

**An-Najah National University**

**Faculty of Graduate Studies**

**Identification of Challenges Facing Public Construction Industry in  
Palestine Framework to deal with them**

**By**

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**This Thesis is Submitted in Partial Fulfillment of the Requirements for  
the Degree of Master of Engineering Management, Faculty of  
Graduate Studies, An-Najah National University, Nablus-Palestine.**

**2016**

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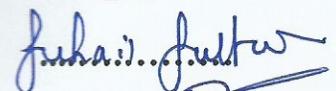
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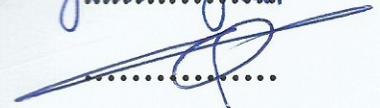
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## Dedication

*To all those who were always supported me in times of fun and frustration,  
to all who raise my spirits in times of despair to accomplish my work  
successfully*

*To the spirit of my father who had always surrounded me, reminded me of  
the lasting support and hopes that we wanted, and talk about the future,  
you were compassionate Father, I did not forget you and I will not do,  
you're spectrum who lived with my support, protect, and keeps me  
confident that I would become what we always strive for.*

*My affectionate mother, I am honoured to have you as my mother. Thank  
you for your prayers and blessing, for giving me a chance to prove and  
improve myself through all my walks of life.*

*To the most precious in my life..... My dearly beloved brothers and  
sister*

*To those who were closest to my heart..... My beloved friends*

*To everything beautiful in this generous country*

*Everyone who helped and supported me.*

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Finally, thanks and regards to all those who supported me in any respect during the completion of this work.

## الإقرار

انا الموقع أدناه مقدم رسالة تحت عنوان :

**Identification of Challenges Facing Public Construction Industry in  
Palestine Framework to deal with them**

أقر بأن ما اشتملت عليه هذه الرسالة هو نتاج جهدي الخاص، باستثناء ما تمت الإشارة اليه  
حيثما ورد، وأن هذه الرسالة لم تقدم من قبل لنيل اي درجة علمية، او اي بحث علمي او بحثي لاي  
مؤسسة تعليمية او بحثية اخرى.

**DECLARATION**

The work provided in this thesis, unless otherwise referenced, is the  
researcher's own work, and has not been submitted elsewhere for any other  
degree of qualification.

**Student Name:**

اسم الطالب: فنانة رجب

**Signature:**

التوقيع: فنانة رجب

**Date**

التاريخ ١١/١١/٢٠١١ م

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## LIST OF ABBREVIATIONS

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<b>PCI</b>	Public Construction Industry
<b>CI</b>	Construction Industry
<b>CS</b>	Construction Sector
<b>PCP</b>	Public Construction Projects
<b>GDP</b>	Gross Domestic Product
<b>PCBS</b>	Palestinian Central Bureau of Statistics
<b>PCU</b>	Palestinian Contractors Union
<b>SPSS</b>	Statistical Package for Social Science
<b>W.B</b>	West Bank
<b>C.P</b>	Construction Projects
<b>C.O</b>	Construction Organization
<b>NGOs</b>	Non-Government Organizations
<b>PMI</b>	Project Management Institute
<b>PMBOK</b>	A guide to the Project Management Body of Knowledge
<b>S.D</b>	Standard deviation
<b>Sig.</b>	Significance
<b>PNA</b>	Palestinian National Authority
<b>ILO</b>	International Labor Organization
<b>PPE</b>	Personal perspective equipment .
<b>PFI</b>	Palestinian Federation of Industries
<b>GO</b>	Governmental organizations

