

**T.C.
ISTANBUL GEDİK UNIVERSITY
INSTITUTE OF GRADUATE STUDIES**



RISK MANAGEMENT OF PPP PROJECTS IN IRAQ

MASTER'S THESIS

Mohammed Hussain MOTLAG

Engineering Management Department

Engineering Management Master in English Program

NOVEMBER 2021

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Thesis Advisor: Assist. Prof. Dr. Redvan GHASEMLOUNIA

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DECLARATION

I, Mohammed Hussain MOTLAG, do hereby declare that this thesis titled as “Risk Management of PPP Projects in Iraq” is original work done by me for the award of the masters degree in the faculty of Engineering Management. I also declare that this thesis or any part of it has not been submitted and presented for any other degree or research paper in any other university or institution. (09.11.2021)

Mohammed Hussain MOTLAG



DEDICATION

To my parents.... Without them, I would not exist in this life, and from them I learned resilience, no matter the difficulties.

To my dear wife and angel

To my brothers and sister

To my dear supervisors Assist. Prof. Dr. Redvan Ghasemlounia, who have spared no effort in providing me with information and data

To colleagues and friends

I dedicate this research to you.



LIST OF CONTENTS

	<u>Page</u>
LIST OF CONTENTS	v
LIST OF ABBREVIATION	vii
LIST OF TABLES	viii
LIST OF FIGURES	ix
ABSTRACT	x
ÖZET	xi
1. INTRODUCTION	1
1.1 Background	1
1.2 The Aim of the Study	5
1.3 Research Methodology	5
1.4 The Organization of the Thesis	5
2. LITERATURE REVIEW	7
2.1 Partnership Arrangement in PPP	8
2.2 Particular Diversity of PPP.....	9
2.2.1 Optimal sharing of responsibilities, resources and risk (3R).....	9
2.2.2 Amplifying value for public stakeholders	10
2.3 PPP Structure.....	11
2.4 PPP Globally	12
2.5 Negative Factors of PPP Projects	13
2.6 Application to PPP	15
2.7 Partner Commitment to Evaluate Project Suitability	19
2.8 Assessment Related to Environmental Change	20
2.9 Risk Management.....	21
2.9.1 Characterizing the issue of risk.....	22
2.9.2 Overseeing risk in the public sector.....	23
2.9.3 Risk identification.....	23
2.9.4 Risk in PPP projects.....	24
2.10 Risk Management and PPP Contract Conditions	26
2.10.1 Identifying the risk factors	27
2.10.2 Types of risk factors	28
2.10.3 Problems of the risk factors	31
2.11 Clarify the Responsibility of the Partners	34
2.11.1 The role and responsibilities of the particular partner	34
2.11.2 The role of contract administration by the government.....	35
2.11.3 The role of civil engineer in the PPP	36
2.12 PPP in Iraq.....	37
3. METHODOLOGY	38
3.1 Data Collection Procedures	38
3.2 Interview Design	40
3.3 Survey Description	41
3.4 Analysis Process of the Research Data	44

3.5 Validation of the Frameworks	45
3.6 Validity and Reliability	46
3.7 Assessment of Normality	48
3.8 Reflexivity	49
4. RESULTS AND ANALYSIS.....	52
4.1 Study Results	52
4.1.1 General characterization of respondents	52
4.1.2 Risk factors and risk allocation preferences	54
4.1.2.1 Political acceptability.....	54
4.1.2.2 Social soundness and Environmental impact.....	55
4.1.2.3 Technical.....	56
4.1.2.4 Financial and economic risks factors	57
4.1.3 Factor analysis	58
4.2 Discussion of the Results.....	59
5. CONCLUSIONS AND RECOMMENDATIONS.....	67
5.1 Conclusion.....	67
5.2 Recommendations	69
REFERENCES.....	72
APPENDIX.....	76
RESUME.....	80

LIST OF ABBREVIATION

IFC	: International Finance Corporation
IT	: Information Technology
MIS	: Management Information Systems
PPP	: Public–Private Partnership
PFI	: Private Finance Initiative
QMS	: Quality Management System



LIST OF TABLES

	<u>Page</u>
Table 2.1: Checklist of PPP Risk Factors	28
Table 3.1: Likert scale	43
Table 3.2: Normality assessment using skewness and kurtosis	49
Table 3.3: Kolmogorov-Smirnov and Shapiro-Wilk tests of normality.....	49
Table 3.4: Classification of risk factors.....	50
Table 4.1: Risk factors assessment.....	59



LIST OF FIGURES

	<u>Page</u>
Figure 1.1: Flowchart of the study variables.....	6
Figure 3.1: Methodology process flowchart of the study	38
Figure 4.1: Distribution of respondents by sector (n=60).....	53
Figure 4.2: Distribution of the participants by the carrier.....	53
Figure 4.3: Distribution of the participants by years of experience.....	54
Figure 4.4: Distribution of participants by project types	54
Figure 4.5: Political acceptability and legality factor assessment	55
Figure 4.6: Social soundness and Environmental factor assessment	56
Figure 4.7: Technical factor assessments.....	57
Figure 4. 8: Financial and economic factor assessment	58

RISK MANAGEMENT OF PPP PROJECTS IN IRAQ

ABSTRACT

The issue of partnership between the public and private sectors has received great attention from governments, societies and research centers around the world, after it became clear that the process of economic and social development depends on mobilizing and pooling all the capabilities of society, including the energies, resources and expertise of both the public and private sectors. In developing countries and specifically Iraq, the concept of public-private partnership (PPP) is relatively new to the government, as the government has historically assumed most of the responsibility for providing public services and acquiring huge construction projects. However, with the increase in the number of these projects in Iraq, and despite the great advantages expected of them, it turns out that these projects are fraught with many risks that would impede their success and contribute to their failure.

Hence, this study aimed to investigate the impact of risk management processes on the success of the PPP projects in Iraq, by identifying the most prevalent and influential risk factors on the success of PPP Iraqi construction projects. The research relied on questionnaires with actual companies and employers to determine the most critical risk factors and suggest appropriate operations to manage these risk factors.

It was found through quantitative and qualitative analysis of the data, that there is a statistically significant correlation between the three risk factors categories (technical, financial and economic, political acceptance and legitimacy) and the success of PPP projects in Iraq, while social soundness and environmental impact did not appear to have a statistically significant relationship with the success of the PPP project. It was also concluded that in terms of the strongest impact of the four risk categories on the success of PPP projects in Iraq, the political acceptance and legitimacy factor had the strongest impact, i.e., it was the biggest risk factor, then the financial and economic factor, followed by the technical factor, and finally the social and environmental factor. Eventually, the study recommends PPP project managers to provide an appropriate level of oversight regarding the risks they face, which include (risk transfer, avoidance, mitigation and acceptance), and to hold training courses on risk management and provide non-formal education through career development programs to increase awareness of risk management and its application within the PPP projects.

Keywords: Public-Private Partnership (PPP), Iraq, Risk factors, Construction, Risk Management.

IRAK'TAKİ KAMU-ÖZEL ORTAKLIĞI PROJELERİNİN RİSKLERİNİN YÖNETİMİ

ÖZET

Kamu ve özel sektör arasındaki ortaklık konusu, ekonomik ve sosyal kalkınma sürecinin toplumun tüm yeteneklerini harekete geçirmeye ve toplamaya bağlı olduğu netleştikten sonra, dünyanın dört bir yanındaki hükümetler, toplumlar ve araştırma merkezlerinden geniş bir ilgi gördü, kamu ve özel sektörlerin enerjileri, kaynakları ve uzmanlığı dahil. Kamu ve özel sektör arasındaki ortaklık kavramı, özellikle gelişmekte olan ülkelerde, özellikle Irak'ta hükümet için nispeten yenidir. Tarih boyunca hükümet, kamu hizmetlerinin sağlanması ve büyük inşaat projelerinin kurulması sorumluluğunun çoğunu üstlenmiş, ancak artışla birlikte Irak'taki bu projelerin sayısında ve onlardan beklenen büyük avantajlara rağmen, bu projelerin başarılarını engelleyecek ve başarısızlıklarına katkıda bulunacak birçok riskle dolu olduğu ortaya çıkıyor.

Bu nedenle, bu çalışma, Irak'taki (KÖİ) projelerinin başarısı üzerinde en yaygın ve etkili risk faktörlerini belirleyerek, risk yönetimi süreçlerinin Irak'taki KÖİ projelerinin başarısı üzerindeki etkisini araştırmayı amaçlamaktadır. Araştırma, en önemli risk faktörlerini belirlemek ve bu risk faktörlerini yönetmek için uygun süreçleri önermek için şirketler ve fiili işverenlerle yürütülen anketlerin kullanımına dayanıyordu.

Verilerin nicel ve nitel analizi yoluyla, Irak'taki kamu-özel ortaklığı projelerinin başarısı ile dört risk faktörü kategorisi (teknik, finansal, ekonomik, siyasi kabul ve meşruiyet) arasında istatistiksel olarak anlamlı bir ilişki olduğu bulunmuştur. sosyal güvenliğin çevresel bir etkisi yok gibi görünüyor ve kamu-özel ortaklığı projesinin başarısını etkileyen istatistiksel olarak anlamlı bir ilişki olarak kabul ediliyor. Dört risk kategorisinin Irak'taki KÖİ projelerinin başarısı üzerindeki en güçlü etkisi açısından, en güçlü etkiye sahip olanın siyasi kabul ve meşruiyet faktörü olduğu, yani en büyük risk faktörü olduğu sonucuna da ulaşılmıştır. finansal ve ekonomik faktör. Sonra teknik, ardından sosyal ve çevresel faktör. Sonuç olarak, çalışma, KÖİ projelerinin yöneticilerinin, risk yönetimi konusunda eğitim kursları düzenlemenin ve yaygın eğitim sağlamanın yanı sıra, (risk transferi, kaçınma, azaltma ve kabul) dahil olmak üzere karşılaştıkları risklerle ilgili uygun bir gözetim düzeyi sağlamasını önermektedir. risk yönetimi bilincini artırmaya odaklanan kalkınma programlarının hazırlanması ve kamu ve özel sektör arasındaki ortaklık projelerinde uygulanır.

Anahtar Kelimeler: *Kamu-Özel Ortaklığı, Irak, Risk Faktörleri, İnşaat, Risk Yönetimi.*

1. INTRODUCTION

1.1 Background

Over ongoing years, there have been short increments in the utilization of Public-Private Partnerships (PPP) in a spot of conventional acquisition. PPP can be recognized as an obtainment involving general society and private areas to accomplish a shared objective.

Governments around the globe have utilized PPP as an elective way to deal with the standard acquisition techniques because of the advantages acquired from private area interest: elective financing, positive effect on quality and proficiency, and offering some incentive for cash. Regardless of its focal points, PPP has been the subject of various investigations examining whether it truly is good for the citizen and different partners. Comprehensively, PPP has been examined and researched from numerous fields, such as political theory, law policy implementation, and bookkeeping (Zhang, Tariq, & Management, 2020).

By and by, where most examinations' destinations were to comprehend the idea of PPP and its positive results, there are likewise feelings on the downsides of PPP and its weaknesses. For example, the total cost of optimizing optimization expenditures, the cost of capital borrowing by the private sector is much higher than that made by the public domain. The private plan area, given the idea of the private area as a commercial element that serves as a principal or benefit (Lam & Yang, 2020). PPP allows privately owned businesses to expand their clout in the public authority's emotional cycle and strategy improvement. (Han, Jia, Wu, & Yang, 2020)

Most open offices are created by the public area utilizing public cash. Subsequently, the possession has a place in the public area. Because of the development in the interest for foundation, restricted public assets to meet current and future requirements, and acknowledgement of a more impressive job for the private area in the arrangement of the framework, elective strategies for financing public offices and administrations have been embraced by the public area. One strategy for the

arrangement of public labor and products is public and private organization.

Anyway, PPP well known is around the world. It carries a few dangers that both the public and private areas, including the clients of public labor and products, need to address and oversee—two commitments in the danger evaluation and the board of a PPP project ring a bell. First, the necessity for a dangerous move component in PPP game plans; the dangers to be moved ought to be distinguished, dissected and presumably evaluated. Also, PPP obtainment techniques are related to numerous traps, vulnerabilities and dangers to the legislatures and the private areas.

Hazard and hazard the board of development PPP plans, eminently of BOT and PFI, have been broadly discussed by many. However, they have not had the option to give a coordinated danger the executives' arrangement which joins hazard investigation and portion in a PPP project climate. This paper aims to give a calculated system to hazard examination, which would assist with deciding the rule of hazard assignment for PPP projects.

On the world, stage public-private associations have introduced an opportunity not exclusively to expand productivity but also to limit the weight for compelled public area financial plan. Because of restrictions in accessible financing and the constantly expanding need for frames, or more so in agricultural nations, PPPs are required more in non-industrial nations and change economy public-private partnerships would guarantee expanded financial development and inflow of private capital into these nations. For this examination, the impact of political dangers on public-privately private associations environmentally friendly power public-private partnerships then again whenever characterized by a solitary agreement. The public bears the dangers in customary agreement, while in open private associations, hazards are shared impartially between general society and the private financial backer. The upside of public, private associations are acknowledged as far as the worth of the task being attempted, better arranging, admittance to private money, adaptability, creativity and clear objectives. Energy, broadcast communications, transport, water and sewerage are among the framework labor and products conveyed through open private associations. This investigation was centered on open private organizations environmentally friendly power projects.

Political danger components can impact business arrangements and, surprisingly, the essential global speculation deals. Political dangers are showed through money

inconvertibility, the break of agreement, confiscation, political savagery, nongovernmental activities and legitimate and regulatory dangers. An investigation of political dangers for interests in open private associations in china and other Asian nations, including Indonesia and Vietnam, showed that political dangers impact the choice and execution of Public-Private Partnership projects by financial backers. Presumed that internationally, non-industrial nations report more significant levels of venture hazards, concentrating on significant chances factors.

One of the difficulties Kenya is looking at in quest for vision 2030 is enormous holes in the foundation's financing. For example, the vehicle area faces a financing hole of 0.14 billion US dollars. Kenya, for example, requires around 236 billion Kenyan shilling (KES) every year to meet its current and future energy needs. This required her to look past her lines for improvement offices just as unfamiliar financial backers. Public-Private Partnerships have given a chance to nations not exclusively to lessen the weight made by imperative in the public financial plans yet add to more excellent turn of events.

Some writing has examined these angles. A few investigations perceived the three-sided nature of public-private ties as the vital instrument forming esteem circulation. Afterwards, they recognized administration explicit filter esteem claims by open entertainers and social activists as fundamental limitations on the private worth catch. Public-private organizations in medical care ought to be substantially more about guaranteeing that dangers emerging from the turn of events and activity of medical services framework are ideally distributed among public and private accomplices through packaging exercises and utilizing the instalment component accordingly diminishing the danger charge.

There are various kinds of administration instruments to address hazards. A few examinations adopted a comprehensive strategy to recognize eight administration instruments to address exchange risks dependent on contracting speculations. They inferred that adaptability, believability, and rivalry are fundamental to deciding the achievement or disappointment of PPP projects.

Some work has investigated themes, for example, renegotiation and legally binding plans as approaches to address lifecycle vulnerability just as counterparty activities during PPP execution and tasks. Different examinations introduced two related examinations looking at how administration techniques can address a vulnerability in

PPP projects and showed the need for responsiveness and complementarity of legally binding and social components in PPPs. Execution based contracting plans likewise arise in government obtainment areas, including as a component of complex execution including, public-private associations. The exhibition based agreement is a promising legally binding mode that empowers colleagues to embrace "use as opposed to possessing" systems.

A portion of the regularly received danger the board examination strategies have been accounted for in the worldwide development of the executive's diaries. An itemized investigation of the legally binding construction, hazard sharing plan, hazard reaction measures to fundamental danger factors, and a PPP project task move. Directed a special writing audit and characterized five constitutive regions, the specific incentive for cash, hazard assurance and allotment, monetary danger move, risk contracting, risk board in post development. Because of Monte Carlo's re-enactment, some investigations have promoted another approach: net present estimation in risk strategy, which can give a better option for risk assessment, and interest in secretly funded framework projects.

The Analytical Hierarchy Process investigates the progressive system of hazard pointers inside each level and decides the overall significance of the danger markers by setting up needs among the measures, sub-rules, and markers, proposing a danger appraisal model for worldwide development projects. Specialists have been embracing more convoluted strategies. A danger likelihood and effect appraisal structure dependent on fluffy issue tree and the Delphi strategy, which incorporates broad situation displaying of primary dangers in projects and deliberate preparing of expert judgment (abstract information on) specialists, and is created and exhibited with regards to primary dangers in Indian formwork move (BOT) street projects. Numerous explores utilized a three-dimensional model that included likelihood, misfortunes, and wildness for hazard appraisal and utilized a logical order measure for weight assurance and the dim fluffy strategy for evaluation. Different investigations proposed an ex-post danger the board model that presented renegotiations and early terminations, starting with hazard sway assessment and afterwards the appraisal, determination, and requirement of ex-post danger reaction measures.

1.2 The Aim of the Study

One of the key features or characteristics is estimating the optimal sharing of Risk by allocated to the party who is the best able to manage and emphasize risk allocation in construction projects.

The research objectives of this dissertation, therefore, are to conduct an extensive literature search of information and documentation on this topic to be able to:

1. Making a holistic study by identifying PPP models as a successful implementation for projects
2. Appreciate the fundamentals of PPP in infrastructure projects
3. Identify the risks that vest in this project to identify, assess and mitigate these risks.

The research presented an extensive literature search from various textbooks, journals, articles, web websites discussions with professionals from the construction industry regarding the topic at hand. It must be noted that the PPP method of procurement is in its first concerning other forms; relevant and suitable information is limited.

1.3 Research Methodology

The research will rely on questionnaires with actual companies and employers to determine the most critical risk factors of PPP for construction projects. The site will be in Iraq and suggest appropriate solutions to these risk factors.

1.4 The Organization of the Thesis

This thesis is composed of 5 chapters, including:

In the first chapter, an introduction of the subject illustrates the current study and the organization of the thesis.

