a reasonable format)?				
2.10	Contract award and effectiveness	Failure to notice or take in to account of differences between goods and works					Describe any differences between goods, works and services relating to the previous point				

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3	<b>Post Procurement</b>										
3.1	Contract administration	Lack of computerized procurement / contract monitoring systems					What are the systems used for monitoring contracts (manual or computerized)?				
3.1	Contract administration	Failure to make payments on time to suppliers, losing credibility of preferred customer					Are the payments done on time in general? What is the time shall be lapsed from invoice submission date to final payment?				

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			Consequences or severity of harm (S)	Likelihood of occurrence (L)	Risk level (S*L)	Is the level of risk acceptable? (Yes / No)		Consequences or severity of harm (S)	Likelihood of occurrence (L)	Risk level (S*L)	
3.1	Contract administration	No or weaker mechanism for quality and quantity checks and no monitoring for keeping schedules					Are appropriate procedures to monitor delivery of goods and services to verify quantity, quality and timeliness in place?				
3.1	Contract administration	No change management or failure to follow change mechanism hence lead to loss of money and or time					Are contract changes and/or variations handled immediately in accordance with the contract terms and conditions and available practice (i.e. change/variation orders are given and/or confirmed in writing, constructive change orders are prohibited, unit rates in the contract are honored but the supplier or contractor is allowed to agree to any new unit rates introduced and the completion schedule for each change or variation, etc.)?				

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3.2	Disputes management	Failure to resolve disagreements informally					Dose the Informal negotiations followed to resolve disagreements with making a good faith attempts?				
3.2	Disputes management	Failure to handle disputes according to contract conditions					If the informal negotiations fails, are the resulting disputes handled in accordance with the contract conditions and applied laws?				
3.3	Contract performance	No clarity over obligations under the contract					Are claims of supplier and contractor handled fairly based on their obligations under the contract?				
3.3	Disputes management	Failure to respond in timed manner, failure to document all actions of contractual import					Are contract administrators have the necessary skills in resolving problems and dealing with unforeseen situations arising during the implementation of the contract? Do they effectively document all actions of contractual import taken by the purchase during implementation of the contract?				

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3.3	Disputes management	Misuse of contractual remedies					Are contractual remedies utilized effectively and in accordance with the contract terms conditions?				
3.3	Disputes management	Failure to monitor time and price keeping during the contract completion cycle					The outcomes of contracts generally delivered as scheduled and within the originally approved contract price? Or are cost and time overruns frequent? If so, in which sectors and for which types of contracts? Are fair final acceptance procedures implemented and certificates issued in a timely manner?				
3.3	Disputes management	Granting extensions without considering whether delays are attributable or not					Are contracts generally managed in a fair and reasonable manner (e.g. the purchaser grants extensions of time when delays are contribute to its un-timely action, fair payments is paid to balance the additional costs caused by its mistakes, etc.)				
3.3	Disputes management	Improper incoming inspection followed					Are under-inspection, over-inspection and/or improper rejection of deliverables (goods, material or method to carry out the work) a common problem?				

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3.3	Disputes management	Failure to monitor or ignoring supply disruptions					Are disruptions of the supplier's or contractor's common?				
3.3	Disputes management	No compliance check mechanism exist or followed for procurement					Are audits /evaluations of procurement conducted? If so, describe scope, frequency, who do them out, etc.				



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3.4	Record keeping	Missing of records or failure to keep the records up to date, missing or failure to maintain appeal records or records required for contracts compliance					Does the procuring organizationkeep a complete record of the process for contracts to be awarded on the basis of competitive bidding? This would include but not limited to (“e.g. copies of public advertisements, prequalification documents (if used), the prequalification evaluation report documenting any decisions not to prequalify certain potential bidders, the bidding documents and any addenda, a record of any pre-bid meetings, the bid opening minutes, the final bid evaluation report (including a detailed record of the reasons used to accept or reject each bid, copies of bids, appeals against procedures or award recommendations, a signed copy of the final contract and any performance and advance payment securities issued, etc.”)				

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3.4	Record keeping	Missing of records or failure to keep the records up to date,					Are proper contract administration records kept? (“These would include contractual notices issued by the supplier, contractor, purchaser or employer; a detailed record of all change or variation orders issued affecting the scope, quantities, timing or price of the contract; records of invoices and payments; certificates of inspection, acceptance and completion; records of claims and disputes and their outcome; etc.”)				
3.4	Record keeping	Lack of controls on database					For small contracts or purchase orders for goods procured using cash procedures, is a catalogue / list maintained showing the current market price for usually/frequently needed items?				