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**Abstract**

The nature of public construction projects (PCP) in Palestine has a special situation, according to its political and topographical and stakeholder's complexity in their demand for getting efficient projects that could be beneficial for the public users. Palestine suffers from many problems affecting the performance that could be in its main component; cost, time and quality. Since the development of this sector and its major contribution to the Gross Domestic Product (GDP) in Palestine, the importance of this study come through identifying the challenges facing these projects during their life cycle that required a high sense of management discernment, capabilities, skills and strategies to tackle and clarifying the ways to deal with. To achieve its objective the mixed research method was adapted in this research. Where the designed questionnaire was distributed to the construction practitioners (stakeholders and professionals) within West Bank as a sample study to represent Palestine zone, and will focus on public types and through several governmental organizations. Besides that, the researcher has conducted some interviews with the key stakeholders of construction industry. 350 questionnaires were distributed to get an obvious picture about these challenges. The major challenges related to health and safety, time, and quality that faces Public Construction industry (PCI) in

Palestine were discussed in this research. A theoretical framework is developed to get a deeper level of understanding about implementing best management practice, by minimizing the problems with using the maximum resources and opportunities to make construction management more efficient and responsive in PCP in West Bank. The recommendations introduce some solution for practitioners by acquiring the right skills and apply appropriate management strategies in managing construction projects.

# CHAPTER 1

## INTRODUCTION

### 1.1 Overview

Public Construction Industry (PCI) is the backbone of the economic activity in human life. It contains projects for living, other for human transactions and industrial uses (Abukar, 2011). As such, it relates to and serves all aspects of human activity. It is an inevitable infrastructure for keeping life safe and progressing. Consequently, it is necessary to pay efforts to ensure that constructions are initiated on scientific bases. That is the role of construction management. The human factor is thus the determining one. Engineers are graduated to handle such issues while construction companies handle other factors related to the implementation, whereas the government takes care of the legal component. Since many parties are involved in the process complications and difficulties are ultimate. They may emerge from technical, out of legal, economic, political, organizational, etc. Even though the various parties, the management is there to cope with those difficulties, but it will consume a lot of time, resources and confusions that is if it could be controlled. Sudden unexpected changes in construction technology, techniques, materials, or human resources can create many reasons for the failure of those projects (Kim et al, 2012).

The impact of such situation results in much of delay leaving the public suffering and un-served in a conflicting situation. The typical

response to such situation is to reduce, suppress, or eliminate those conflicts. The project manager is responsible for the precise role of clarifying and freeing the project of any of those irregularities (Olalekan, 2013). Even though it works sometimes, but generally it is not always effective; since the root causes cannot be easily identified, and the potentially positive aspects of conflict cannot be emerged (Verma, 1998). So, complaints should be attended and fault causes should be identified to enable managing and facing these complications efficiently (Kari et al, 2008).

Construction is described as a key sector and one of the milestones of the economy. The quality of construction is thus one of the major factors that influence the quality of services offered to the public. Consequently, measures should be taken to maintain the quality of constructions as best as possible. Engineering and other parties in construction, form unique combination of a specific need. Process design yields engineering works to achieve the desired outcomes. The construction profession offers the opportunity to create works for the benefit of humankind, but in turn those who work in this profession bear substantial responsibilities (Osaily, 2010).

As in other countries, the construction industry (CI) is one of the key economic sectors and the main force motivating the Palestinian national economy. In 1994, the construction sector (CS) has witnessed a remarkable expansion. It resulted in the recovery of the CI and subsidiary industries. The CS has occupied the foremost position among the rest of other sectors, attracting investments and creating new jobs (Osaily, 2010). It contributed

33% of the Palestinian Gross Domestic Product (GDP), it employs about 10.8% of laborer directly, and 30% indirectly in factories related to the CS. This positively affected various economic, social, educational and vocational sectors in addition to other public Palestinian institutions (PCU, 2003).

Since the Government is responsible for organizing the CI, it puts standards describing the features of public constructions (schools, hospitals, roads, bridges and irrigation systems; and water and power infrastructure), (Ofori, 2012). So construction specifications are major requirements for an effective handling of the various serves offered to the public.

The CI is one of the most dynamic, risky, and challenging businesses. It has a very poor reputation, with many major projects failing to meet deadlines and construction targets (Anthony Mills, 2001) that necessities they need to conduct substantial studies in the field.