In the second chapter, a literature review provides insight into the research topic's existing literature. Theatre examines concepts of public-private partnership, explores the most common definitions and terminology in the field, the traditional practice of purchasing public works projects, and considers the option to use PPP. And manage PPP risks. Also, the case of PPP in Iraq.

While in Chapter 3, the methodology for collecting survey data is presented. This chapter explains survey design and the survey process. Empirical research theory is implemented. Before the survey, plans for conducting the survey and the theoretical evaluation of test data are also described.

In Chapter 4, from the questionnaire survey results, summarizing the attractive and negative factors for adopting a public-private partnership, the appropriateness of purchasing the PPP under the current circumstances, the potential risks of the PPP project, and its allocation in the future.

In the fifth chapter, important findings are presented, limitations are highlighted, and possible future research areas are finally suggested.

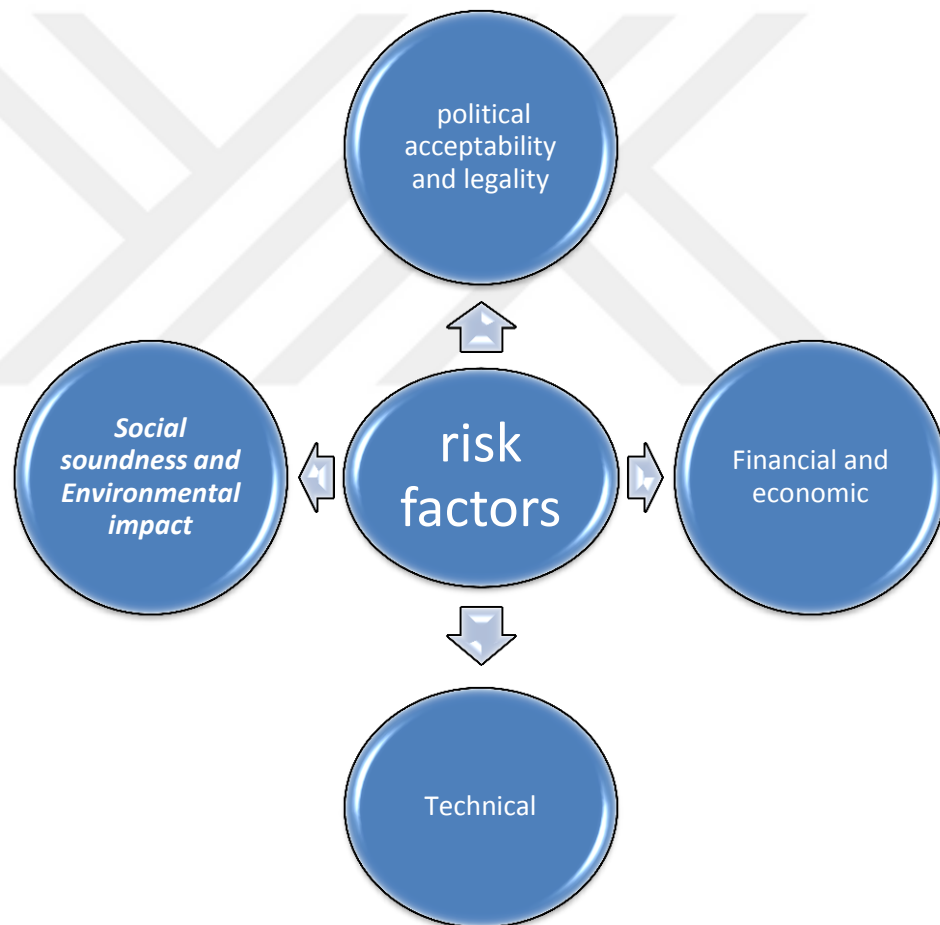


Figure 1.1: Flowchart of the study variables

2. LITERATURE REVIEW

Thirty years back, there was incredible enthusiasm over another acquisition. Albeit thirty years may appear to be quite a while, the pioneer PPP adventures are presently nearly legally binding expiry, as most PPP arrangements were intended to be a long haul, from 25 to 30 years. (Dhiya, 2020)

Despite the generally advanced utilization of the term as of late to typify the connection between people in general and private areas, a few researchers have contended that this relationship can be followed back to the eighteenth century. In any case, PPP has just been utilized broadly for framework projects since the 1990s(Han et al., 2020) .

Despite that it has been around in its current structure for a very long time, there is still no single concurred lawful meaning of PPP. With various sorts of PPP plans, a potential clarification for this variety is that each country has custom-made the idea of PPP to suit its cities complexities. Hence, as recommended by a few investigations, this examination analyzed essential worldwide components of PPP approaches are created and agricultural nations by contracting specialists(Ma, Du, & Wang, 2018).

Perry (1998) likewise cautioned that minor individual convictions may impact definitions of the rubric of PPP. Most associations stress the collective energy of packaging components of PPP which incorporate the support and activity of foundation, long haul agreements and danger portion. Instead of ordinary acquirement, the key unmistakable highlights of PPP are the circulation of huge dangers and duties of gatherings, proprietorship and the conceptualization of the assembled resource and the wellspring of undertaking money/financing (Song, Hu, & Feng, 2018).

In PPP, the private area accomplice's job is improved. It is all the more effectively associated with all the stages from arranging and advancement up to support of the finished office. Furthermore, because of the packaging of legally binding plans for

the administrations in these stages, PPP is more unpredictable than ordinary acquirement. (Jin, Liu, Liu, Udawatta, & Management, 2019).

With the end goal of this investigation, PPP is characterized as an organization game plan between the general population and private areas to give foundation, where the private area plans, creates, funds, keeps up, and works the framework over a delayed period, with installment by the public area or end client for the administrations gave (Lam & Yang, 2020). To guarantee each gathering's privileges and commitments, the gatherings included need to go into a legal agreement with the point of getting foundation by augmenting skill and advancement through organization. This legally binding plan ought not to be mistaken for more customary affiliations between people in general and private areas to give framework (Kwofie, Aigbavboa, Thwala, & Management, 2019).

2.1 Partnership Arrangement in PPP

In opposition to the regular part of the public authority in giving foundation to the individuals, the job has somehow or another been moved to the private area as PPP. In PPP, the public area or the public authority is simply the buyer of an administration gave by the private area. This job difference was first determined by governments attempting to pay off their monetary obligation level and spending, driving them to use private area subsidizing as capital venture. Besides, the private area is viewed as having the option to convey things productively to accomplish returns as a business (Zhang et al., 2020). Consequently, the private area gets get back from renting installments of the assembled foundation or direct installment from the client; for instance, cost charges. (Jin et al., 2019)

Another reasons why there is no standard all inclusive meaning of PPP because PPP is an extended conventional term, grasping a broad scope of organization plans. These association game plans are classified by the concession to chance assignment, the degree of the gatherings' support, the duties and responsibility for foundation (Owusu-Manu et al., 2018). No single favored organization plan is applied to each project or advancement. The utilization of organization courses of action relies upon the specific necessities, prerequisites and reasonableness of explicit framework improvements, as each model has its own solid and frail focuses. Another wellspring of disarray is the various names utilized by various nations for comparative legally

binding plans (Kwofie et al., 2019)

2.2 Particular Diversity of PPP

So for what reason did governments move to PPP? Numerous distributions have talked about governments' inspirations for embracing PPP regardless of whether right or wrong. The different highlights of PPP contrasted and conventional obtainment have been perceived through hypothetical examination and objective contextual analyses. Regardless, PPP has been intended to oblige and allot the necessities of the public area and the awards for the private area accomplice. The inspiration for PPP is consequently determined by the variety offered by this kind of acquisition. (Pellegrino, Carbonara, Costantino, & Management, 2019)

2.2.1 Optimal sharing of responsibilities, resources and risk (3R)

A primary target of public acquirement is to accomplish productivity. Upgraded proficiency could prompt further compensation and beneficial returns. In a severe and benefit situated climate, not at all like the public area the private area attempts to get benefit (Yan Wang, Wang, Wu, & Li, 2020). Private area elements are more inventive and creative in dealing with an undertaking with less wastage of assets. Thus, shaping associations with the private area expands productivity by dispersing duties and dangers to the most proficient gathering. (Lam & Yang, 2020)

A foundation task or improvement includes exercises which contain obligations and dangers for the gatherings. Their portion implies allotting them to the accomplice who is best ready to oversee them. One of the primary customary obligations of the public area in open acquirement is to give assets to framework advancement (Zapata Quimbayo, Mejía Vega, Marques, & economics, 2019).

Under PPP, the choice of private financing and subsidizing was constantly considered as a positive alternative. The private accomplice must investigate undiscovered wellsprings of subsidizing and assets from monetary organizations, which the public area can't accomplish. Using private capital permits impoverished nations to spread the expense of giving the framework (Lam & Yang, 2020). This will profit the public area regarding decreasing public going through in direct response to public cash since PPP projects are for the most part for an enormous scope and needing huge forthright subsidizing. In any case, such private financing

may build the general expense of advancement contrasted with only open subsidizing. (Yang, Long, & Li, 2018)

Driven by benefit or impetuses from the venture, the private accomplice will work inventively around accessible assets to guarantee cost adequacy of the advancement to accomplish income and consequently benefit. With a drawn-out agreement close by, the private accomplice is glad to get a consistent income after some time. Public subsidizing or private capital venture will have suggestions for the turn of events. The gatherings should choose the most proper determination by thinking about the task objective (Yinglin Wang, Cui, & Liu, 2018).

A few investigations distinguish four classes of danger that must be managed in a PPP project: plan and advancement, money; activity; and proprietorship. The size of the dangers shifts during various phases of PPP advancement. These dangers ought to be apportioned between the accomplices. Even though there are no standard principles for dispersing the dangers, observational ways to deal with hazard allotment have been created by different scientists to recognize which gathering is best ready to oversee them. The distinguishing proof and assignment of potential dangers are crucial to understanding the incentive for cash accomplished from PPP (Biygautane, Neesham, & Al-Yahya, 2019). Exceptional with cutting edge innovation, the executive's aptitudes and development capacity, the private area is viewed as more competent in overseeing a large portion of the danger and vulnerabilities. In any case, the public should know that moving danger significantly to the private area isn't modest (Lam & Yang, 2020).

2.2.2 Amplifying value for public stakeholders

When money is the best and time is gold, general society right now requests better an incentive for cash from public acquirement. PPP offers the public area a chance to convey an incentive for cash in a way that is better than by regular acquisition for its partners (Jiang, Lu, Xia, Liu, & Cui, 2019). Value for the public partners can be within various limits. Regardless, PPP has continually been related to an incentive for cash.

Jomo et al. (2016) accentuate that esteem for cash in the PPP setting ought to allude to the expense and nature of the administration acquired. As the expense of PPP is higher than for conventional acquirement, the quality got ought to be at standard.

Additionally, esteem for cash is worked around proficiency and viability. Esteem for cash is the ideal blend of entire life cost and quality (or readiness for a reason) to meet the client prerequisite(Pellegrino et al., 2019).

This view is like that of Burger and Hawkesworth (2011), who describe an incentive for cash as an ideal blend of amount, quality, highlights and cost expected over the entire task's lifetime. As such, esteem for cash can be viewed as the assumption for a purchaser or partners of the nature of the bought item at the best cost(Tariq & Zhang, 2020). Even though assumptions may contrast dependent on the association arrangements and thought of numerous different components, as per Infrastructure Australia, PPP offers an incentive for cash through:

- a. Optimal hazard move;
- b. Management collaborations;
- c. Encouraging advancement;
- d. Efficient resource usage;
- e. Integrated life cycle resource for the executives.

Most nations use an incentive for cash to legitimize PPP reception with the idea of getting a superior quality item with a prudent plan and practical activity and upkeep, contrasted with the customary acquisition (Tian, Peng, Zhang, Wang, & Goh, 2020). PPP advances early inclusion of the private area in the acquirement cycle as a technique to permit the private area accomplice to use its capability in planning the entire life pattern of the foundation into a possible cost-saving turn of events. This move additionally assists with limiting plan danger and vulnerabilities (Cui, Liu, Hope, & Wang, 2018).

2.3 PPP Structure

An ordinary PPP structure is considered as a more mind-boggling framework than customary obtainment. It was set up for full mix with a solitary purpose of the duty to oblige the creation for restrictiveness of the financing plan and the packaging of agreement systems(Liu, Gao, & Cheah, 2017). A change of customary obtainment to PPP saw the development of Special Purpose Vehicles. A Special Purpose Vehicle is a lawful substance set up by a solitary organization or consortium of organizations with the obligation of conveying the framework improvement to a predefined

standard (Opawole, Jagboro, & Technology, 2017).

Likewise, there are conditions in which the Special Purpose Vehicle is set up by the public area (government-possessed organizations) or a joint coordinated effort of public and private areas. The Special Purpose Vehicle holds the single purpose of duty and will be responsible for the plan, construction, working, and keeping up the finished framework. By and large, Special Purpose Vehicles sub-contract the development, working and looking after works. A development agreement will be framed to convey the foundation improvement. After consummation an activity and support agreement will be shaped to do the activity and upkeep work for a predetermined time (Owusu-Manu et al., 2018).

The financing of the venture might be from blended sources, single sourced from credits, as speculation from a private value firm, or be a mix of various private value firms that additionally be investors. Even though accepting a much analysis in certain nations, there are likewise assistance assets or feasibility supports made accessible by the legislatures to pull in the private financial specialist's investment in PPP and launch the undertaking (Cui et al., 2018).

Albeit a large portion of the enormous obligations and dangers are moved to the Special Purpose Vehicle, the public area as a buyer assumes a fundamental part in giving and determining precise prerequisites and yield determinations for the foundation. In any case, the Special Purpose Vehicle ought to be given opportunity in the conveyance strategy to permit advancement and cost minimization to occur. The public area as the buyer ought to likewise support an installment system to the Special Purpose Vehicle as indicated in the PPP arrangement. Even though PPP relies intensely on the productivity of the private area, it is paramount for the PPP to be very much organized with away from and privileges of gatherings to establish a commonly helpful climate for all gatherings included (Shrestha et al., 2018).

2.4 PPP Globally

The assessed cost required for framework improvement around the world is enormous. A surmised sum assessed by EY (2015) to fulfill the foundation need until 2030 can reach up to £38.6 trillion². An expected measure of £500 billion is required by the UK until 2020 for framework improvement, while the Asian Development

Bank estimates that venture of £6.3 trillion is required in the Asian district between 2010 and 2020 for foundation advancement. The sums estimate for giving foundation are overwhelming to governments to give (Tolstolesova et al., 2019).

With the shortage in government saves around the world, PPP has been recognized as the future bearing to address the prospering framework interest. PPP acquirement is grounded in most created nations and has been generally used to get foundation. Supported by these productive aftereffects of PPP, the eagerness of non-industrial nations in getting framework administrations through PPP has become presented the PPP market development bend, which is a model used to recognize a country's PPP development, because of nine measures:

1. Awareness of danger move standards;
2. Public area PPP experience;
3. Private area PPP experience;
4. Community and partner uphold;
5. Market size;
6. Stable and strong public area climate;
7. Available subsidizing;
8. Recognizing and accomplishing results and advancement;
9. Legal system and business structures.

2.5 Negative Factors of PPP Projects

There are 26 negative purposes of PPP projects, which are:

Long offering measure – from beginning period of public area appraisal to marking of agreement requires as long as two years. The way toward welcoming, getting ready, evaluating and refining offers and arranging contracts is perplexing and procedural.

High offering costs – the point by point and prolonged nature of the offering cycle suggests expanded exchange costs (Tolstolesova et al., 2019).

One of the primary disservices of PPPs is enormous offering and legally binding costs, which allude both to the public authority and the private accomplice. Enormous offering expenses of the PPP projects go about as a dismissing power for the private gatherings. They are reluctant to put intensely in the offering cycle just to

be dismissed later. What concerns government, huge arrangement costs comprise of feasibility contemplates, legal advisors, and so forth In addition, PPP projects are exceptionally convoluted. Typically, they include multiple gatherings: public, private and banking areas, and these gatherings have their negating points. To build a brought together understanding, much time and capital should be contributed on complex exchanges (Owusu-Manu et al., 2018).

The PPP offering measure is likewise viewed as extensive and muddled. For instance, bidders are needed to get ready delicate proposition joined with a heap of extra materials. Such a cycle may take three to four months. Also, another few extensive dealings will be needed for the development of the agreement. Setting up a complicated understanding structure for practical PPP usage can hinder the offering process (Wali, Hamadameen, & Sciences, 2019).

Another regular protest by the general population is the high levy charged for the administrations gave. All the more regularly, the private area would confront political authoritarian in raising duty to a level adequate to take care of its expenses and acquire practical benefits and rates of profitability. The support of the private area to offer public assistance will undoubtedly acquire developments and efficiencies the activity, yet may create a dread of scaling back in the public area. Somewhat, there would be less business openings if no administrative measures were implemented (Valipour, Sarvari, & Tamošaitiene, 2018).

In a PPP arrangement, the government limits itself to a solitary private accomplice for a drawn-out period. It concurs today for administrations/resources that will be used in the future. There is a sure measure of danger concerning what's to come purchasers' requirement for the particular assistance. The thought behind the dangers concerned is that the organization may wind up conveying administrations that are not, at this point needed by people in general. Therefore, the association will have all the earmarks of being less significant than at first anticipated (Owusu-Manu et al., 2018)

The dangers of dangers to extend destinations in finishing a PPP project are generally huge. These dangers emerge from numerous sources, including the political, social, specialized, monetary and ecological variables, due predominantly to the unpredictability and nature of the controls, public organizations and partners included. The private and public areas need to have a superior comprehension of

these dangers to accomplish a fair danger distribution and empower the venture to produce better outcomes. (Ma et al., 2018).

Besides, PPPs are said to convey benefits since they move many dangers to the private accomplice. It ought to be remembered that even though the majority of the dangers are moved to the private accomplice, the last substance that is answerable for offering types of assistance to the general population is the public authority. If the private accomplice fails, exclusively the public authority needs to manage the outcomes and attempt to discover different catalysts for continuing to convey the general population's support. This suggests that even though the dangers are legally moved to the private accomplice, the government holds a vast segment of them if there should arise an occurrence of the private accomplice's disappointment. (Bai, Li, Du, & Xu, 2017).