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3.4	Record keeping	Failure to generate and maintain periodic reports or lack of clarity over responsibility for record keeping					Are timely mannered reports developedabout procurement activities? Who prepare them and for whom?				
3.5	Selection of consultants	Lack of well-defined selection criteria for hiring consultancy services or administration of consultation contracts					Are procuring organization capable of carrying out a professional selection process for consultation services? Do these organizations manage consultation contracts effectively?				

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3.5	Selection of consultants	Failure to follow procedure or selection of consultant from other than the qualified ones					Is the comparing competitive proposals submitted by a list of qualified firms the base of choosing the successful consultation firm? Where does the organization obtain the necessary information to develop lists? What the other methods are used and when they are used.				
3.5	Selection of consultants	Lack of selection process and evaluation criteria					Dose the selection process and evaluation criteria described properly in requests for proposals?				
3.5	Selection of consultants	Inadequate or irrelevant terms of reference defined for the assignment					Are the requirements of the assignment clearly and completely, including background, scope and objectives, deliverables, time frame, anticipated staff-time, and government contributions described properly in terms of reference?				
3.5	Selection of consultants	Missing of criteria either technical or financial					Is the selection factor(s) established only on technical concerns or also on price?				

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3.5	Selection of consultants	Lack of well-defined weightage for technical criteria					Are technical criteria detailed and appropriate and their relative weights reasonable?				
3.5	Selection of consultants	Failure to do the technical evaluation before opening of price bids					Are technical evaluations completed before opening and consideration of price proposals If price is also a selection factor? Are the relative weights chosen for each factor applicable?				
3.5	Selection of consultants	Lack of standard conditions of contract and or inadequate to protect the interests of the client					Dose the organization has standard conditions of contract? Are these conditions ensure fairness and equitable to the consultant? Do these conditions protect the interests of the organization?				
3.5	Selection of consultants	Working out inaccurate / incorrect compensations					How the buying organization compensate the consultant? And in what form (unit base or Lump sum or milestones)?				

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3.5	Selection of consultants	Is there any criteria defined to seek proposals / performance and or advance payments from consultants					Is it required from the consultants to submit proposal, performance and/or advance payment securities?				
3.5	Selection of consultants	Lack of or failure to follow conflict of interest					Is the Conflict of interest policy provision included in the conditions of contract? (If so, explain/describe)				
3.5	Selection of consultants	Use of incompetent persons or committees for evaluation					Is there an evaluation committee with appropriate expertise?				
3.5	Selection of consultants	Breaching of evaluating criteria					Before conducting the evaluation,are the general criteria detailed into sub criteria agreed by the evaluating committee?				

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3.5	Selection of consultants	Applied inconsistent criteria					Are the evaluators applied all criteria fairly, consistently and impartially? Are the score sheets kept as part of the procurement record?				
3.5	Selection of consultants	Failure to record essential details during evaluations					Are the evaluation reports containing necessary details of the process, results, and issues to be taken up during contract negotiations?				
3.5	Selection of consultants	Failure to keep the time schedules for evaluations i.e. before validity period of proposals					Are the evaluations accomplished within the time originally requested for the validity of proposals?				
3.6	Procurement performance	Failure to monitor dissatisfaction or satisfaction levels					Perception of contractors /consultants /suppliers for the public tender as fair and efficient in their procurement practices				

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3.6	Procurement performance	Lack of appropriate information over procurement needs					Poor information about procurement needs				
3.6	Procurement performance	Use of incompetent staff					Lack of experienced professionals				
3.6	Procurement performance	Lack of adequate training					Poor training of procurement staff				
3.6	Procurement performance	Failure to check whether planning was effective					Lack of procurement planning				
3.6	Procurement performance	Follow poor methods and procedures					Poor procurement methods and procedures				



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3.6	Procurement performance	Failure to establish and follow standard procurement documents					Lack of good standard procurement documents				
3.6	Procurement performance	Lack of well-defined technical specifications					Poor technical specifications (Goods only? Works?)				
3.6	Procurement performance	Weaker or lengthy contract approval procedures					Cumbersome contract approval procedures				
3.6	Procurement performance	No delegation of contracting authority					Lack of clear delegation of contracting authority				
3.6	Procurement performance	Influence of higher level officials					Interference by higher level officials				

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3.6	Procurement performance	No or inadequate appeals mechanism					Inadequate appeals mechanism				
3.6	Procurement performance	Corruption or no transparency					Lack of anti-corruption measures and enforcement				