Yong and Mustafa (2012) found that many of factors affect the construction project success; their relative importance is perceived by different respondents. They listed 37 factors and put them in 7 major categories. Those included clients, consultants and contractors represent a wide range of professions., including those which are involved in design, construction, engineering, project management and quantity surveying. That helped in identifying 15 core element factors considered as critical factors to the success of construction projects (C.P). That suggests a strong

consistency in perception between respondents in recognizing the significance of human-related factors such as competence, commitment, communication and cooperation towards the success of a construction project.

## **1.2 Problem of the study**

The growing interest in the construction issue through last years in Palestine , specifically for buildings that serve the general public; whether through the projects implementation that related to infrastructure or through educational, health, security buildings , etc. And the conviction that the CS constitutes a point pedestal in Palestine, attention must be paid to support the national economy , and that's where previous studies are few in this field, the Palestinian library must be supported by studies support the exist and subtract suggestions for new, to help in the development of the management process, especially when this projects faced with real difficulties, both during the process of preparing and arranging for these projects; from studies of the needs, working in the designs and preparation of tender documents, and then through the next step during the process of awarding tenders and start implementing, and what is faced by funded ,designed and implemented crews of challenges and difficulties, which part of them could be familiar ,clear, and the other are new. And the reason for that is related to the economical and political special situation that Palestine suffers from.

This situation necessitates the need to study the issue scientifically, with an aim to pinpoint and understand those challenges for enabling a successful project to make construction management more efficient and responsive. In Palestine, it is observed that a lot of complaints and conflicts emerge throughout the process of construction management (PCU 2012).

Through previous studies, it appears that challenges may emerge from many parties' human, materialist, and other environment and legal issues. Those are not reviewed as an independent from each other those are complicated and integrated. As such, to understand them, they should be reviewed as a unit. And attention should be given to those challenges as a unit. The review of those experiences widens the perception of academicians and researchers, enabling them to customize solutions that match the Palestinian specialty.

### **1.3 Question of the study**

This study intends to answer the following questions:

- Q1. What are the sociological, political, natural environment, legal, technical, human, health and safety, organizational, and performance challenges facing the PCI in Palestine?
- Q2. What are the effects of those challenges on PCI in Palestine?
- Q3. How those challenges are dealt with?
- Q4. Is there any significant statistical differences refer to variables such as age, gender, specialization, location, years of experience...etc., in perceiving those challenges?

Q5. How it is possible to cope with those challenges to ensure an efficient and effective PCI, in other words what are the recommendations should be considered to cope with those challenges?

#### **1.4 Objective of the study**

The main objective of this study is to pinpoint the challenges, facing PCI in Palestine; this will contain the minor objectives as follows:

1. To identify the various sociological, political, technical, legal, organizational, and other environmental challenges facing the PCI.
2. To explore how those challenges influence the PCI.
3. To develop a theoretical project management framework to facilitate the implementation of management through the C.P in West Bank that helps in evolving better policies, strategies and rational decisions.

#### **1.5 Significance of the Study**

The importance of the study is symbolized in the importance of the PCI itself. Little research has been written about the current situation of the PCI in Palestine. The clarification of obstacles faced by PCI would necessarily help in and face them and make construction of more value with minimum cost and maximized benefit. The presence of barriers will not only influence the efficiency of the construction project itself, but will also defuse construction efforts and waste many resources if not tackled with probably.

This study is also important for the public since the consequences of implementing its recommendations will result the best output in terms of public construction industry in Palestine incubating the services that they will get. This study is also essential for policy maker to guide their decisions and the direction of the work to ensure that all parties are satisfied. Theoretically, this study will enrich the Palestinian library with a new dimension for discovering and tackling with barriers faced by PCI.

The significance of this study would help in a better relationship with the concerned stakeholders in the PCI, it will also enhance the public awareness of issues facing engineers and other parties in this industry within the aim of promoting leadership role, (Azhar,2014). The findings of this study enable a better understanding in one hand while it enables controlling in the other. The recommendations of this study are expected to promote the status of the PCI and enable taking necessary precaution measures for avoiding unnecessary risks.