At long last, PPPs function admirably just for explicit ventures, which are mind boggling and require explicit private accomplice's ability, aptitudes, and experience. Subsequently, points of interest that are joined to PPPs are accomplished if certain undertaking attributes are met, while the venture is straightforward (Babatunde & Perera, 2017).

2.6 Application to PPP

Numerous nation countries require PPP undertakings to meet practicality and financial suitability measures. For instance:

In the Philippines, all significant framework projects must go through an achievability and suitability appraisal measure, as depicted in subtleties in an instructional pamphlet. A similar cycle is needed for PPP projects.

In Chile, the 2010 Concessions Law expresses that the Ministry of Planning should affirm the social effect assessment of a potential PPP project. The Concessions Council should likewise audit this archive before permitting an undertaking to be executed as a PPP. (Ye et al., 2018)

In Indonesia, rules gave by the state-claimed Indonesia Infrastructure Guarantee Fund determine the standards to survey the chance expense of giving certifications to PPP financial specialists.

Confidence inclination is a fundamental issue pertinent to all foundation projects including PPPs (see Poor Planning and Project Selection). It should be tended to at the hour of examination as it is regularly the reason for project renegotiation. Also, excessively idealistic interest studies may incite governments to support projects that at last produce more expense than advantage. The United Kingdom Treasury has distributed direction material on defeating idealism predisposition. (Dewulf, Garvin, & Economics, 2020)

Actualizing offices should remember that the work attempted in evaluating project reasonability likewise establishes the framework for the remainder of the PPP examination. The task definition gives the premise to building up the PPP monetary model and business and financial suitability investigation, just as any quantitative incentive for cash examination (Yinglin Wang et al., 2018). Evaluation of specialized plausibility, and ecological and social supportability will give a premise to the danger examination. Cost and request gauges created for the financial suitability appraisal will likewise give starting contributions to the monetary displaying, and PPP esteem for cash examination. (Owusu-Manu et al., 2018)

PPPs have been used in various sectors to provide many different types of assets and services. As explained in the introduction to this reference guide, two main characteristics define the sectors and services that use PPP: first, the project constitutes or contributes to public goods and services, and second, the project includes an accompanying component. PPP contract sufficient assets.

In practice, the definition of "public service" may vary by country and time. The material in this reference guide remains neutral with this definition; Any service that the relevant government believes it is responsible for providing or ensuring is provided is a "public service". The focus on long-term assets reflects the long-term nature of PPP contracts. In most cases, this means that the APP deals with fixed assets; But it can also include long-term assets related to specific uses or locations, such as train vehicles

. There are problems that PPPs cannot solve or that PPPs can exacerbate. First, the PPP appears to mitigate the financing problem better than it is, because the government's fiscal commitment to the PPP may not be so evident. This may lead the government to accept higher financial commitments and risks under the PPP framework, rather than being consistent with prudent public financial management.

Although the public-private partnership can promote better project analysis and adoption of innovative ideas and practices, the responsibility for project planning and selection is primarily borne by the public sector. The unclear financial costs of PPPs and contractual inflexibility may make these tasks challenging. Efficiency benefits for the private sector in managing infrastructure and improving incentives for periodic maintenance also depend on effective contracting and procurement by the government for PPP.

These limitations mean that PPP cannot be considered a panacea for infrastructure performance problems.

Good public decision-making with adequate capacity and governance is a necessary prerequisite for the success of a PPP or public investment project. There is evidence that better management can significantly reduce inefficiencies in infrastructure through better use of existing infrastructure and more efficient use of public resources in new projects. In the end, many governments may just need to invest more resources to invest in infrastructure.

Many governments are resorting to PPPs because they recognize the need for increased investment in infrastructure. Still, the government cannot "push" to undertake additional infrastructure projects through traditional public procurement. While this is one of the most common motives for using PPP, it is also one of the most controversial. The extent to which the PPP will enable the government to increase spending on infrastructure depends on the nature of the project involved and the government's specific financing and financing constraints.

Certain types of public-private partnerships can help increase the funds available for infrastructure, i.e. generate more income for infrastructure services, including:

- Increase revenue from usage fees, by charging user fees or reducing fare leakage. For example, the N4 roads in Mozambique and South Africa were developed as toll roads under the PPP because the two countries' governments did not have the funds to make other investments. Reciprocal subsidies from South Africa to Mozambique help make fees more affordable for users [#93, p. 910]
- A new source of income to improve the use of assets. Increasing revenue from alternative uses of infrastructure assets can reduce infrastructure costs

for governments or users.

The government can also implement user fees, effectively collect revenue, or find innovative alternative uses for infrastructure, as described in Engel, Fischer, and Galetovic's PPP document: *When and How*. Therefore, if users are charging the exact fees for services and charging these fees, the application will not increase the resources available for infrastructure compared to the alternatives provided by traditional governments. However, the author also noted that it is difficult for the government to charge users a cost-reversal fee for public services.

Some governments use PPP as a financing mechanism to overcome short-term budget constraints by spreading the cost of capital for a project over its life cycle. A government that applies a cash accounting system recognizes the total cost of infrastructure capital as an expense when it occurs, even if loans finance it. On the contrary, APP generates cash outflows over time: the PWC document on APP shows how APP payments differ from traditional financing projects. This could allow governments facing short-term cash budget constraints to invest in infrastructure more quickly. This accounting advantage of PPP disappears under total accumulation accounting system, under this system.

Finally, a public-private partnership can help the government overcome the borrowing constraints imposed by the public sector. Governments often face restrictions on borrowing, which may stem from prudent public financial management policies, meaning that even commercially viable "user-paid" infrastructure projects cannot be implemented in the public sector. Under a PPP, projects are financed by the private sector rather than public sector loans, which in some cases may allow the government to overcome this limitation (although, as explained in the next section, these projects usually have obligations emergency, which can also affect government debt sustainability and financial situation).

The extent to which a PPP can help ease borrowing constraints depends on the nature of the constraints. Application applications can help alleviate short-term liquidity constraints, thus creating commercially viable payment applications for each user. However, Engel, Fischer, and Galitowicz believe that when the government cannot borrow because it is considered insolvent, the public-private partnership is unlikely to help; In this case, it may be difficult for the government to credibly sign long-term contracts and give up a potential source of income in the future, so investors may

believe that a public-private partnership is not feasible. On the other hand, in a 2011 paper on the PPP experience in Chile, Fisher described how multilateral participation in a PPP could increase the credibility of government contractual obligations, increasing the potential.

2.7 Partner Commitment to Evaluate Project Suitability

Partner commitment is an essential instrument for evaluating the reasonability of a task and distinguishing hazards. Partner Communication and Engagement portrays the cycle in detail. (Osei-Kyei & Chan, 2017).

Partner commitment ought to be started as ahead of schedule as conceivable in the undertaking cycle. The IFC partner handbook expresses that numerous private administrators start their meeting cycle around the pre-attainability phase of the task. IFC's handbook additionally suggests starting the conference at the hour of the venture idea stage. (Liu, Gao, Cheah, Luo, & economics, 2017)

Early commitment has the two its positive and negative angles. It permits the government to present the task positively, spread out its advancement reasoning openly, and find some kind of harmony between advancing the venture and overseeing assumptions. All activities have potential advantages yet additionally vulnerabilities. Early commitment likewise motions toward partners that their requirements and perspectives are being contemplated. Setting up a positive relationship early produces social capital and establishes validity with partners if an issue were to emerge. (Muleya, Zulu, & Nanchengwa, 2020).

The negative parts of early commitment are associated with the Risk of spreading of falsehood. When divulgence on the venture starts, the window for falsehood and bits of gossip opens. As portrayed in the IFC partner commitment handbook, the capacity to balance these gossipy tidbits is restricted in the beginning phases of the venture cycle, since numerous subtleties will just turn out to be transparent around the finish of the evaluation stage. Consequently, it might be hard to console partners or react to inquiries without solid subtleties(Yan Wang et al., 2020).

This absence of data may make partners guess and rashly censure a venture dependent on unverified realities or bogus suppositions. Subsequently, partners for the underlying meeting ought to be picked deliberately. Restricted discussion with

focused partners can be led during the venture idea stage to get significant partner input. Yet, care is expected to keep away from the spreading of pointless and possibly destructive falsehood that will raise cautions before an undertaking is even given the thumbs up. After this underlying discussion, partners may then be extensively recognized and counseled when more task points of interest are known.

Having a solid task story set up may help to counter such deception.

The European Commission rules on partner discussion (EC 2015) propose a limit of 12 weeks for this meeting cycle to happen. This period will fluctuate based off the scale and extent of the undertaking with just significant tasks requiring the whole 12-week counsel period (Oliveros-Romero, Aibinu, & Management, 2019).

2.8 Assessment Related to Environmental Change

As strategy creators and venture engineers bit by bit improve their comprehension of the dangers presented by environmental change, experts ought to have the option to plan the authoritative commitments of private speculators and satisfactory agreement the board systems. The existence cycle approach opens roads for motivating all partners occupied with the PPP cycle and limiting dangers to ventures. An European Commission study: Guidelines for Project Managers presents rules for incorporating atmosphere strength into the resource lifecycle. (Kwofie et al., 2019).

Downscaled models utilize extensive scale data to anticipate atmosphere results at the neighborhood level. Even though the information on atmosphere and calamity chances for downscaled models is turning out to be heartier, the scope of vulnerability concerning these dangers and coming about effects remains a test. Great practice comprises consolidating the idea of versatility in the danger designation lattice and complete resource life-cost enhancement draws near, rather than zeroing in just on the venture usage stage. (Valipour et al., 2018).

Acquirement experts need to create motivating force structures in PPP obtainment to encourage advancement in atmosphere moderation and variation while working inside a severe climate. For instance, assessment standards for flexibility could be presented in delicate reports, utilizing the resource life costing approach—bidders could be welcome to show how their recommendations address versatility to chance, featuring the expenses just as the advantages, and how they will deal with the

undertaking when confronting changes in the danger itself. (Han et al., 2020).

2.9 Risk Management

Risks are usually present in projects and cause them to delay completion or exceed the cost specified to complete the project. Risk management consists of a set of processes through which the negative impact of risks can be minimized; the risk is transferred or responded to, and dealt with according to effective plans and strategies (Uher, 1994). From here, the concept of risk management has become one of the most important and widely used concepts in PPP projects.

Risk management is a systematic process throughout the project life cycle, aiming to identify, analyze risks and respond to them to obtain the maximum or acceptable degree of control (Smith et al., 2006). Kwofie et al. (2019) defined risk management as a systematic process applied throughout the life of the project and in the various stages, including identifying sources of uncertainty that could affect the project's objectives, i.e. identifying risks, analyzing them, assessing their impact and responding to them in order to achieve the best acceptable balance between risk and opportunity. Smith et al. (2006) indicated that risk management includes a set of processes that control risks and affect both inside and outside the organization, as these risks may be environmental, economic, social or political.

Risk management contributes to reducing the risks that projects may be exposed to, and enhances the possibility of completing the project at the specified time and cost without exceeding them, thus contributing to the failure of the project (Valipour et al., 2018). Kwofie et al. (2019) indicated that risk management is a proactive tool that can identify the risks that the project could be exposed to and affect its performance. This means that risk management contributes to minimizing the negative effects that may arise from the risks.

Many benefits can be achieved from implementing risk management in construction projects. Han et al. (2020) pointed out that risk management contributes to identifying problems and risks that projects may be exposed to before and during implementation, and thus helps managers in how to avoid risks and deal with them effectively. It also enables project management to increase the control ability of team members to control the project and find the most effective solutions to deal with the

problems that may face the project. Accordingly, it can be said that risk management reduces the sudden risks that may face the project, thus enabling control of the project to an appropriate degree.

2.9.1 Characterizing the issue of risk

According to Smith (1999), the word "risk" originated from the French word "suggestive", and began to appear in England in its curved structure in 1830, when it was used in the exchange of protection. The Concise Oxford Dictionary (1999) essentially describes "risk" as "a circumstance involving openness to risk or misfortune".

In addition, Chapman (1991) associates it with openness. 'Risk' is described as opening up to the opportunity of adversity, financial and monetary gain, actual harm or injury, or deferment as a result of vulnerability associated with the pursuit of a specific strategy (Valipour et al., 2018).

While considering projects, Smith (1999) shows that risk exists when an option is reported as far as the range of possible outcomes and when probabilities can be attached to outcomes. Fone and Young (2000) construct an operational definition of risk and show that: "Risk is a feature of our reality and is available when certainty is lacking. Clearly, risk is the mismatch of outcomes with an assumption; while in the abstract, risk is our behavior or our impression of risk—which is influenced by vulnerability of the individual, society, social variables, and the relationship of risk to the larger climate" (Han et al., 2020).

The definition is far from being clear and direct, and yet it is a valuable sign that the board of directors deals not only with possibilities and outcomes, but also with oversight of weaknesses and views of risk. The risk might be to the executives a broader social or even ethical musings that are not easily discerned in the local assessment of risk. Moreover, within the framework of executives and finances for development projects, Raftery (1996) distinguishes an operational definition to risk as follows: "Risk and vulnerability describe the circumstances in which the true outcome of a particular occasion or procedure is likely to deviate from the standard or conjecture esteem".

2.9.2 Overseeing risk in the public sector

The above risk issues definition take into consideration the risks especially from the viewpoint of the private area for development projects. While considering the public sector, which is particularly important when examining this assumption revolves around issues of risk in the public private partnership projects, which are the main aim of our study. Fone and Young (2000) recognize that risks have novel properties in the public domain. In the first place, public organizations facing risks are noteworthy through their work; public area bodies have various legal, social, and political features not found in the private sphere. Second, many public risks are exceptional and can be dealt with exclusively by open institutions. Risk is a finite, diverse idea that means different things in different circumstances (Kwofie et al., 2019).

According to Jefferies and Chen (2004), more noteworthy importance has been placed on the requirement to incorporate risk in the board of directors in the undertaking of the acquisition of pledges. Board risk is the course taken to identify potential risks, investigate their consequences and implement reasonable responses, which ensures the effective completion of tasks.

2.9.3 Risk identification

This process is one of the most important steps and stages of risk management on which the rest of the risk management processes depend. This process necessarily aims to identify the risks that are likely and expected to affect the performance of the PPP project (Banaitene & Banaitis, 2012). Smith et al. (2006) emphasized that it is illogical to identify all potential risks, where the aim of this process is not to achieve this as much as to ensure that the expected risks can be effectively controlled and managed. Karimiazari et al. (2010) also emphasized that in many cases, projects similar to the existing project are relied upon in order to determine the type and nature of risks that are likely to affect the project.

Through the process of risk identification, the characteristics and features of risks that can make a difference in the project characteristics can be identified. Mhetre et al. (2016) indicated that through this process, it is possible to review the risks that the projects were previously exposed to and arrange them in order of priority from the most dangerous to the least dangerous, in this way it is possible to enhance workers'

knowledge of risks and enhance their ability to identify risks more easily. There are several stages to identifying risks, which are identifying risk inputs, methods of identifying risks and identifying risk outputs. Risk inputs include risk management plan, cost management plan, schedule management plan, quality management plan, and project documents (Han et al., 2020). Potts (2008) argued that the process of identifying risks is considered the most difficult and important process in managing risks and requires methods and techniques to collect information and create a database with a high degree of accuracy to produce ideal results.

Furthermore, Valipour et al. (2018) stated that it is difficult to speculate about the risk characteristics of PPP establishment projects, considering that each host country, each framework region, and ensuring that each particular task has its own risk profile. In any case, the improvement of a large-scale structure for the dissemination of all the basic public issues, is supposed to have excellent application in the ordering, theory and tender stages of such undertakings.

2.9.4 Risk in PPP projects

Many countries currently see private money models as the answer to their risk management framework issues, and thus there is increasing use of PPP acquisition, or its various types, around the world.

Edum-Fotwe et al. (1997) assessed project workers' risk in cash ratios as a component of client acquisition procedures. A customer's interest in development is often a strange experience, including a high interest in an existing resource and significant capital expenditures. The size of the project opens to the client opportunities, which are mainly supervised through the use of reliable terms of equal importance in the supervision of opportunities is the decision of the acquisition framework for the transfer of the undertaking. Development clients need to adapt more in a high-risk industry with the ability to disappoint organizations they lock up in management (Valipour et al., 2018).

Ogunlana (1997) explained that there is significant risk to PPP schemes, and that often the source of the risk is the host government as a partner in the agreement. If the host government falters, or neglects to provide guarantees, at any stage of the interaction, backers are left with a pledge that does not meet the financial guarantee. For example, Elevated Tollway project in Bangkok, is an example about financial

risk imposed by governmental sector on PPP projects, where the public authority could not immediately fulfill its obligations under the agreement, and therefore the support encountered financial difficulties. For effective risk oversight in PPP projects, greater focus should be placed on host government obligations and how to manage government inefficiency or reluctance to meet formal obligations. Moreover, it is the political environment, administrative and legal approaches, and clarity of government activities that determine the extent to which the achievement or disappointments of PPP plans are (Valipour et al., 2018).

The Victorian government recognized a requirement for private speculation and therefore promoted a program called the New Prisons Project (NPP). This NPP sought to enhance its relationship with the private sphere through the use of a public-private partnership approach. When the private sphere is included in these projects, the traditional commitment in terms of risk management is transferred primarily to the private members.

All development projects open partners to specific types of risks. The level of risk to which a wage worker is offered depends entirely upon the type of formal plan adopted. The wider the scope of work, the greater the risks that can be accepted. For example, a project worker's plan and build can accept a greater number of risks than a project worker offering a fully designed plan (Kwofie et al., 2019).

The reluctance of banks to lend in certain countries without a government ensures that an important issue in raising financing for mega projects is addressed. When solving the problem, the fare guarantees the offices of different countries, just like global monetary institutions such as the World Bank, gradually offering security against political and commercial risks where business protection is expensive and capital market support tools are not accessible.

Various framework credit institutions provide financing just as cautionary departments undertake projects in their areas. Funds from these organizations are known as MFO Trust. As noted by Walker and Smith (1995), institutions include: the International Finance Corporation; European Development Bank; Asian Development Bank; Inter-American Development Bank; African Development Bank; World Bank; and the Multilateral Investment Guarantee Agency (MIGA).

Moreover, in September 1994, the World Bank replaced the Long Cofinancing Office (ECO) with bank certificates to be used to fund the framework. These assurances are intended to cover the obvious risk (half-way risk guarantee) or part of the financing (partial credit guarantee). Partial risk covers opportunities arising from non-performance of the host government's obligations set out in the agreement with the mission organization or from force majeure events that result in a shortening of the obligation management to banks. The Half Way Guarantee covers all cases of non-payment of installments for a certain part of the financing plan except for the valued capital. It usually extends developments beyond what private banks can offer in one way or another.

While project financing strategies, such as PFI in the UK and PPP in Australia, are still moving from one solidarity to another, the scale of these projects has all that can be set aside for the backsliding. The associations focused on voices of concern about expenses and the risks caused by the approaching funding of tasks.

Therefore, it is necessary to be wary of risks in existing public-private partnerships, especially with regard to government financial commitments to avoid failure in the advanced stages of projects.

2.10 Risk Management and PPP Contract Conditions

Public-private partnership enlists the skills and expertise of the private sector in providing public services and facilities. It is not simply about the financing of capital investments, but about exploring the full range of private sector management, commercial and creative skills. The PFI arrangement is thus about delivering better services by combining the strengths of the public and private sectors working in partnership, each focusing on the areas it does best (Tariq & Zhang, 2020). This approach also underlines the role of risk allocation in PFI projects—the party that can manage the Risk at the lowest cost should be responsible for it. Although it is common practice for PPP agreements to be financed mainly by debt, it is imperative for the project company to secure equity, as well as mezzanine capital or subordinated loans and demand guarantees (Yang et al., 2018).

Project companies often secure equity by engaging project sponsors; therefore, it is of the utmost importance that the project company secure the equity by means of

legally binding contracts with the sponsors prior to formalizing commitments with the Contracting Authority. Failure to do so may result in default on the part of the project company should the sponsors rescind their offer. For projects facing difficulties with financing, bridge loans and capital injections may offer a solution in the short-term, although access to equity and new debt might be challenging to secure in the current environment. (Jiang et al., 2019).

A PPP contract may be prematurely terminated because of frustration, due to unforeseen events occurring subsequently to its formation, not caused by either party, which cause the performance of the contract to be impossible. An event causing contract frustration differs from a force majeure event in that it is irremediable, whereas force majeure may result in a temporary delay only. (Garrido, Gomez, de los Angeles Baeza, & Vassallo, 2017)

It is critical to ensure, and to obtain the agreement of both parties, that frustration has occurred. For instance, if a contract cannot be performed because the project becomes too expensive, this will not likely qualify as an event of frustration, as performance is merely difficult and not impossible. However, a change of law which prevents entry to a country in the interest of public health, as is the case with many countries due to COVID-19, may qualify as a frustration event if it makes performance impossible. Although there are no judicial remedies to the frustration of a PPP contract, a project company may opt for alternative risk mitigation tools, such as contract frustration insurance. (Han et al., 2020).

2.10.1 Identifying the risk factors

There are different dangers related with PPPs projects. These dangers change with the PPP project advancement measure, from the arranging stage through the plan, development, and activity stages. An agenda of dangers related with a PPP tasks could be arranged based on three-levels of hazard factors: full scale level, meso-level and miniature level. These degrees of PPP project chances are summed up as follow:

The full scale level of PPP – these are chances at nature level. This will zero in on the PPP public or industry level factors. The danger at this level is frequently connected with political and legitimate conditions, financial conditions, and social conditions.

The meso level of PPP – these are chances at project even out and address the PPP execution issue, for example, project interest/utilization), area, plan and development and innovation, and so forth.

The small degree of PPP – this will introduce chances between the logical inconsistencies out in the open and private area in agreement the board. The primary justification creating this danger classification lays on the way that the public area has social obligation while the private area is for the most part benefit driven (Jiang et al., 2019).

A fundamental agenda of potential dangers gives a beginning stage to distinguishing hazard related with development projects. Table 2.1 shows an agenda of dangers implied in a PPP project which can be delegated large scale, meso and miniature level dangers.

Table 2.1: Checklist of PPP Risk Factors

Risk Level	Risk Factors
Political and government policy	unstable government Expropriation and nationalization Corruption
	Macroeconomic performance Poor financial market Inflation and interest rate fluctuation Exchange rate fluctuation Influential economic events
	Hard currency not transferability Currency exchange unavailable
Financial	Project selection Project demand Land acquisition Residual risk Project finance
	Project investment attraction Finance cost
	Design deficiency Construction cost overrun
Technical	Public Risk
	Higher project cost
	Private company capability Private monopoly risk Private inefficiency risk Private Risk
Environmental	Approval and permit risks Tort liability risks Publicly accountability Staff Crisis
	Reliability and creditworthiness of government

2.10.2 Types of risk factors

PPP is a game plan whereby the private area can partake in the public authority's obligation regarding the arrangement of public offices. A PPP project is related with numerous degrees of dangers, including those identified with natural, project and the

public-private area relationship.

The PPP model has been broadly utilized in numerous nations, and the PPP project cycle will encounter obstruction from and be impacted by many danger factors. Hwang et al. distinguished 42 fundamental danger factors that affected PPP projects in Singapore, which were doled out to both the public authority and the private area. In light of a writing survey and meetings, Tang and Shen proposed 18 danger factors identified with the necessities of partners in a Hong Kong PPP project. Shao et al. recognized 29 remaining worth danger (RVR) factors related with street PPP projects in China and their key attributes. For simplicity of examination, different scientists have put hazard factors into various classifications.

Aziz and Shen demonstrated that power majeure chances address a danger class that requires fragile administration as it could make colossal misfortunes the private party. Doloi recognized the danger ascribes related with the PPP acquisition technique across three measurements, i.e., time, cost, and operational execution. Tang et al. introduced a writing survey of PPP utilization in Australia and recognized four primary classifications of variables (obtainment, partner, hazard, and money). Ameyaw and Chan assembled PPP chances into eight classes in their exploration on Ghana's administration of water supply projects, including political and administrative dangers, operational dangers, market/income chances, monetary dangers, relationship dangers, undertaking and private consortium determination, social dangers, and outsider dangers. By and large, the PPP model could be applied in many nations to their customary public administrations that straightforwardly influence the day by day life of individuals, i.e., power, water supply, gas, sewage treatment, streets, and others.

Melody et al. directed meetings, reviews, and visits to some chose PPP projects and recognized ten key dangers in their examination of the critical dangers of PPP squander to-energy cremation projects in China. The creators then, at that point played out a natty gritty investigation of these dangers, which mainly incorporated the dangers related with government dynamic, government credit, legitimate and strategy issues, specialized angles, contract changes, public resistance, installment, and income. In a later investigation of PPP water supply foundation tasks, Ameyaw and Chan determined a danger factor list, positioned the components, and portrayed the 'highest level' hazard factors as including helpless agreement configuration, water

evaluating, and duty audit vulnerability, political obstruction, public protection from the PPP, development time and cost overwhelms, non-installment of bills, absence of PPP experience, financing hazard, flawed interest gauging, high operational expenses, and struggle between accomplices.

There are four sensible cycles of hazard the board including the ID of dangers, examination of the ramifications, reacting to limit hazard, and assigning suitable contingencies. Some writing has explored these perspectives. Kivleniece and Quelin perceived the three-sided nature of public-private ties as the critical system forming esteem dispersion, and afterward distinguished administration explicit, topsy-turvy esteem claims by open entertainers and social activists as basic requirements on private worth catch. Barlow et al. contended that public-private associations in medical care ought to be significantly more about guaranteeing that dangers emerging from the turn of events and activity of medical services foundation are ideally apportioned among public and private accomplices through packaging exercises and utilizing the installment instrument, in this manner lessening the danger expense. Obviously, there are some various kinds of administration instruments to address hazards.

Xiong et al. adopted an all-encompassing strategy to distinguish eight administration systems to address exchange risks dependent on contracting hypotheses, and reasoned that adaptability, validity, and rivalry are fundamental to decide the achievement or disappointment of PPP projects among them. Some work has investigated points, for example, renegotiation and authoritative plan as approaches to address lifecycle vulnerability just as counterparty activities during PPP execution and tasks.

Dewulf and Garvin introduced two particular yet related examinations inspecting how administration techniques can address vulnerability in PPP projects and outlined the need for responsiveness and complementarity of traditional and social instruments in PPPs. Execution based contracting plans are likewise arising in government acquisition areas , including as a feature of complex, execution including, public-private organizations. The presentation based agreement is a promising legally binding mode that empowers colleagues to embrace "use instead of own" procedures.

2.10.3 Problems of the risk factors

Least Developed Countries (LDCs) are portrayed by more elevated levels of neediness in both family member and supreme terms. Monetarily and strategically, they have the accompanying standard attributes: 1) low per capita pay; 2) reliance on agribusiness and the fare of essential items, and in this way significant degree of joblessness; 3) low degree of mechanical and advancement capacities, and accordingly low degree of efficiency and negative equilibrium of installments; and therefore 4) high reliance on guide for improvement projects. While the inclination is to advocate for more guide (OECD, 2019) [1] a more feasible arrangement is in building the science, innovation and development (STI) capacities of their private area. As it were, the job that STI plays being developed has been perceived, both at the public and worldwide levels. At the general level, numerous nations in Africa—a locale facilitating the more significant part of the world's LDCs — have set up STI approaches to support their public productivities, while at the local and worldwide level there are various projects pointed toward building capacities of LDCs in innovation and advancement. One such program/organ at the worldwide level is the UN Technology Bank (TB) for LDCs, which was made as a component of the accomplishment of the Sustainable Development Goals (SDGs). The making of the TB is one of the principal focuses of the SDGs to at any point be accomplished; the significant target being to construct mechanical and development abilities of LDCs.

The above endeavors, regardless, at the plan and execution levels—particularly the decision of strategy instruments—numerous projects and strategies have overlooked the main issue by putting more accentuation on the stockpile side of information for development, for example on science and examination (public R&D). The interest side of this information (i.e., the functional private areas) is regularly dismissed. In fact, this side is considerably more essential for development, particularly in the circumstance of LDCs where advancement generally is accomplished, less through R&D, yet through learning by doing, utilizing and collaborating during the creation and showcasing measures.

This brief is an endeavor to bring the private area (functional areas) into the centre stage of the advancement interaction as a practical way to save LDCs from the destitution trap. It talks about the pivotal job of the creative private area in public turns of events, and contends that the most suitable STI strategy instrument is public

private organization (PPP).

In any country on the planet, the private area isn't just a critical partner being developed, yet additionally a fundamental anchor. A well-performing private area is a significant supporter of the Gross Domestic Product (GDP) and development of nations, which are necessary conditions for resolving issues identified with neediness. For example, through all around planned strategies, the private area can add to work creation, including for the least fortunate areas of society. Furthermore, the public authority, through the assessment it gathers from the private area, can offer essential public types of assistance like training and medical care, and create both physical and information framework needed for additional advancement. It is sad, accordingly, that most LDCs have not truly centered on fostering their private area and making them cutthroat in the worldwide economy. ODI (2015), additionally holds a similar view, contending that much of the time, the private area in LDCs has been rejected from improvement arranging.

In contrast to most types of help, government profit from the private area are utilized by the particular needs recognized by the state. Indeed, help can be valuable, particularly in the short and medium terms. Over the long haul, notwithstanding, help can neutralize a state's practical advancement objectives. As indicated by Albiman, under most guide programs, advancement needs are resolved not as per financial reasoning, yet political agendas. A genuine model is the African industrialization plan as communicated in Agenda 2063 and mechanical and development capacity working as communicated in the Science, Technology and Innovation Strategy for Africa2024.

In any case, while these are at the highest point of the advancement plan for most African nations, next to no guide — aside from infrastructural projects — is by all accounts going into these spaces. Right now a large part of the guide in Africa is focused on the worldwide issues (the supposed "fabulous difficulties") like wellbeing, climate and food security. Locally, a large part of the guide intercessions have all the earmarks of being focused on at miniature level social difficulties like lack of healthy sustenance, water, and sterilization, indications of a lot more extensive and fundamental disappointments that if effectively tended to can eliminate these miniature level manifestations, and by and large put the nations on more reasonable improvement ways. Indeed, even the very much implied TB for LDCs

probably won't accomplish the ideal results – given the low degree of significance connected to mechanical and advancement capacity working by both the LDCs themselves and global entertainers, for example, improvement accomplices.

By and considerable high reliance on guide — particularly in the long haul — has been found to make major monetary issues, supporting ineffective ventures, which thusly brings about adverse consequence on financial development. Existing examinations find that expansion in unfamiliar guide will in general contort homegrown reserve funds, increment homegrown utilizations, and debilitate charge income in helpless nations, accordingly reinforcing the endless loop of neediness and aid.

While helpless nations don't have complete command over guide, i.e., full dynamic controls over where help should go being developed, they have power over income from the private area, which if wholly created, can oblige every one of the social and financial necessities of the country. For LDCs, more prominent private-area support being developed is in this way key. Ahalstrom contends that economic development is an extensively more powerful system than unfamiliar guide and government assistance reallocation programs in improving individuals' wellbeing. A well performing public private area develops GDP, creates a large number of occupations, and along these lines increments per capita pay; it additionally produces incomes for the public authority through charges to empower arrangement of much required administrations, like training and medical care. Above all, improvement financed through charge incomes guarantees supportability, and frees nations both monetarily and strategically.

Notwithstanding, for the private area to have the option to do this work appropriately, it must be severe and inventive. Development as far as promoting of better than ever items, and utilization of better than ever measures, buttressed by better than ever advertising and the executives methodologies, is critical in the at present cutthroat and globalized world climate. The most fundamental reason for underdevelopment and destitution is absence of a manageable and wide put together development that pivots with respect to endogenous mechanical and advancement capacities; it's anything but a primary driver of a large number of the social, monetary, ecological and political issues saw in LDCs. Neediness destruction — which is key to Agenda 2030 — fundamentally ought to be perceived as a cycle of

capacity building. As indicated by Lee et al., the change in pay levels across nations comes fundamentally from contrasts in capacities in numerous perspectives, remembering for the creation and selling of globally profound items for a delayed timeframe. All in all, destitution annihilation is tied in with building endogenous mechanical and advancement abilities, including the capacity to address natural issues.

This ought to be perceived as the genuine significance of good turn of events, and accordingly answers for most issues of the LDCs – regardless of whether financial, social or political – lie in improving their mechanical and development abilities. As recommended by Bartels, et al.: "Ebb and flow banter on advancement are arranging examination, innovation and advancement strategy exclusively towards cultural difficulties instead of towards monetary development targets", and all the while, the idea of advancement has lost its appropriate significance, significance and force in driving the social and financial improvement of countries.

2.11 Clarify the Responsibility of the Partners

2.11.1 The role and responsibilities of the particular partner

To enable the government to manage the contract effectively, there must be specific roles and responsibilities required of the private partner through the contract. It is imperative that the partner's reporting system complies with government requirements. In this context, the government will have clear policies and procedures regarding private sector partner reporting. These requirements should be reported at the bidding stage to ensure that the private partner is given the opportunity to design and implement the reporting process, and to allow time to ensure that the information management systems are in line with government needs. (Yang et al., 2018).

As part of this process, the private partner must establish a Quality Management System (QMS) through which the document issuance process and procedures are recorded, service and performance monitoring. It is equally important to keep the channels of communication between the government and the private partner constantly open and raise issues when anticipated, as risks may affect the project. However, one of the most vital points is the lack of government involvement in actual decision-making and implementation, as risk transfer will be affected.

Management Information Systems (MIS) will form a large part of the Quality Management System. The importance of the management information system is to assist in reporting and monitoring the private partner by the government, reducing time and costs in providing the necessary documents, and using them for record keeping and safety. MIS also assists in managing authentication issuance controls, and assists in reporting to the end user if required. The goal is to ensure that performance can be measured and monitored using Information Technology (IT) tools, and that these IT tools generate reliable and accurate data on a regular basis that will be part of a complete quality management system. (Jiang et al., 2019).

However, the government should be careful not to describe the private partner how he should structure himself. This is due to the discipline imposed by the project financing structure. In particular, the private partner's lenders and shareholders generally need to ensure that good practices in corporate governance are applied.

However, there are some areas where the government should be directive in defining explicit contractual obligations or formal approval requirements related to the private partner's structure and governance arrangements. These include:

- Changes in contribution.
- The private partner's ability to fulfill its obligations with appropriate qualified and experienced staff.
- Changes in the private partner's financial structure, such as distributions made by the private partner and refinancing.
- Reporting requirements in terms of timing and contents of these reports.

2.11.2 The role of contract administration by the government

The government will have a number of roles, perhaps at different levels, in administering the contract. She will have a strategic role in managing commercial contracts in sharing policies and other strategic developments with the private partner. It will also have a role in monitoring: (Yang et al., 2018).

- The contract to ensure the fulfillment of the obligations contained therein and their survival with the contracting party to fulfill them.
- The performance of the private partner so that services are delivered at the required standard and adhere to the non-performance procedures stipulated in

the contract.

From the start of the project, the government should follow the below mentioned steps: (Han et al., 2020)

- Clearly defining the roles and responsibilities of the contract management team;
- Monitor project delivery.
- Managing the permissible changes under the PPP contract.
- Managing changes not stipulated in the PPP contract. And the
- Providing dispute resolution.

Basically, the success of the project will depend heavily on the monitoring and management of the project by the government. (Jiang et al., 2019)

After the PPP contract is signed, responsibility for contract management will usually be transferred to the contract management team established by the government. The person responsible for leading the contract management team on a daily basis will be the contract manager. It is a good practice to include the proposed contract manager in the government project management team early in the procurement process. The continuity and experience of a good contract manager can be beneficial for formulating a PPP contract. This early involvement will also provide the contract manager with a good understanding of the project and the risks inherent in it to enable him / her to devise a suitable contract management strategy. (Yang et al., 2018).

2.11.3 The role of civil engineer in the PPP

The future demands new areas of knowledge for civil engineers that have not usually been taught. "Study of globalization, world cultures, languages, communication, leadership, public policy and ethics must constitute a core component of overall engineering education". All these efforts are mainly focused in civil engineers' skills and knowledge, but they have not considered specific requirements for civil engineers as PPP practitioners and master planners of infrastructure development. (Yang et al., 2018).