## **1.6 Methodology**

### **1.6.1 Research Methodology:**

This study adopt a mixed methodology, since it intends to describe the current situation, which relates the challenges facing the CI throughout using data collection tools relevant to the area of this study. This results in describing the current practices and its relevant areas of concern as an approach to identify a framework that help in evolving better policies,

strategies and rational decisions that can be implemented in such construction project management.

### **1.6.2 Data Collection Tools**

This study adopted a battery of data collection tools to ensure that all types of data required are collected. The most prominent tools are the questionnaire, which specially designed for the benefit of the study, while building questionnaire the researcher will benefit from the previous studies, theoretical publications, the adopted models and expert points of views. Before distributing the questionnaire, it was validated and examined in compliance to scientific research methodology. It was distributed to all stakeholders of CI Mainly to: engineers, employees, project managers, consultants, contractors, and other stakeholders. Interviews also are conducted with effective stakeholders. The interview will help in crystallizing the questionnaire and enhance the perception of challenges facing the PCI in the Palestinian context. It will also help in analyzing the results of the study as an outcome of the questionnaire.

Data collected using those methods is integrated and categorized to ensure the questions of the study are answered; it is worth mention that the questionnaire were formulated and distributed online, and that really helped in getting a quicker response easily and within a short period.

### **1.6.3 Data Analysis**

Statistical Package for the Social Sciences (SPSS) was used for analyzing the questionnaire response after being coded and entered into the

system. Statistical devices used is: means, percentages, standard deviation, correlations, and cronbakh  $\alpha$ , t-test .....etc (the quantitative method). In addition, the qualitative data analyzed using all scientific justifications and logics in accordance with the well-established theories and practices.

#### **1.6.4 Population of The Study:**

The population of the study is as follows:

Organizational population: it covers most of PCPs in West Bank governorates, in the last five years. Human population: it covers all individuals and groups concerned with the public construction project that focus on engineers, and other staff whom are related to CI, contractors who implement the C.P, local authorities, and government agencies.

#### **1.7 Research limitations**

Constraints and obstacles are natural and logical matters that faced the researcher through conduction of the research. The respondents indifferences are the most important obstacle while presents their views on such topics. Although the researcher firstly explained the aim of the research, by introducing the questionnaire with a briefly introduction, a large number of them showed a lack of cooperation and they delegated the answers to others, and few number of participants easily and quickly replied without a continuous reminding from the researcher.

Despite submitting, a letter to facilitate the task by the name of An-Najah National University, and the stakeholders accept to participate and

showed interest in the subject of the research, they were provided with a questionnaire copy to answer it, within six weeks to take their time in understanding the questions and answering them. The researcher tried to phone them many times to remind them within the period of time to finish preparing questionnaires in order to be collected. Unfortunately, the responses were disappointing due to their answers that they can't reply because they don't have enough time, or they lost it, others will answer it soon, and others are not interested. The researcher sent the questionnaire times and times, phoned most respondents two, three and four times, and visited some of them more than once, every time they had a new argument, until the researcher succeeded at last to collect a suitable number of responses.

The most important barrier was determining the number of the contractors and engineering offices because it is allowed for these companies to have several classifications in different specializations, so one company may be counted several times.

The willingness of the respondents to reveal weaknesses in their respective organizations was uncertain due to cultural issues in which persons did not like to show their weakness even if the researcher kept reminding them that this is a research for academic purposes only.

Due to work commitment, some respondents could not fully concentrated on during the interview sessions, this caused the intended in-depth interview could not be fully achieved. Most of them did not have

enough time to respond due to the work pressure, so the researcher had to keep reminding them to respond to the questionnaire to achieve a good percentage of responsiveness.