We argue that civil engineers have a prominent role in the conception, evaluation, and development of PPPs based on three principal arguments: (1) PPPs are primarily

utilized to develop civil infrastructure systems, which have historically been designed and constructed by civil engineers; (2) civil engineers can provide better assessment and life cycle perspectives for the development of new infrastructure systems due to the technical complexity associated with these projects; and (3) civil engineers can enhance the operation, maintenance, and innovation of civil infrastructure because they are participants in the design process. (Han et al., 2020).

2.12 PPP in Iraq

The past has seen significant security improvement and economic growth (Ahmed, Mohammed, Aswed, Alyhya, & Sciences, 2019). Iraqi economic policy focused on opening markets and enhancing a friendly business environment to attract direct investment and facilitate trade (Dhiya, 2020)

Despite significant progress in many areas of infrastructure in Iraq, much remains to be done. In 2010, Iraq developed a five-year plan (2010-2014) targeting economic growth of 9.4% annually. In this document, Iraq announces the construction of one million new housing units in 18 Iraqi governorates and the creation of projects that take advantage of public-private partnership (PPP) models, leading to foreign investment of \$ 150 billion by 2025, in addition to budget funds. To attract foreign investment to Iraq, Investment Law No. 13 (2006) was passed and generous benefits, guarantees and exemptions were implemented.

In 2011, Iraq succeeded in attracting private investments estimated at 6 billion dollars for projects in the housing sector and in infrastructure that have been licensed since the beginning of 2011. In total, Iraq has attracted investments worth 23 billion dollars since 2009. Opportunities in the investment law, infrastructure business in Iraq suffers from some inherent risks and obstacles. It is critical to develop a more accurate knowledge of where and how to successfully implement PPP models in this situation (Dhiya, 2020). A series of annual reports by the World Bank in 2012 indicate that Iraq faces some significant difficulties in economic activities. Against this background, Iraq is classified as problematic concerning real estate investment, which in many cases leads to a wrong potential assumption of the primary benefits of implementing the PPP due to the supposed benefits of mitigating the expected risks to the private sector (Dhiya, 2020).

3. METHODOLOGY

The research will be based on analyzing data from questionnaires that targeted participants in the PPP projects in Iraq to identify the most important risk factors for the PPP construction project. The research aims to reveal the most prominent risk factors in those projects and propose the appropriate solutions to these risk factors. In order for the research to achieve its objectives and answer its questions, it went through the following stages shown in the following flowchart presented in Figure 3.1, which were also explained in detail in the following sections of this chapter.

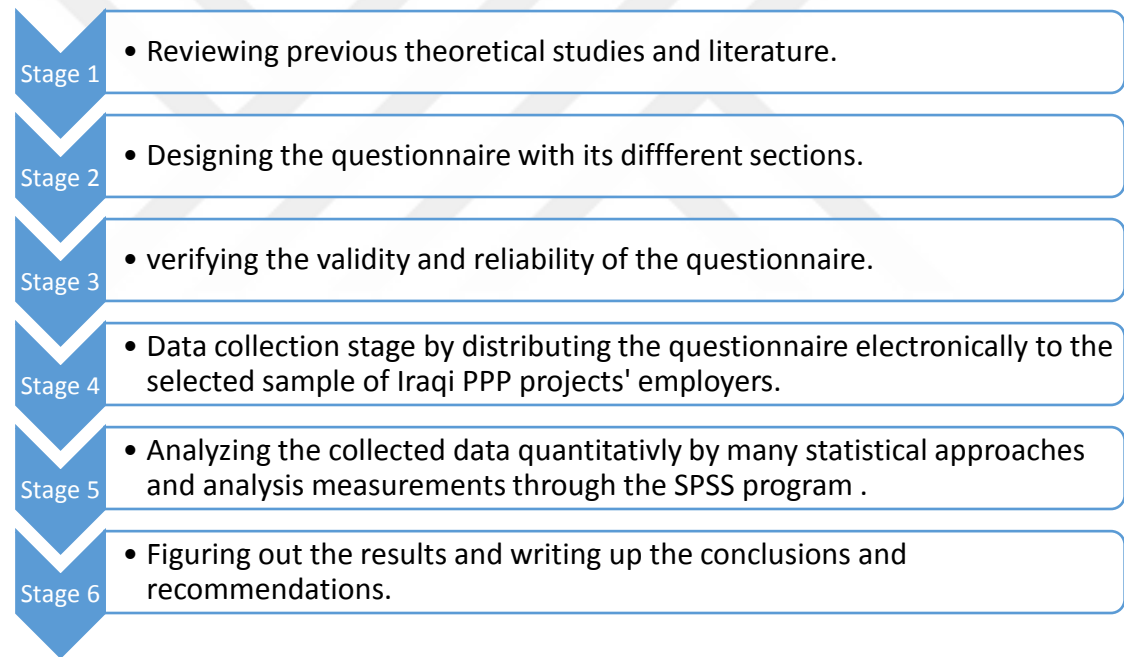


Figure 3.1: Methodology process flowchart of the study

3.1 Data Collection Procedures

There are multiple ways by which data can be obtained. One of the strengths of using the case study approach is that it permits the researcher to exploit a mixture of sources of evidence. Saunders et al. (2015) and Kumar (2011) categorize data as primary and secondary. Both types can contain a wealth of information. Primary data is collected from the researcher's study and can be obtained through observation, interviews, and questionnaires. Secondary data comes from someone else's study. In

this research, secondary data came mostly but not exclusively from books, articles, legislation, past theses, magazines, newspapers, and relevant websites, while primary data was collected through interviews.

Although claimed as the most common method of data collection in conducting a case study, observation is not suitable for this research as it will not help the researcher understand what is happening in IRAQ. It is also susceptible to the researcher's bias. No physical artifacts were identified for use in this research. Another preferred data collection method is the questionnaire, a set of Pro-forma questions distributed to individuals to gather information. It is usually administered through the mail, email, electronic surveys, or phone. As this research intends to go deeper into IRAQ practice based on the experience of the social actors, the lack of opportunity in a questionnaire to ask for clarification will defeat the purpose. The data acquired from the questionnaire may also lack clarity. Interviews are recommended to achieve rich data for the Iraqi PPP research.

The researcher, therefore, selected a combination of interviews with a review of documentation and archival records. The benefits of combining these two sources of evidence are that the methods complement each other. For example, there are limitations in interpreting the text in the documents reviewed. However, combined with the interviews and experience and knowledge of the participants, the researcher can put value and context to the text of documents for more informative results. Flick (2014) suggested that combining two data collection methods may result in discrepancies of information.

Therefore, it is essential to validate and verify the information in documents against iraq actual practice, whether it agrees with or contradicts the policy set. In addition, the selection of interviews over other primary data collection methods was its capability to probe iraq actual practice, allowing the researcher to receive clarification of any unclear answers from respondents and obtain access to unpublished sensitive information. The selected sources of evidence were tailored carefully to address the research objectives and achieve the research's aim. The synthesis of all gathered information is expected to form essential elements for the framework for this research. The case study will be conducted in two stages: document review and interviews.

3.2 Interview Design

The research items of this interview were drawn from a collation of relevant literature. Based on our literature review and a series of failed infrastructure PPP projects (including a wide range of project types) in the past, we identified the risks preliminarily. Then, we summarized twenty risk factors common to PPP projects based on the interviews of experts, each of which is the critical factor leading to their failure. Based on prior studies. This study argues that PPP "failure" refers to the phenomenon of contract cancellations, transfer of management rights, unrealizable value for money, project predicament or no operations, government buyback, and severe losses. These cases were selected as typical examples of the failed PPP projects, and their unique characteristics and causes of failure are very consistent with identifying crucial PPP risks.

Meetings were to gather information since they can give a ton of data and vis-à-vis correspondence among specialists and interviewees. Open conversation can decrease ambiguity, and the unwavering quality of information can be improved by data dividing between various members. To measure the connections among the distinguished danger factors, we led a progression of organized up close and personal meetings. To guarantee the quality and adequacy of meetings, a purposive methodology was utilized to focus on interviewees. Several studies recommend this methodology. All the interviewees have, at any rate, five years of involvement with the framework PPP project executives. The fundamental thought of choosing interviewees is the variety of expert foundations. The interviewees incorporate the two scholastics and experts and include different task jobs, with the mean to build the heterogeneity of the meeting gathering and along these lines to extend the profundity and width of meeting data. At last, several studies experienced mechanical professionals and scholastics were welcomed and partaken in the meetings.

Concerning phenomenological contemplates, the suggested number of interviewees is around six. This technique is additionally utilized in related writing. To test the fake neural organization model for demonstrating (PPP) project hazard distribution dynamic interaction, Jin and Zhang got an informational test index containing data around five PPP projects from a board of five specialists. Our examination is viewed as an investigation of dangerous wonders in PPP projects.

Meetings were to gather information since they can give many data and eye to eye correspondence among specialists and interviewees. Open conversation can diminish ambiguity, and the unwavering quality of information can be improved by data dividing between various members. To measure the associations among the recognized danger factors, we led a progression of organized vis-à-vis interviews. To guarantee the quality and viability of meetings, a purposive methodology was utilized to focus on interviewees. This methodology is proposed by Le et al. -. All the interviewees have, at any rate, five years of involvement with the framework PPP project executives. The fundamental thought of choosing interviewees is the variety of expert foundations. The interviewees incorporate the two scholastics and specialists and include different venture jobs, to build the heterogeneity of the meeting gathering and along these lines to grow the profundity and width of meeting data. Finally, experienced industrial practitioners and academics were invited and participated in the interviews.

This technique is additionally utilized in related writing. To test the fake neural organization model for displaying (PPP) project hazard designation dynamic interaction, Jin and Zhang acquired a test informational index containing data around five PPP projects from a board of five specialists. Our examination is viewed as an investigation of danger marvels in PPP projects.

3.3 Survey Description

The assortment of information is a highly fundamental and complex advance of any examination. The way of information assortment relies upon the inquiry that the exploration plans to tackle, alongside the philosophical direction of the specialist. Various devices and approaches can be utilized for gathering information. The strategy one chooses to pick relies upon the goals, research questions, and the methodology one would follow while directing examination. On account of the blended techniques approach, the analyst would start the examination utilizing subjective exploration instruments to all the more likely comprehend the wonder and would then have the option to propose a hypothesis. From that point, the analyst would utilize quantitative devices to test the hypothesis. On the other hand, the analyst could likewise overview the populace and propose a speculation, at that point direct meetings and contextual investigations for approval of the theory. Out of the

various information assortment instruments that are accessible, leading studies (in type of polls or meetings) and contextual investigations are the most usually utilized methods in sociology research.

The example size and the representativeness of the example ought to consistently be an essential thought. Toward the start, a scientist needs to characterize the populace by setting up a testing outline, which is a rundown of all cases that structure the populace. In a perfect world, the inspecting edge ought to be a finished rundown of the populace individuals. Nonetheless, practically speaking, this might be inconceivable. In this exploration project, for example, the inspecting outline was a rundown of Iraqi development organizations effectively partaking in PPPs got from the Iraq data set.

Having experience in PPP projects was a critical thing to choosing a group of subject matter experts. The survey remembered two areas for complete. In segment A, four inquiries were posed to get data about the work sector type, participant position and his/ her working and knowledge experience. These inquiries were to recognize the foundation of the respondents and to affirm their reactions. Segment B incorporated the principle inquiries regarding the strategies and interaction for hazard distinguishing proof, factors restricting the execution of danger the board, and factors impacting an organization's task dynamic.

The formation of the poll depended on all recently distributed examination papers and the data that was gathered from survey about the danger distinguishing proof stage in PPP projects. In this part, the specialists were approached to pass on their perspectives concerning the distinguished variables that affect an organization's dynamic and usage of risk the board. Also, the respondents were approached to show the favored instruments and strategies and the cycle of danger recognizable proof in their organizations. Concerning B, the appropriate responses were introduced in a 5-point Likert scale, i.e., 1 is corresponding to strongly disagree, 2 is scaled as disagree, 3 is scaled as maybe, while 4 is scaled agree and 5 is scaled Strongly agree. A five-point Likert scale can assist interviewees with explaining their perspectives on understanding or contradiction on the significance of various elements.

Table 3.1: Likert scale

Scale	Interpretation
1	Strongly disagree
2	Disagree
3	Maybe
4	Agree
5	Strongly agree

The use of 5-point Likert scales has been prevalent in developing exploration of responses and diverse viewpoints in a close-ended form. It has also been used effectively by several examinations focusing on recognizing evidence and risk assessment in construction projects; thus, it has been viewed as a reliable methodology for collecting close-ended data for this investigation. However, open inquiries were used in the last part of the surveys to obtain data based on the expertise and understanding of specialists in this topic. These open ended questions gave respondents more opportunities to share their insights and experiences.

Table 3.1 above summarizes the interpretation of the likert scaled answers. It shows the mean of the participant's answers of the questions in the survey. The questionnaire was utilized in this research as a primary data collection tool for different reasons including; its ability to extract and obtain the required information efficiently, in addition to its effectiveness in collecting a large amount of data in a short time as is the case in our study (Creswell & Creswell, 2017).

Moreover, the input gathered from the questionnaire was examined utilizing different measurable techniques by the Statistical Package for Social Sciences (SPSS). Before directing the questionnaire to the respondents, the validity and reliability of it was assured. For instance, Cronbach's alpha was used to assess the internal consistency and reliability of the questionnaire's content. The estimation of Cronbach's alpha was determined to be 0.832, demonstrating that an acceptable degree of consistency among the questionnaires' question was gotten. This estimated Cronbach's alpha value was greater than 0.7, meaning that all of the items are correlated to its section and the overall sections' items are related to the questionnaire and the questionnaire has a high reliability so there is no need for revising or discarding any item as indicated by Graham (2006).

Regarding the validity of the questionnaire, Garson (2001) clarified that measuring the validity of any research can be done through identifying the accuracy of the subject of the study and the data collected. The researcher has followed a series of steps in order to ensure the validity of this research. The questionnaire and interview guide questions were designed based on previous peer-reviewed studies. The researcher has designed the sections and the statements of the questionnaire depending on previous studies related to the subject of the current study.

In addition, the researcher ascertained the content validity of the study tools through presenting the initial copy of the questionnaire and interview guide to a group of experienced arbitrators (8 specialists in engineering management and construction engineering) from different universities and engineering offices, and based on their recommendations and suggestions, the questionnaire and interview phrases have been modified and reformulated to get the final copy to distribute it on the study sample, which is as shown in the appendix. Besides, the researcher provides the participants with general information about the subject of the present study and clarifies the primary objective to achieve the desired goals. Based on all of that, the validity of this research is guaranteed.

Qualitative data analysis emphasizes understanding in depth the meaning of the collected data, focusing on the context. The process of analyzing the collected data is significant as it draws the answers from the textual data collected into something meaningful. Data analysis needs to be executed in a non-routine, original, iterative, non-linear and complete manner in qualitative research. Without the analysis, qualitative data would be just a mass of texts collected from the data collection process.

Although there are numerous methods of data analysis, there is no specific method for case study. Case study allows the flexibility to use any method. Content analysis is employed to uncover patterns and identify themes and categories of the research subject.

3.4 Analysis Process of the Research Data

Various statistical analytical approaches were used in the context of questionnaire designed and data analysis purposes, for example the researcher used alpha Cronbach

test in order to estimate the internal consistency reliability of the questionnaire items before distributing it over the research sample. On the other hand, to analyze the data collected, different analytical tests were used, such as descriptive statistics to calculate the frequency and arithmetic mean of the various variables, in addition to the Pearson correlation coefficient and one way ANOVA test for factor analysis and detecting the most influential risk factor in order to make the most appropriate conclusions and recommendations. These analytical and descriptive statistical tests were implemented using the statistical Package for social science SPSS – software.

Moreover, in order to analyze the qualitative data collected from the interviews open questions, the researcher conducted a content analysis technique. This technique represents a qualitative interpretation and explanation of the data collected along one or more specific patterns or themes (Patton, 2002). The researcher followed a conceptual content analysis transcription interpretation technique by which texts and transcripts collected from interviewees are contently analyzed in order to gain appropriate qualitative interpretation insight into Iraqi risk management practices. Using conceptual content analysis allows the researcher to interpret the text and identify the important information that is relevant and essential to build up the case. By this procedure, the researcher read every transcript several times and made exploratory remarks on each of them. At that point, the exploratory remarks were analyzed to recognize the evolving themes within each segment of the transcripts. After that, the researcher recorded all the recognized themes and grouped them hierarchically. At the end of data analysis, the researcher presented the results in the data analysis sections and the conclusion arising from this study.

3.5 Validation of the Frameworks

A validation exercise was carried out on the frameworks developed in order to achieve:

1. The clarity of the proposed frameworks;
2. The possibility of the frameworks being used in practice;
3. Barriers in implementing the frameworks; and
4. Recommendations to enhance the frameworks.

After the advancement of the systems, a second period of semi-organized meetings

was led in December 2015 with explicit respondents, recognized as addressing various sorts of significant partner in Iraq PPP usage. The partners were the general population (citizen), government (strategy creator), the specialist (industry) and the customer (services/offices). The ramifications from the structures will influence these partners in an unexpected way. Respondents taking an interest in the approval practice were the executive of the Public Accounts Committee (addressing the general population), the Director of Policy Section for Iraq (addressing government), and the Deputy Director of the PFI unit for an advanced education organization (addressing customers) and a venture head of the most significant concession under Iraq PPP (addressing experts).

3.6 Validity and Reliability

Validity refers to the data collection tool to measure what it was made for. Heale and Twycross (2015) indicated that validity is associated primarily with the viability to repeat experiments and scientific discoveries, and will not be achieved only through a preview of data collection tools in an appropriate manner.

Validity can be defined in the scientific research as the accuracy of the research in measuring the purpose which is designer for (Golafshani, 2003), i.e. to what degree the research tool provides us with information relating to the research problem of the same study population.

Literature indicated that there three main types of validity, including; the content validity, the construct validity and the criterion validity. The first type of validity is the content validity. This kind of validity includes making sure that the tool of the study coverage the subject of the study and its variables (Korb, 2012). The face validity is considered a subset of content validity, which can be ascertained through presenting the study tool on a group of arbitrators and ask them to express their opinion in this tool (Heale & Twycross, 2015).

The second type of validity is the construct validity. This type of validity refers to the possibility to draw conclusions related to the subject of study (Golafshani, 2003). Korb (2012) indicated that there are three types of evidence that can be used to check this validity, which are:

1. Homogeneity

2. Convergence: This exists when the tool of the study measuring concepts similar to those concepts used in other tools.
3. Theory evidence: this is achieved when attitude is similar to theoretical suggestions of the structure measured in the tool.

The last type of validity is criterion validity. This type of validity includes the capacity of the other tools to measure the same variables (Heale & Twycross, 2015).

Garson (2001) clarified that measuring the validity of any research can be done through identifying the accuracy of the subject of the study and the data collected. The researcher has followed a series of steps in order to ensure the validity of this research. The questionnaire and interview guide questions were designed based on previous studies. The researcher collects information through contact with actual companies and employers of PPP project in Iraq. The researcher has designed the axes and the statements of the questionnaire depending on valid previous studies related to the subject of the current study.

In addition, the researcher ascertained the face content validity of the study tools through presenting the initial copy of the questionnaire and interview guide to a group of experienced arbitrators (8 specialists in engineering management and construction engineering) from different universities and engineering offices, and based on their recommendations and suggestions, the questionnaire and interview phrases have been modified and reformulated to get the final copy to distribute it on the study sample, which is as shown in appendixes. Besides, the researcher provides the participants with general information about the subject of the present study and clarifies the primary objective to achieve the desired goals. Based on all of that, the validity of this research is guaranteed.

Moreover, reliability is defined as the ability of the instrument (tool) to achieve similar outcomes if the instrument application is repeated once again on the same sample and similar conditions (Golafshani, 2003). For this study, Cronbach's Alpha was utilized to calculate the reliability of the questionnaire.

To ensure the reliability of the tool, it was applied to a small pilot sample of (30) employees working in PPP projects in Iraq. This pilot study meant to acquire primer estimations of the expected quality of the collected data and feature different issues

in the data collection tool, including uncertain or unacceptable inquiries, before beginning the real survey (Bryman & Bell, 2007).

The estimation of Cronbach's alpha for the overall designed questionnaire was determined to be 0.832, demonstrating that an acceptable degree of consistency among the questionnaires' question was gotten. This estimated Cronbach's alpha value was greater than 0.7, meaning that all of the items are correlated to its section and the overall sections' items are related to the questionnaire and the questionnaire has a high reliability so there is no need for revising or discarding any item as indicated by Graham (2006).

3.7 Assessment of Normality

The assumption of normality and a normal distribution is a prerequisite for many inferential statistical techniques. Normal used to describe a symmetrical, bell-shaped curve, which has the most significant frequency of results in the middle, with more minor frequencies toward the extremes. According to statistical studies, there are a number of different ways to explore this assumption. These include: Graphs, Stem and Leaf Diagrams, Boxplots, Normal Probability Plots, Undirected Normal Plots. Furthermore, a number of statistics are available to explore normality. This is mainly the Kolmogorov-Smirnov statistic, with the level of significance of Lilliefors and the Shapiro-Wilk statistic, skewness, and kurtosis.

However, several statisticians have stated that normality can be assessed to some extent by obtaining skewness and kurtosis values. Therefore, in this study, the main focus for determining the normality of the data was mainly on skewness and kurtosis statistics. Thus, skewness and kurtosis values for the study variables were obtained for normality of data testing.

Separately from the study, the distribution of data is considered abnormal if the skewness and kurtosis values are zero, which is rare in the social sciences (see Hare et al., 1998; Tabachnik and Fidel, 2007, p. 79). Moreover, if the skewness is equal to +1 or -1, then it is usually considered a significant deviation from the normal distribution. Hence, values between -1 and +1 are values that represent a normal distribution.

Accordingly, looking at the following Table 3.2, which shows the results of

skewness and kurtosis for the total variables of the study, the skewness and kurtosis values range between -1 and +1, and most of the values are close to zero; thus, a normal distribution can be assumed for this study and parametric tests can be used to analyze the data.

Table 3.2: Normality assessment using skewness and kurtosis

Variable	Skewness	Kurtosis
Technical	0.270	0.137
Social soundness and Environmental impact	-0.286	0.696
Financial and economic	-0.219	-0.530
political acceptability and legality	0.687	0.787

Moreover, according to the results of Kolmogorov-Smirnov and Shapiro-Wilk tests, which are presented in the following Table 3.3, the significance values of Kolmogorov-Smirnov for each variable (Technical, social soundness and Environmental impact, financial and economic, and political acceptability and legality) are (0.183), (0.062), (0.052), and (0.121) respectively. This implies that all of those variables have a normal distribution since the significance value is bigger than 0.05 as was indicated by Ghasemi and Zahediasl (2012). Furthermore, the significant values of the shapiro-wilk tests for the same dimensions are equal to (0.054), (0.184), (0.054) and (0.065) respectively, which are larger than 0.05 and therefore it could be concluded that the data follow the normal distribution.

Table 3.3: Kolmogorov-Smirnov and Shapiro-Wilk tests of normality

Variable	Kolmogorov-Smirnov		Shapiro-Wilk	
	Statistic	Sig.	Statistic	Sig.
Technical	0.172	0.183	0.961	0.054
Social soundness and Environmental impact	0.111	0.062	0.972	0.184
Financial and economic	0.126	0.052	0.938	0.054
political acceptability and legality	0.163	0.121	0.920	0.065

3.8 Reflexivity

Other than legitimacy and unwavering quality, reflexivity is fundamental for improve the validity of the exploration. Symon et al. (2004) utilize the term

reflexivity in subjective examination to recognize the dynamic pretended by the analyst and what it may mean for the exploration cycle and the information created. As it is set up that the specialist is essential for the instrument in personal exploration, he may be relied upon to carry individual and expert experience to its execution .Nevertheless, there is a threat that the scientist may be impacted by his assumptions, qualities and standards, influencing the outcomes.

Baillie (2015) recommends that reflexivity is one of the procedures used to advance thoroughness in personal exploration, where the "specialist deliberately perceives and addresses their impact and impact of the examination". She added that this strategy requires the analyst to act naturally mindful and condemn any expected inclination and predispositions. Through reflexivity, the specialist endeavors to be straightforward, detailing his situation on the topic.

Although the public authority of Iraqi has granted him a grant, they never directed the examination subject or meddled with the exploration whenever. All understandings and ends made were drawn from the discoveries and the scientist's work.

Table 3.4: Classification of risk factors

Risks	Technical	Design deficiency
		Project demand
	Social soundness and Environmental impact	Expropriation and nationalization
		Staff Crisis
		Corruption
	Financial and economic	Influential economic evens
		Exchange rate fluctuation
		Inflation and interest rate fluctuation
		Poor financial market
	political acceptability and legality	unstable government
		Publicly accountability
		Reliability and creditworthiness of government

In receiving an interpretive way to deal with comprehend the act of iraq , it was set up that a numerous reality exists, developed by the respondents, in their own words.

The utilization of semi-organized inquiries questions permits the respondents to talk without limitation inside the examination setting. The scientist didn't meddle or apply any effect on the interviewees' reactions or perspectives. Albeit the translation of these reactions during the examination cycle is that of the scientist, countless the first answers are cited verbatim in the investigation part.



4. RESULTS AND ANALYSIS

4.1 Study Results

Analysis is an interactive process by which answers to be examined to see whether these results support the hypothesis underlying each question. Quantitative statistical analysis for questionnaire was done by using Statistical Package for Social Sciences v22 (SPSS). Where appropriate, findings have been illustrated with the aid of graphs and tables.

The questionnaire survey was conducted through a written online survey. There was a separate questionnaire distribution for public sector organizations operating in developing infrastructure projects, and the private sector 60 of the 80 questionnaires were received distributed online via Google Docs, contributing to 75% of the total distribution. The high percentage of answered questionnaires is probably caused by the direct questionnaire survey distribution method to the respondents, which fosters the respondent's cooperation in the survey. Besides, cooperation by respondents' organizations in reminding their participants to respond to the questionnaire survey is also one of the milestones escalating the number of returned questionnaire.

4.1.1 General characterization of respondents

Regarding respondents distribution by sector, findings show that 55% of the respondents came from the public sector, which is the most significant percentage of respondents, while 45% from the private sector, Furthermore, Figure 4.1 shows the percentages of both sectors of the survey sample.

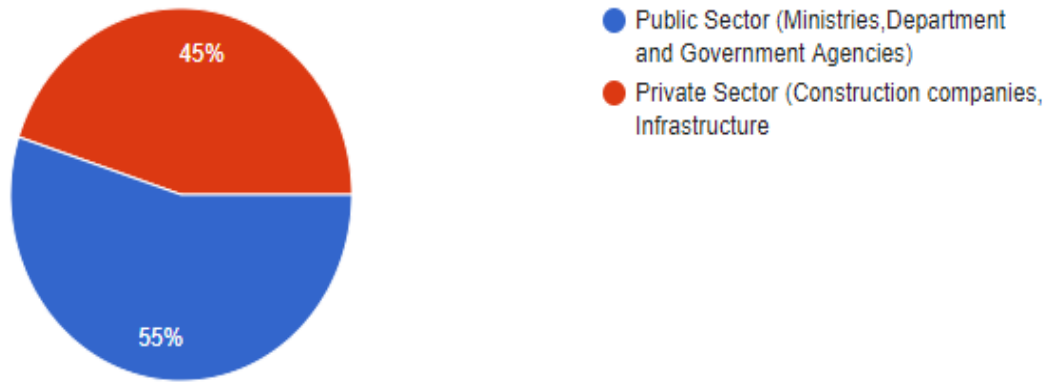


Figure 4.1: Distribution of respondents by sector (n=60)

The majority of the study participants were civil engineers, shown in figure 4.2 by 66% of the study population. Also 60% of the study population are currently involved in PPP project while 40% were previously involved in PPP projects.

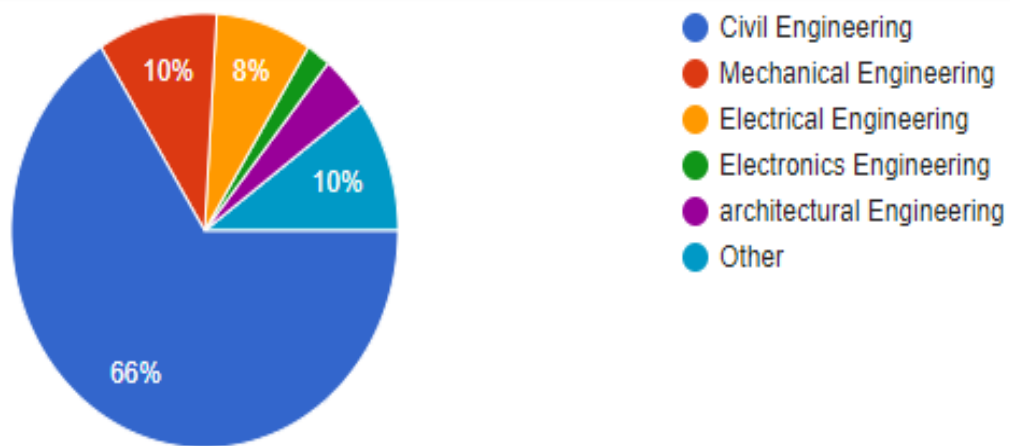


Figure 4.2: Distribution of the participants by the carrier

The majority of the study participants have 10-15 years of experience, shown in figure 4.3 by 32% of the study population, followed by 22% of them with more than 20 years' experience, followed by 20% of them with 15-20 years of experience and finally 10% of employees having 5-10 years of experience, representing the least category.

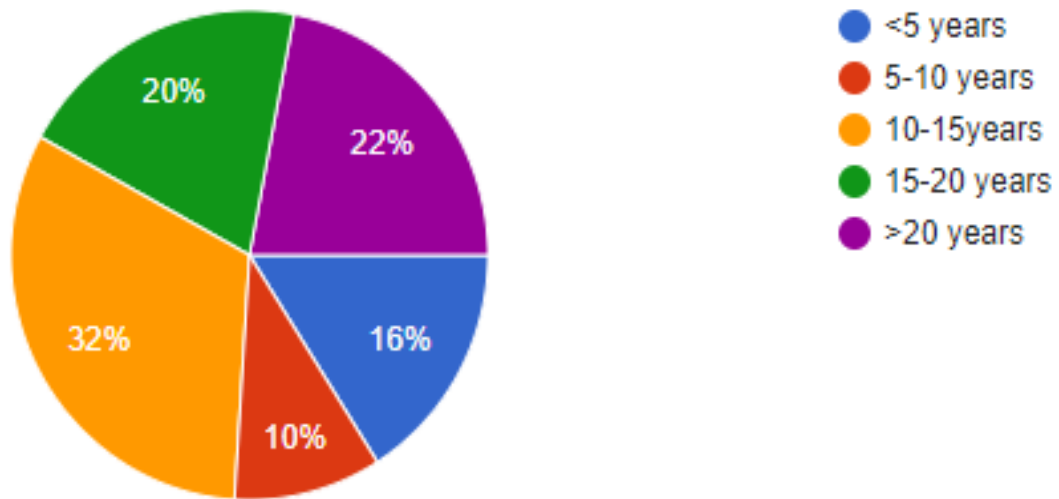


Figure 4.3: Distribution of the participants by years of experience

Figure 4.4 shows the private sector companies categorized by project types. As a majority of the participants with 31.7% are working in other fields than the listed in the survey, while 18% work in housing and office projects, followed by 11% in water and sanitary construction projects.

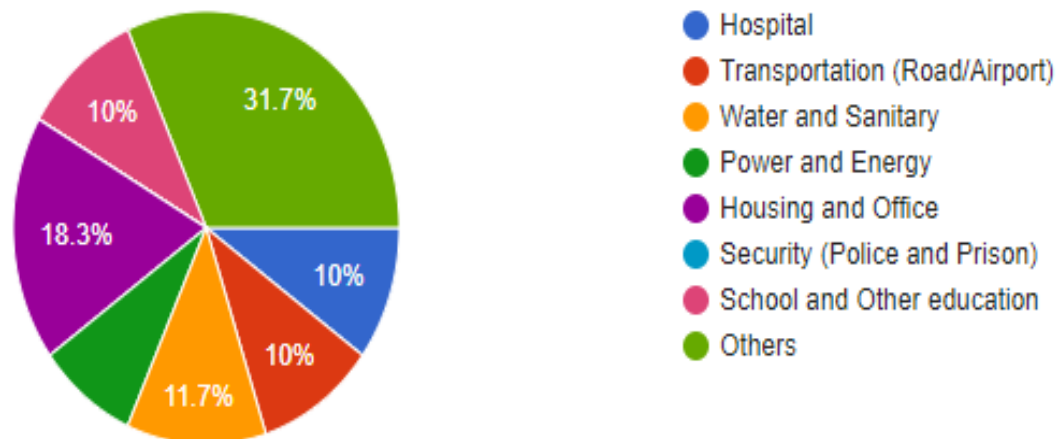


Figure 4.4: Distribution of participants by project types

4.1.2 Risk factors and risk allocation preferences

In order to evaluate the risk factors in the PPP project from the point of view of the participants, the risk factors were classified into four categories: technical, financial and economic, political acceptability and legality and social and environmental.

4.1.2.1 Political acceptability

Respondents were asked of their opinion on the impact of political and legal decisions for PPP projects. Respondents were asked about their view on the effect of political acceptability on public and private support on PPP. Most of the respondents strongly

agreed with political acceptance and public decision making are very effective. That contributes is one of the main risks on PPP success. Figure 4.5 illustrates the responses received.

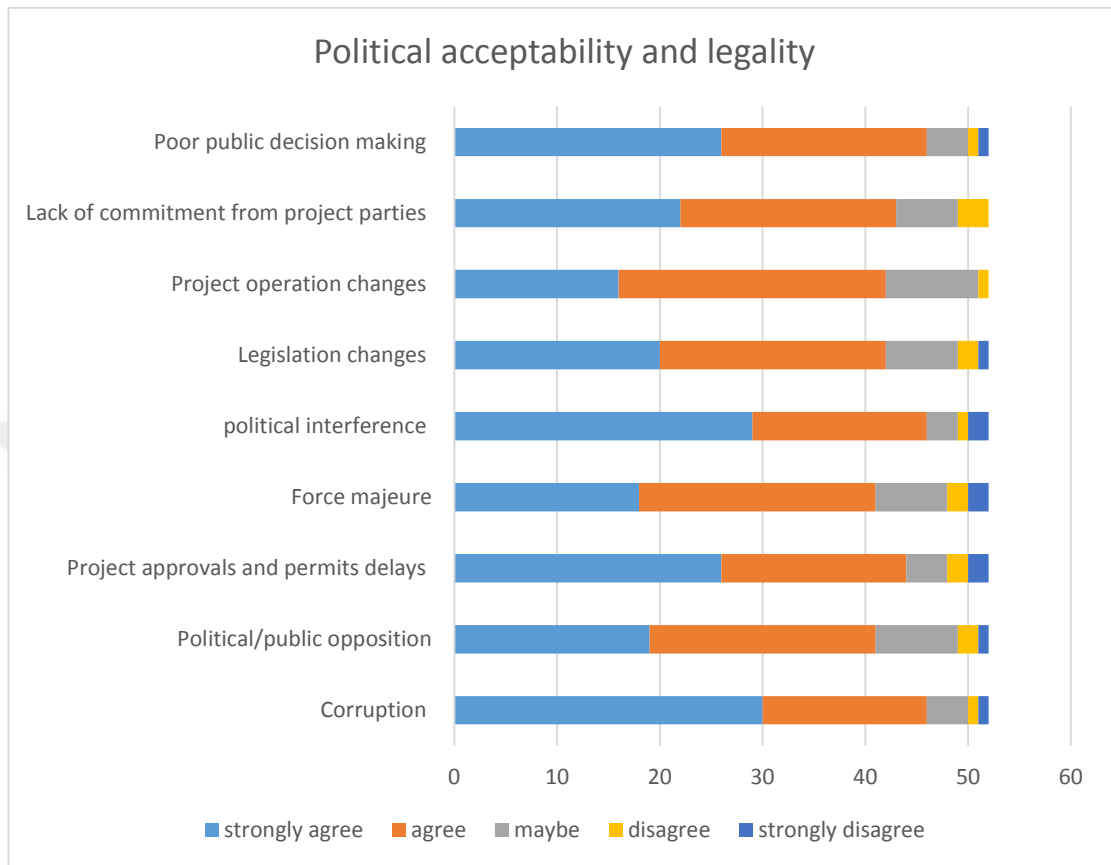


Figure 4.5: Political acceptability and legality factor assessment

4.1.2.2 Social soundness and Environmental impact

Respondents were also asked to rate amongst six factors that lead to a successful PPP on the Social soundness and Environmental level. They were asked to rate each factor if they agreed or disagreed with it as leading to risks on the PPP. The ratings with higher responses are represented in Figure 4.6.