## **1.8 Research Expected Outcomes**

The expected outcomes of this thesis are:

- Descriptive analysis that articulate the current status about the stakeholders' perception, managers and decision makers about the challenges, issues facing them in the C.P in West Bank.
- A list of the barriers and obstacles on both sides the technical and cultural that impede the deployment of challenges concepts in the CI according to the stakeholders ' perspective.
- The framework formulation according to the analyzed data to cope with those challenges and improving performance of PCI through its PCP.
- The recommendation for the stakeholders and decision makers in the CI and encouraging them to adopt the best practice for achieving the desired outcomes.

## **1.9 Thesis Structure**

This thesis is organized as follows; Chapter Two presents a historical review of previous studies to identify the main challenges that facing the PCS as general. Chapter Three discusses the main methodologies used in previous studies and the methodology adopted in this research to achieve the required goals. Chapter Four shows analysis, description and discussion

of research results. Chapter Five illustrates the developed framework that could help voiding the aforementioned challenges. Finally, chapter six presents conclusions and future research directions for this thesis.

## CHAPTER 2

### LITERATURE REVIEW

#### 2.1 Preamble

Engineering and construction are a unique combination of a specific need and design in a process that yields engineering works. The construction profession offers the opportunity to create works for the benefit of mankind, but in turn those who work in this profession accept substantial responsibilities (Osaily, 2010).

The CI is one of the largest industrial sectors in most of the countries in the world. Most of the practitioners and theoreticians consider it as the major gagger of the economic situation, (Elbeltagi, 2009), and as Adnan et al (2012a), and Shweiki (2013) said "CI plays an important role in the economic contribution for the country development".

CI in Palestine is one of the largest and the most important industrial sector. It became one of the major mobilizer of the economy mainly in terms of employment and income, and its contribution to the gross domestic product (GDP). The role of this industry clearly appears in improving and facilitating the quality of living in light of the above and the need for improving the construction sector in Palestine; developing a holistic approach is a strategically important goal in Palestine as well as in other countries. We need to think of the future, being aware of such issue is one way in which we can guarantee a future with savings in time, cost, and resources that we require to achieve the quality needed, by knowing the

contribution of performance, technical, scientific, legal, organizational and other projection that improve the performance and satisfy the needs. This chapter should include first and foremost:

## **2.2 The construction, and the construction industry (CI)**

Construction has many characteristics common to both manufacturing and service industries. Definitely, there are physical products in this sector as in other industries. But in other ways, construction is more like a service industry because it does not accumulate significant amounts of capital when compared with industries such as steel, transportation, petroleum, and mining (Rashed, 2014).

On the other hand, the construction sector is one of the key economic sectors and the main force motivating the Palestinian national economy. In 1994, the construction sector has witnessed a noticeable expansion. This has resulted in the recovery of the construction contracting profession and subsidiary industries; the construction sector has occupied the foremost position among the rest of sectors, mainly attracting investments and creating new jobs Osaily (2010); Construction sector contributes 33% to the Palestinian (GDP) Osaily (2010). Employs about 10.8% of laborers directly, and 30% indirectly in factories related to the construction sector and other service and productive sectors. This is a large proportion covered by this sector, thus positively affecting various economic, social, educational and vocational sectors in addition to other Palestinian institutions (Palestinian contractors union (PCU), 2003).

Scanning the previous literature reveals that there is no one agreed upon definitions for construction management (CM), and CI, below is a review of the most prominent definitions:

Jackson, (2010), defined “Construction management (CM) entails the planning, scheduling, evaluating, and controlling of construction tasks or activities to accomplish specific objectives by effectively allocating and utilizing appropriate labor, material, and time resources in a manner that minimizes costs and maximizes customer/owner satisfaction”. Other like Westernoff ,(1998). Said that CM is a loose term used to describe the process used to organize and direct men, materials, and equipment to accomplish the purpose of the designer. Whereas, (PM) is the coordination of time, equipment, money, tasks and people.

CM is not just a single task or activity. It comprises several tasks and is usually delivered by the team. At the same time, an individual member of a CM team performing even one of its functions is said to be doing CM (Jackson, 2010).