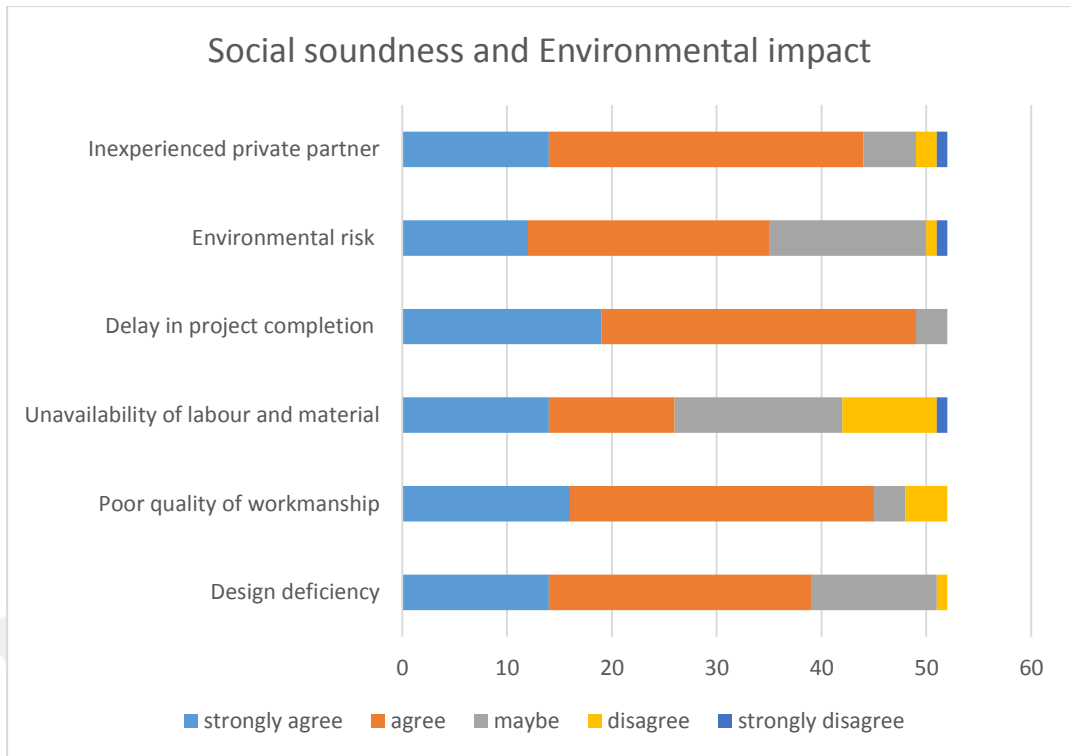


Figure 4.6: Social soundness and Environmental factor assessment

4.1.2.3 Technical

The survey respondents were asked of their opinion on the technical factors that Cause risks PPP. Respondents were to rate the factors they deemed as critical indicators of a PPP project. Respondents were to rank the indicators and the responses are illustrated in Figure 4.7.

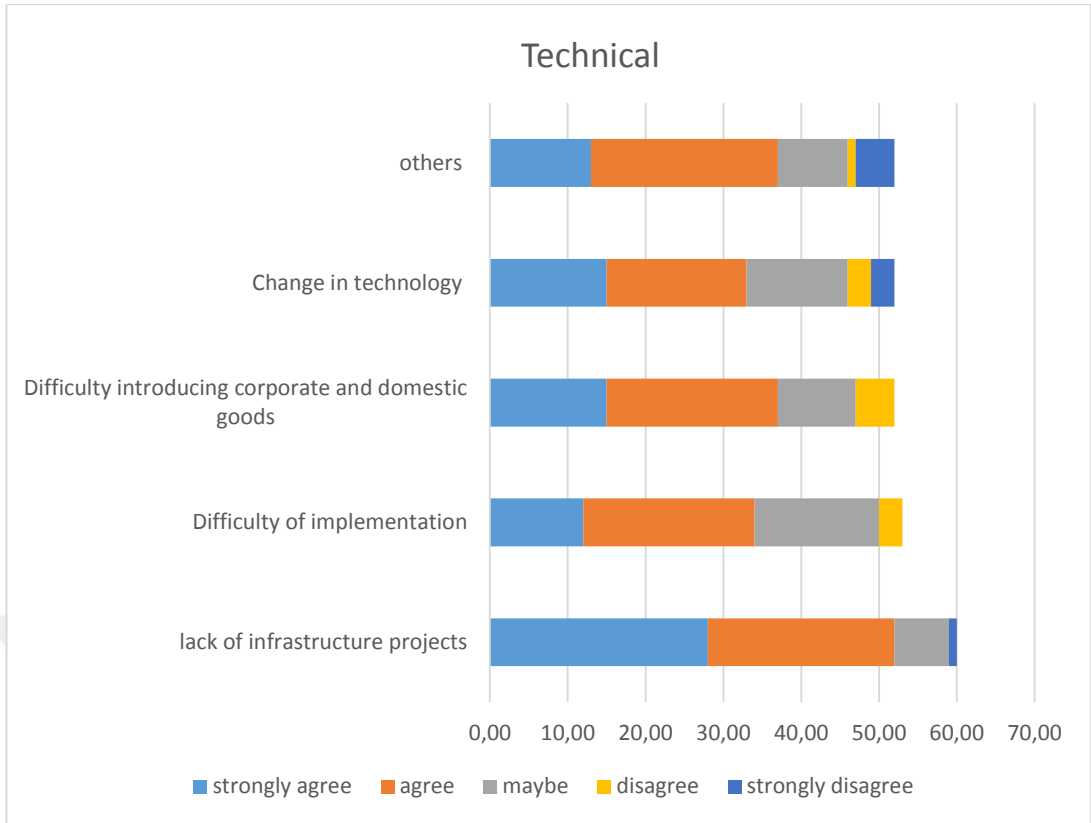


Figure 4.7: Technical factor assessments

4.1.2.4 Financial and economic risks factors

Respondents were asked if PPP projects risk factors on financial and economical bases. The represented rating scale was as described in Table 3.1 where responses are illustrated in Figure 4.8.

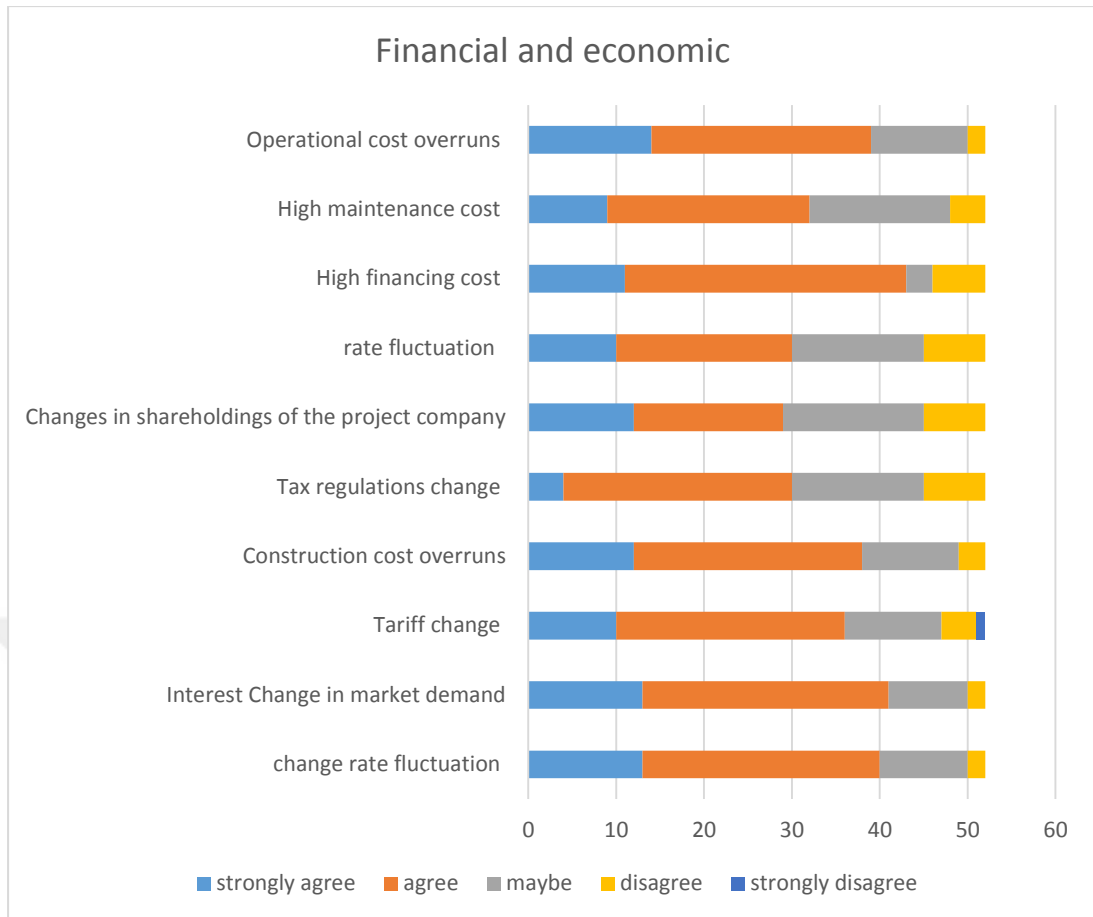


Figure 4. 8: Financial and economic factor assessment

4.1.3 Factor analysis

Responses from the study participants for each risk factor were compared to state the most influential risk factors on the PPP. The test can be used the survey questions to find out if the average responses for each risk factor. ANOVA one way test was performed to accomplish the previous aim. As showed in Table 4.1, the technical, financial, and economical, and political acceptability and legality risk factors were statistically significant to affect the success of the PPP with a p-value of 0.006, 0.0002, and 0.0007, respectively. At the same time, the Social soundness and Environmental impact have shown a no significant statistical relation with the source of the PPP project with a p-value of 0.1.

Table 4.1: Risk factors assessment

Source of Variation	SS	df	MS	F- value	P-value
Technical	1553.36	4	388.34	28.01876	0.006
Financial and economic	3571	4	892.75	95.42458	0.0002
political acceptability and legality	3987.244	4	996.8111	121.7273	0.0007
Social soundness and Environmental impact	2311.2	4	577.8	28.54743	0.1

According to the previous Table 4.1, it can be said that there are significant statistical relation correlations between the three risks factor categories (the technical, financial and economical, and political acceptability and legality) and the success of the PPP projects in Iraq. However, in order to identify which of the risk factors have the most influential effect on the success of PPP projects, F value were used to test that effect. Table 4.1 shows the F values for each variable in the model. For the three variables (the technical, financial and economical, and political acceptability and legality), the F values were statistically significant at the significance level ($\alpha < 0.05$) and relatively high (28.01876, 95.42458, 121.7273) respectively. However, the Social soundness and Environmental impact have shown a no significant statistical relation with the source of the PPP project with a p-value of $0.1 > 0.05$.

In term of the strongest effect of the four factors on the success of Iraqi PPP projects, the level of effect of these variables depends on the (F) value, the higher (F) value the higher effect on the success of projects. Accordingly, the political acceptability and legality factor has the strongest effect, then financial and economical, followed by the technical factor and finally the social and environmental factor.

Hence, this proved the impact of the three previously discussed factors on the success of PPP projects in Iraq, which ultimately leads to the need for construction PPP project managers to pay attention to these factors and improve them if they want to improve their performance and raise their chance to success.

4.2 Discussion of the Results

Inside and outside impacting factors in the climate that could mess up PPP in Iraq are as per the following:

1. The regulatory outlook of government to plan an organization suggestion for

an enterprising attitude Bureaucracy is one of the primary difficulties of conveying super development projects in creating nations (Othman, 2013). A large number of countries such as KSA and UAE nations have profoundly unified and administrative government structures. Undertakings will regularly require the endorsement or potentially cooperation of various government offices and organizations that may not know about it or offer its objectives. Hence, the necessary licenses and endorsements are not in every case promptly impending.

This is a specific issue for unfamiliar organizations and financial backers, who might be new to exploring the district's regularly unpredictable political and administrative climate. The primary issue confronting the Iraqi government concerning establishing a PPP project is that it is utilizing its administrative outlook to plan an organization suggestion for an enterprising attitude.

2. Lack of Strong political help

The absence of political help is one of the primary difficulties of conveying super-development projects in agricultural nations (Othman, 2013). In that unique situation, Firms hoping to enter another PPP market like to see solid political help from the most significant levels of government (President, Prime Minister, or somebody close), particularly thinking about that organizations face considerably more challenge in a PPP than they do under a more customary public obtainment contract (in a PPP, privately owned businesses expect the danger of plan, development, activity, and financing under a drawn-out agreement; in conventional acquirement, conversely, the works are paid for ahead of time). There is an absence of solid political help for PPP execution which is considered one of the dangers for PPP execution in Iraq.

3. Inefficient assessment of recompense period

The compensation period alludes to the measure of time it takes to recuperate the expense of a venture. The recompense time frame is the period speculation arrives at a breakeven point. The allure of a venture is straightforwardly identified with its restitution period. More limited restitutions mean more alluring ventures. The compensation period is the expense of the venture partitioned by the yearly income. One of the issues confronting PPP execution in Iraq is a wasteful assessment of the

recompense period. If the recompense period for a PPP project is unacceptable for financial backers, the financial backer will dismiss the venture.

4. Corruption at PPP projects

Defilement is one of the principal difficulties of conveying super-development projects in non-industrial nations. Because of the contribution of an excessive number of individuals and cycles, PPP projects are constantly exposed to the danger of debasement. Debasement is characterized to incorporate payoff, misrepresentation, and other related offenses. Sadly, nonetheless, PPPs, similar to public acquirement, could be inclined to debasement.

Where this is the situation, whatever acquires that PPP gives to lessen the foundation shortfall might be disintegrated, as debasement could bring about swelling of the expense of development or the restoration of offices. Furthermore, a PPP cycle damaged by defilement could bring about the utilization of helpless development materials as an enormous lump of assets would be redirected to paying off open authorities by the undertaking organization.

Thirdly, a lousy cycle could bargain the respectability of authorities accused of the duty to review and support development works. Fourthly, pulling in certified financial backers to partake in secretly financed foundation advancement in the nation will turn into a delusion if the PPP cycle in the nation is polluted by defilement (Arimoro, 2018).

Defilement hazard happens by the public authority's authorities or delegates who request or get an unlawful thought or commission or apply or use any unlawful impact regarding granting and consent to the undertaking designer. Defilement of the authorities who manage financial backer depends on utilizing political, legitimate, or administrative influence to separate extra expenses. Nobody will at any point concede, and the undertaking engineer can never recover. Numerous organizations see defilement as an unavoidable truth on projects in non-industrial nations, including Iraq. This presents dangers of expenditure, either an excessive amount of cash on degenerate authorities, or going through cash in some unacceptable spots, or at some unacceptable occasions.

While PPPs can offer possible more noteworthy straightforwardness because of a system set up for PPP guidelines, they can likewise be inclined to debasement and be

a wellspring of. Debasement can happen both during the acquirement stage and during the execution of the venture. It follows that at any phase of the existing pattern of a PPP project, debasement can deface the equilibrium of the game plan. Defilement in PPP isn't exceptional to any country or district on the planet. The cycle can be polluted by degenerate practice even in created economies (Arimoro, 2018).

For the Success of PPPs, the cycle should be liberated from degenerate practices. The defilement of PPP execution in Iraq is a cause of stress to nearby and unfamiliar financial backers.

5. Time Consumed because of dealings

PPP administration acquisition strategy is longer and more exorbitant in examination with conventional public acquirement (Kumar et al., 2017). There have been instances of issues related to the underlying stages of the cycle regarding unduly high offering costs and pre-contract time overwhelms primarily due to the extended nature of the arrangements. Thus, drawing in certifiable financial backers to take part in secretly financed framework improvement in the nation will turn into a hallucination if the PPP interaction in the nation takes longer because of exchanges (Ahadzi and Bowles, 2004). When the Iraqi government receives PPP, the interaction should set aside a short effort to empower financial backers. The time overwhelms because of arrangements is a cause of stress to nearby and unfamiliar financial backers.

6. Changes parents in law and guidelines

Change in law hazard covers the adjustments in government approaches for laws and guidelines, which direct the PPP framework and manage financial backers (Harak et al., 2004). Change in Law implies the event, after the date of the Agreement, of any of the accompanying: (a) the reception or producing results of any law, rule, guideline or settlement, (b) any adjustment in any law, rule, guideline or arrangement or organization, translation, execution or application thereof by any Governmental Authority or (c) the making or issuance of any solicitation, rule, rule or order (regardless of whether having the power of law) by any Governmental Authority. Changes parents in law and guidelines are considered as lawful dangers. At a similar time, they are considered as causes of stress to nearby and unfamiliar financial backers.

- Late Owning and Operating chance to the Public Owner

The institution's speculation includes extreme confusion and long length, and this would ensure the scalability of cash management while meeting the client's needs and social destinations. PPP projects are usually more complex than basic acquisition models in light of their complexity, and inclinations (Rashid et al., 2019).