And so “The construction manager responsibility is taking a set of written plans and specifications and a raw piece of land and then coordinate all of the materials, manpower, and equipment necessary to guarantee the set price, schedule, and quality of the project—without any accidents or errors, regardless of weather conditions, interest rate fluctuations, acts of God, or any other unforeseen conditions” (Jackson, 2010).

CM is a part of CI and to understand the whole process Chan and Liu, (2007), defined “ (CI) is the large, complex and diverse wide range coverage of business interests and activities, united by their common usage and development of land”.

The CI assumes a focal part in national welfare that incorporates the improvement of private lodging, public structures and industrial plants, furthermore the reclamation of infrastructure and other public facilities. The CI is a mixture of different fields and members that have been gathered together to structure a division of the economy (Hendrickson; 2008, Saqfelhait; 2012). And to achieve the outcomes from this sector it should finish a construction extend in time, by high quality, and within the right budget, nearby construction organizations need to enhance their authoritative and administration structure, expand social, economic, and environmental imperatives, and enhance the interrelationships between all individuals included in the project (Enshassi and Kaka, 1997)

And this enhancing for the administration structure, and other as mentioned above are not constrained and limited to construction companies, yet it is additionally for all associations related with this division by governmental organizations and non-benefit associations that preserve the majority of the ventures in the range of study, where they have the experience to know the best practice in CI through overseeing activities regulated until getting the results and through observing, controlling through execution and assessing the execution to be capable enhance practice in the future .

Understanding these concepts and the responsibility of the experts working in this field could be help getting better awareness of the process of construction industry management (CIM). It is concluded that CM and CI is focused on the whole process of planning, scheduling, evaluating, and controlling of construction tasks and activities that achieve business interests.

Due to the multi-stakeholders that involved in the construction sector there is an initiative for identifying the CI deported from the viewpoint of those who identify with it. For instance law makers focus on the legal issues in their definition, while practitioners focus on the technicalities and the administrators focus on procedures, roles and responsibilities, and all other focus on their field. It should be noted that this sector is very sophisticated that hold a numerous number of activities and procedures.

### **2.3 Construction sector in Palestine**

The strategic geographical location of Palestine and situation along with its topography, ecosystem diversity and climatic variations present a suitable environment for the occurrence of reptiles, additionally the importance of this region makes it vulnerable against assaults and endeavors to control it by numerous nations of the world, making it a politically unstable region.

We will take West Bank as a sample study to represent Palestine zone and will focus on public types and through several governmental organizations dealing in this field.

According to Abdulhadi (1994), the CI contribution to the economic growth was limited from 1948 up to 1994. During that period a lot of changes have taken place. According to Abdulhadi who said that in 1950s - 1960s raise house were in blasted, and a large portion of the Palestinians were deported from their homes following the Zionist action of the occupation. That cost them allot for constructing new houses. However the construction of public projects, such as, schools, hospitals, new roads, water, et al.... and so forth was done by the central authorities or their agencies during that period, and projects were executed in Palestine.

Each few years CI in Palestine confronted allot of changes due to discriminating circumstance that influences all segments, and for some reasons confronting the country, through 1967 to 1972, i.e. It was around then the first decade of Israeli occupation of the Palestinian territories, the construction sector witnessed an extreme decay contrasting with its growth during the sixties. This was related to two reasons, firstly a political instability degree and secondly the Israeli restrictive approaches wide range (Shaka'a et. al., 2001).

After that high rate growth was attaining by the CI and job opportunities to the labor force was opened in the occupied territories in the CS but that situation weren't maintained for a while (Abdulhadi, 1994).

Through 1985 and till 1991 the entire economic and social conditions were influenced by many external shocks and construction was one of these sectors. So Palestine confronted a slowdown in the economy,

high inflation rates, devaluation of the Jordanian Dinar (JD), the most noticeable factor affect the construction sector in this period is the Intifada (Abdulhadi, 1994).

During that stage, Palestine was generally under two sorts of Israeli restrictions: physical and financial instructions that made CI had experienced a sharp decrease due to closure of large areas of land and prevention of expansion of villages, and preventing any transformed cash from outside Palestinian or funds from the abroad donor associations because of tight controls were imposed on them. Furthermore, to the tight control of the utilization of these funds in the West Bank and Gaza Strip (Abedmoussa, 2008). In spite of these facts, it appears that the construction activity was less affected than the total economy; its average share of GDP during the period (1987-1991) was around (21-23%). ( Saqfelhait, 2012).

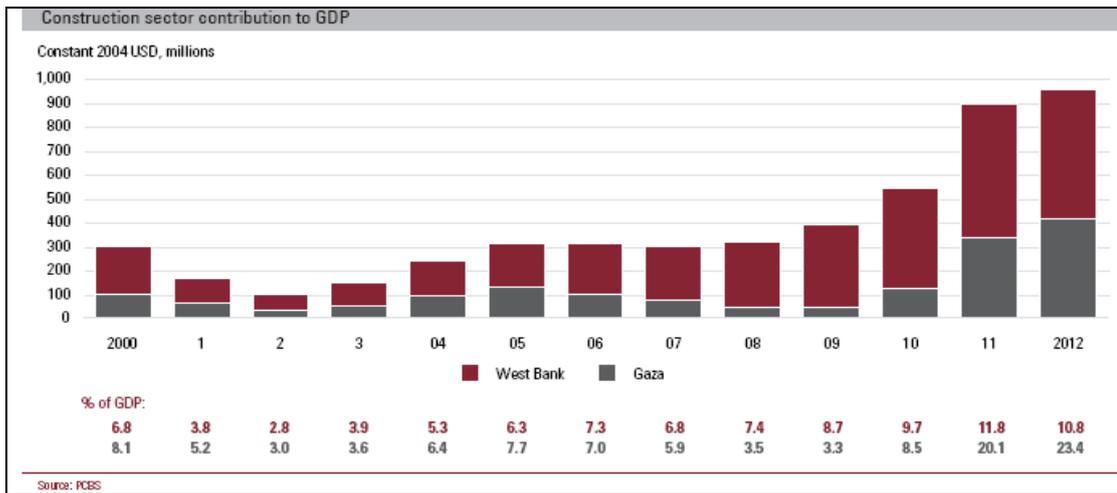
As a result of the restriction and until 1994, After the peace accord "OSLO agreement", an emergency program was established to perform a plan to improve the infrastructure in Palestine and build as much as possible in short duration (Saqfelhait, 2012), housing was a real problem for the Palestinian Authority, which found that there were urgent needs for over 100,000 new houses (Enshassi, 1997a). By millions of US dollars had been contributed to the Palestinian National Authority (PNA) from the international community and Arabs. And by that the GDP was dramatically increased 25% in 1994.

This circumstance did not change until the second Intifada "uprising" began in the year 2000. Since the year 2000 as of not long ago, the Palestinian CI has experienced numerous issues, for the most part because of sharp reversals in the political setting. Moreover, its share of GDP was diminished to 9% in the year 2004 (World Bank, PCBS, 2004); (Enshassi et al, 2007). Table 2-1 which shows the distribution of GDP by the major sector of the Palestinian economy for selected years 1985's-2007.(PFI, 2009).

**Table 2-1: Economic main Sector Contribution to GDP 1950's – 2007 / Source: (PFI,2009).**

Sector	1985's	1994	1999	2002	2007
Industry	8	12	17	12	16
Services	11.5	21	62.6	70.2	65
Agriculture	29	14	10	10	8
Construction	17	22	8.5	5.5	2.5
Others	34.5	31	2	2.3	8.5

And during the years 2010, 2011 figures demonstrate a bit increment in the construction segment's commitment to GDP to reach (9.2%) at 2010, and additionally expanding in the first two quarters of 2011 to reach (9.9%) and (11.5%), respectively (MAS, PCBS, 2011).Figure (2.1) shows the distribution of GDP by the major construction sector of the Palestinian economy for selected years 2000 - 2012. (PPSII, 2013).