Most PPP projects introduce a formal term somewhere in the 20-30 year range; other terms and another couple over 30 years old. The term should be long enough that the private party has an incentive to coordinate the reflections on the costs of transportation assistance in the period of the mission plan. Under the PPP contract, the government gets a new basis that turns into government resources at the end of the agreement term (Hannoura, 2013). The long natural length of these activities results in pleadings to the public owner (government) being late after the long undertaking period (Harak et al., 2004).

1. Too Long-term and Complex Agreements

Given the drawn out nature of PPP projects and the intricacy related, it is hard to distinguish all potential possibilities during project improvement and occasions. Likewise, it is hard to distinguish issues may emerge that were not expected in the archives or by the gatherings at the hour of the agreement. It is almost certainly that the gatherings should reconsider the agreement to oblige these possibilities.

It is also conceivable that a part of the activities may fail or end before the extended duration of the task, due to various reasons mentioning changes in government strategy, disillusionment by or without the private official or public authority to carry out its obligations. Doubt outside external circumstances, for example, force majeure. While part of these issues will actually want to do in understanding the PPP, all the things that have been considered, that are considered during the task of introducing the procedure take longer and are a risk factor for the implementation of the PPP in Iraq.

2. The increment of expansion rate

Expansion chances mean the increment of swelling rate in the country, which considerable huge hindrances to the accomplishment of BOT projects, since expansion in the nation will likewise influence the monetary achievement of a BOT project and the capacity of the patrons to reimburse the moneylenders. Long haul benchmark for financing costs in Iraq doesn't exist, as needs be banks offer a

variable. Banks need to accompany no supporting as the national bank doesn't permit trades on the neighborhood money advances making it excessively costly for long tenors.

3. Lack of Liquidity at nearby banks, particularly in unfamiliar cash

By and large, neighborhood banks in Iraq have not the liquidity to help PPP projects, with foreign money.

4. Currency Inconvertibility Risks and Foreign Exchange Risk

Swapping scale chances are happened when there is a contribution of foreign cash trade or worldwide money in the undertaking (Harak et al., 2004).

A bit of the ventures hardware is imported in foreign money which infers unfamiliar trade openness hazard during the development stage (1-3 years). Money inconvertibility hazard shows up when the public authority moves to give ensures for the meaningful exchanges or confine the foreign trade. This danger can be huge hindrances to the achievement of BOT carports projects mainly for the unfamiliar financial backer and unfamiliar credits; in light of the fact that the under because by unfamiliar monetary standards and the task pay is by nearby money (Harak et al., 2004). Regular swapping scale variety in Iraq is considered as one of the deterrents to PPP execution in Iraq.

Devaluation Risk (Harak et al., 2004) , In current financial approach, a depreciation is an authority bringing down of the estimation of a country's cash inside a fixed swapping scale framework, in which a financial authority officially sets a lower conversion standard of the public money comparable to an unfamiliar reference cash or cash bushel. Cheapening hazards happen when the unfamiliar trade rates vary for the lower rates. This can be adverse to monetary sufficiency by influencing the costs of information and yield, just as credit reimbursement. Hence, it is unordinary for loan specialists to concede to fixed trade rates in a loaning bundle (Harak et al., 2004). Degrading danger is considered as a danger for PPP execution in Iraq contrasted and other non-industrial nations.

5. Lack of Proper Data Collection

The lack of data on PPP projects in Iraq makes it unreasonable for financial backers to present an accurate plan for a PPP project. Lack of Occasion: The Absenteeism

Assessment for PPP Projects in Iraq addresses a test for supportive returnees who wish to engage in participation in the Iraqi government.

6. Political shakiness

According to the World Bank, the list of political stability ranges from (- 2.5 weak; 2.5 solid). For this indicator, the World Bank provided information for Iraq from 1996 to 2013. During that period, the specific incentive for Iraq - 0.89 focus was at least - 1.64 points in 2013 and with a limit of 0.05 points in 2000 (theglobaleconomy.com).

Political precariousness has portrayed a lot of the (GCC) area since 2010 for certain nations (Iraq and different nations) seeing various changes in government and established modifications. Aside from the truth and impression of elevated political danger, provisional governments include various faculty changes at senior political and official levels.

7. Economic flimsiness

Financial unsteadiness leads to a stable unpredictable rate of inflation and an unstable pace of economic development. It can include higher joblessness and vulnerability about the financial cycle. Financial precariousness in Iraq after the January transformation contrarily affects PPP projects.

8. Increasing in charges expenses

Expanding in charges expenses in Iraq that not considered before is one of the hindrances to PPP execution in Iraq. Expanding in charges expenses in Iraq contrarily affects PPPs.

9. Decline of Banks Willingness to Support PPP

Collins and Godfrey assessed that before the worldwide monetary emergency, there were at any rate 40 regional and global banks that consistently partook in project money and framework bargains in the GCC locale and that this number has most likely declined by the more significant part. A large part of the lessening is because of banks pulling out from the market or downsizing their association in local arrangements. The banks that remained financing, and now and again diminished specialized limit, particularly for complex exchanges in business sectors where seen hazard is high. In this setting of scant bank liquidity, and developing nation chances,

conventional loan specialists have restricted craving and ability to loan long haul on an unstable premise, and the nonappearance, underdevelopment or restricted accessibility of fitting danger relief apparatuses, along with an absence of renegotiating and credit upgrade components, has made some undertaking structures ugly.

This can make framework projects in GCC locale general and Iraq particularly harder than in different districts, regularly with more extraordinary expenses and lower returns.

10. High forthright Development and Financing Costs

When graphic elements are joined with the inborn difficulties of framework, pulling in venture to the locale can be more troublesome than in different districts and will regularly include more extraordinary expenses and lower returns.

The financing expenses of PPP projects in Iraq are high contrasted with financing expenses of these activities in other driving nations in the execution of public-private organization projects.

5. CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusion

Public-Private Partnership (PPP) has been used for the past 20-30 years by governments in developed countries to meet public demand for infrastructure, construction and other services. In developing countries and specifically Iraq, the concept of PPP is relatively new to the government, as the government has historically assumed most of the responsibility for providing public services and acquiring mega construction projects. There are few PPP projects in Iraq. However, the number is increasing. The Iraqi market has recently witnessed a number of public-private partnership attempts in different sectors, especially after the new investment law in 2006.

According to several researchers, there are generally many expected advantages of engaging in a PPP: (1) the possibility of assisting the private sector in financing projects that governments cannot provide temporarily, (2) an increase in the quality and efficiency of the services provided, (3) some risk sharing and benefit from own business experience, (4) revenue optimization and deficit reduction and finally (5) faster delivery of markets.

However, using PPP contracts turns out to be not a simple solution to government shortages due to their complexity. Some of the issues that will be specifically addressed would be for example the transparency of the process, the competitiveness of bids, the appropriate allocation of risk, proportional returns to developers in relation to the risks incurred, franchise selection, government guarantees and fiduciary benefits, and finally the control of joint venture assets.

Accordingly, given that partnership projects between the two sectors are new in Iraq, achieving these advantages of partnerships will face many obstacles and risks that will limit their success and effectiveness, which requires officials to activate and pay attention to risk management processes, especially since examining risks in the

partnership project between the two sectors is an essential tool for deciding the allocation methodology and mitigation of risks.

Although risk management is perhaps the best need in the PPP project management process, it is conceivable that not much has been done in this area, particularly in developing countries, including Iraq, where in very few PPP projects in these countries there are managers or employers who have a proper view of risk management. Thus, this lack of awareness of risk management coupled with the dearth of studies in Iraq makes the possibility of PPP project success impossible and represents a problem that needs to be resolved.

Accordingly, this study aimed to investigate the impact of risk management processes on the success of the PPP construction projects in Iraq, by identifying the most prevalent and influential risk factors on the success of PPP construction projects in Iraq from the viewpoint of workers in these projects.

The study found, through quantitative and qualitative analysis of the data collected through electronic questionnaires, that there is a statistically significant correlation between the three risk factors categories (technical, financial and economic, political acceptance and legitimacy) and the success of PPP projects in Iraq, while social soundness and environmental impact did not appear to have a statistically significant relationship with the success of the public-private partnership project.

In terms of the strongest impact of the four risk categories on the success of PPP projects in Iraq, the political acceptance and legitimacy factor had the strongest impact, i.e., it was the biggest risk factor, then the financial and economic factor, followed by the technical factor, and finally the social and environmental factor.

This was explained by the idea that it is clear on the government side that some of the basic risk issues, such as political and monetary risks, are highly linked to the success or acceptance of public-private partnerships. For example, the fluctuation of the exchange rate, fluctuations in inflation and interest rates, the weak financial market and high financing costs for governments cause some of the financial risks that are reflected on the success of the project and are usually borne by the private sector. Also, from a macroeconomic point of view, due to the long-term nature of PPP projects, mandatory expenditures and hidden debts grow over a long period of time as a huge burden on future generations. On the part of the private investor, PPP

contracts differ sharply from other types of contracts. Investing in construction projects requires a large up-front capital and for long periods of time to refinance. During this time, investors are exposed to severe risks with varying profiles according to the stage of the actual lifecycle.

In addition, when dealing with construction projects of a partnership nature between the government and the private sector, construction services tend to be politically sensitive, such as: some uncertainty regarding the assumed outcome of the project, e.g. toll fees, public accountability, reliability and merit government fiduciary, and other political obstacles hindering projects. In addition, the technical obstacles represented by the technical design deficiencies, land acquisition problems, implementation and services all threaten the chances of project success, in addition to the multiplicity of stakeholders and their complex interaction mechanisms that represent one of the social factors that affect the success of projects.

Hence, this proved the impact of the discussed risk factors (technical, financial, economic, political acceptance and legitimacy) on the success of PPP projects in Iraq, which ultimately leads to the need for construction PPP project managers to pay attention to these factors and implement the risk management processes including identification, evaluation, monitoring and responding if they want to improve PPP projects' performance and raise their chance to success.

5.2 Recommendations

The current study covered the concept of public-private partnership (PPP) in Iraq, especially in construction projects, and showed that these partnerships, despite the great advantages expected for them, are fraught with many risks that would hinder their success and contribute to their failure. The study showed that the most prominent of these risks are technical, financial and economic risks, political acceptance and legitimacy as well as social safety and environmental impact, which requires officials and project managers to activate risk management processes and pay attention to them as a basic tool for determining the allocation appropriate methodology and mitigating risks.

In light of the previous discussions and conclusions, the study made a number of recommendations, which are as follows: The risk management process should be

developed within a proactive approach and not only in a reactive way to deal with potential risks, and responsible managers should understand the risks faced by PPP projects and senior managers are responsible in relation to risk communication and management risks among employees. The study also recommends project managers to provide an appropriate level of oversight regarding the risks they face, which include (risk transfer, avoidance, mitigation and acceptance), and to hold training courses on risk management and provide non-formal education through career development programs and training courses, such as risk management awareness programs to increase awareness of risk management and its application within the PPP projects.

The study also recommended that governments should allocate a budget for risk management and transfer project risks to the appropriate entity capable of managing them. The risk management checklist and other quantitative and qualitative assessment approaches should become an integral part of any construction PPP project plan, and in this way risk management is achieved at a higher level that is significance to the project and is recognized as a common tool and becomes an element of the PPP project's philosophy and strategy.

The researcher is also advised to provide sufficient time for the consultant to prepare the required project designs, drawings, specifications and tender documents due to the high risks associated with PPP construction projects in Iraq. During the planning and construction phases, effective and careful planning is needed to avoid, transfer or mitigate risks. To reduce design errors, the use of the latest available design tools is recommended, and there is a need to enhance the efficiency of construction management and contract management through academic courses and training to improve the managerial skills of managers, so that managers can assess potential risks early on.

Although this study focuses on risk management in PPP construction projects in Iraq, the risks identified and importance of risk management processes can be generalized to other countries, especially Middle Eastern countries. This may benefit these countries in trying to reduce claims and disputes in their PPP projects through many aspects of this research. However, there are several opportunities for future research including: expanding the research to other types of PPP projects and applying the methodology used in this research to other developing countries, thus increasing the

ability to make data available for future comparison between the various risk factors and impact of managing them. Moreover, for future research in this area, the authors recommend considering other construction stakeholders in their research such as subcontractors, supplies, insurance companies, etc. in a manner that ensures validation and generalization of the proposed methodology and results.



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APPENDIX

Risk Management of PPP Projects in Iraq

Public-Private partnership (PPP) projects contain different stages from project design to operation and maintenance, in nature relatively have long period which leads to the emergence of several contractual links during the contract period. For this reasons, PPP contracts are faced complex risk situation impeding the implementation project essential important for the public and private sectors to establish effective risk allocation strategies for PPP projects. This questionnaire is a tool of study by the researcher on the previous subject. By giving you the answer to the questions you will help achieve the academic goal of research. The answers will be used for only his research purposes. The researcher guarantees confidentiality of answers and participants. Thank you for your cooperation

إدارة مخاطر مشاريع الشراكة بين القطاعين العام والخاص في العراق تحتوي مشاريع الشراكة بين القطاعين العام والخاص على مراحل مختلفة من تصميم المشروع إلى التشغيل والصيانة ، في طبيعتها فترة طويلة نسبياً مما يؤدي إلى ظهور العديد من الروابط التعاقدية خلال فترة العقد. لهذه الأسباب ، تواجه عقود الشراكة بين القطاعين العام والخاص حالة مخاطر معقدة تعوق تنفيذ المشروع. لذلك من المهم للقطاعين العام والخاص وضع استراتيجيات فعالة لتوزيع المخاطر لمشاريع الشراكة بين القطاعين العام والخاص. يعد هذا الاستبيان أداة من أدوات الدراسة التي يقوم بها الباحث حول الموضوع السابق . وبتقديمكم الاجابه عن الاسئله الاتيه ستقومون بالمساعده في تحقيق الهدف الاكاديمي للبحث. سيتم استخدام الاجابات في اغراض بحثيه فقط. يضمن الباحث سريه الاجابات والمشاركين . شكرا لتعاونكم

* Required

أسئلة الخلفية الفردية والتنظيمية و Question individual and organizational background

1. * What is the best describe of your sector ? ما هو أفضل وصف لقطاعك .

Mark only one oval.

Public Sector (Ministries, Department and Government Agencies)

Private Sector (Construction companies, Infrastructure

2. * ما هو تخصصك ؟ what is your Specialization

Mark only one oval.

Civil Engineering

Mechanical Engineering

Electrical Engineering

Electronics Engineering

architectural Engineering

Other

3. year of experience *عدد سنوات الخبرة

Mark only one oval.

<5 years

5-10 years

10-15years

15-20 years

>20 years

4. Describe your knowledge or experience with ppp? *صف معرفتك بمشاريع ppp

Mark only one oval.

I am currently involved in PPP project

I have been involved in the past in PPP project

5. What type of PPP projects have you been involved? *ما نوع مشاريع الشراكة بين القطاعين

*العام والخاص التي شاركت فيها

Mark only one oval.

Hospital

Transportation (Road/Airport)

Water and Sanitary

Power and Energy

Housing and Office

Security (Police and Prison)

School and Other education

Others

Risk factors and risk allocation preferences Please assign estimated probability of occurrence to the risks listed below عوامل الخطر وتفضيلات توزيع المخاطر يرجى تعيين الاحتمالية المقدرة لحدوث المخاطر المذكورة أدناه

6.

1. Technical *الفنية

Mark only one oval per row.

strongly agree

agree

maybe

disagree

strongly disagree

lack of infrastructure projects قلة مشاريع البنية التحتية

Difficulty of implementation صعوبة التنفيذ

Difficulty introducing corporate and domestic goods صعوبة إدخال سلع الشركات والسلع المحلية

Change in technology التغيير في التكنولوجيا

others اخرى

7.

2. Financial and economic *المالية والاقتصادية

Mark only one oval per row.

strongly agree
agree
maybe
disagree
strongly disagree

change rate fluctuation تقلب معدل التغيير

Interest Change in market demand التغيير في طلب السوق

Tariff change تغيير التعرفة

Construction cost overruns تجاوز تكلفة البناء

Tax regulations change تغيير اللوائح الضريبية

Changes in shareholdings of the project company التغييرات في حصص ملكية شركة المشروع

rate fluctuation تقلب سعر الفائدة

High financing cost تكلفة تمويل عالية

High maintenance cost تكلفة صيانة عالية

Operational cost overruns تجاوزات التكلفة التشغيلية

8.

3. political acceptability and legality *القبول السياسي و القانونية

Mark only one oval per row.

strongly agree
agree
maybe
disagree
strongly disagree

Corruption فساد

Political/public opposition المعارضة السياسية / العامة

Project approvals and permits delays الموافقات على المشروع وتصاريح التأخير

Force majeure قوة قاهرة

political interference التدخل السياسي

Legislation changes تغييرات التشريعات

Project operation changes التغييرات تشغيل المشروع

Lack of commitment from project parties عدم التزام من الأطراف المشاركة في المشروع

Poor public decision making اتخاذ قرار عام ضعيف

9.

4. Social soundness and Environmental impact *السلامة الاجتماعية والأثر البيئي
Mark only one oval per row.

strongly agree
agree
maybe
disagree
strongly disagree

Design deficiency قصور في التصميم
Poor quality of workmanship دة صناعة رديئة
Unavailability of labour and material عدم توفر العمالة والمواد
Delay in project completion التأخير في إنجاز المشروع
Environmental risk المخاطر البيئية
Inexperienced private partner شريك خاص عديم الخبرة

RESUME

ACADEMIC QUALIFICATIONS

University / Institute	Degrees	Faculty	Major Subjects
University of technology	Bachelor	Engineering	Building and construction/structural engineering

Job Record (After graduation)

Organization	City	From Month/Year	To Month/Year	Position or Title	Brief Job Description
MEBEX COMPANY	BAGHDAD	2008/07	2009/10	CIVIL INSPECTER	DESIGNING A DRINKING WATER NETWORK
HIGHER JUDICIAL COUNCIL	BAGHDAD	2009/10	2012/03	CIVIL ENGINEER	MAINTENANCE WORK
DIVAN	BAGHDAD	2012/03	TIL NOW	CIVIL ENGINEER	MAINTENANCE WORK

LANGUAGES

	Speak			Read			Write			Understand		
	Excel	Good	Fair	Excel	Good	Fair	Excel	Good	Fair	Excel	Good	Fair
Arabic	*			*			*			*		
English		*			*			*			*	