**Figure (2.1):** Construction Sector Contribution to GDP in 2000-2012 / source: (PCBS report, 2014).

Recently, and precisely in the years 2013 and 2014, Observed change in the national income outcomes up and down, the figures demonstrate the construction sector's contribution to GDP to achieve (10.75%) at 2013, and additionally diminishing at the first two quarters of 2014 to achieve (8.3%) and (7.9%) at the first and second quarters of 2014, respectively (PCBS report, 2014).

The CS is one of Palestine's most essential industries, in spite of the fact that it is essentially affected by changes in the political environment. Other than private firms, three major nongovernmental associations assume necessary parts in this industry, to be specific the Palestinian Contractor's Union (PCU), the Engineers Association (EA) and the Palestinian Construction Industries Union (PCIU).

Realizing the importance of the structural sector in Palestine and its impact on the national, and economic income in this country, and major importance in supporting and developing country in the construction public

sector. Therefore the development of the economy and national income, who is in turn affects all other sectors to build a better future, so it is important to identify the factors affecting the performance of this sector to be studied, analyzed and thus get the results that help finding practical solutions that contribute to the resolution of the problems facing the sector to avoid them in future plans and projects.

## **2.4 Palestinian Public Construction Sector in Palestine**

This study focuses on identifying the challenges facing public construction industry, for that it is necessary to review the types of the public construction facilities in Palestine, in which we can find out which Category should be targeted in the study.

Generally, the constructed facilities can be classified into four major categories, each with its own characteristics. These classifications are: Residential Housing Construction, Institutional and Commercial Building Construction, Specialized Industrial Construction, and Infrastructure and Heavy Construction.

Moreover, as this study focus on the public construction project that owned by the government. Hence, this market is highly competitive, with potentially high risks and additionally high remunerates. (Saqfelhait, 2012). This sector is a part of Institutional and commercial building construction that envelops an incredible diversity of project sorts and sizes, for example, schools and colleges, therapeutic and medical centers and clinics,

recreational facilities and sports stadiums, road construction, water and sewer, structures and establishments, and so on.

The CS is specifically joined with governmental institutions; they may be the owner of a construction project, or they may control and manage the construction sector in accordance with the Law (Saqfelhait, 2012).

As previously mentioned, the greater part of the C.P in Palestine have been completed by the private sector. As indicated by Abdulhadi (1994), the rate of the total construction completed by public sector during 1980-1987 was less than 1.5% in the West Bank and less than 3.2% in the Gaza Strip. However, after the peace accord (OSLO agreement), this rate has expanded due to the great funds from both the worldwide and Arab communities. Enshassi and Mayer (2004; PCU 2008) expresses that, public sector, which incorporates public project owners, in the same way as legislative, governmental institutions, and different firms working in the construction part has been with very few exceptions responsible for nonresidential purpose construction like hospitals, schools, government buildings and so forth.

In this manner we should illustrate the challenges that faces the public construction sector in Palestine, and this what the researcher will deal in the next section.

## **2.5 Key challenges facing (PCI) in Palestine**

The CI all over confronts issues, difficulties and challenges on the world's countries general and in the developing countries for special, these impediments are available close by a general circumstance of financial anxiety, unending asset deficiencies, institutional weaknesses and a general powerlessness manage the key issues.

PCI face assigns of challenges through the past years in Palestine. Due to some reasons that affect directly or indirectly this sector, and so through the submitted inquiry of this study that expects to give a response to try to introduce this sector in a better way: What are the technical, the human, the organization, the environment and others difficulties confronting and facing the PCI in Palestine? , and What is the impact of those challenges on PCI in Palestine?, How those challenges are dealt with?, and if there is any significant statistical differences refer to variables as age, gender, specialization, location, years of experience... etc., in perceiving those challenges?, and must also answer What are the measures should be taken to cope with those challenges?.

The challenges that will be examined will be: culture; environment; work force considerations; legal issues; the socio-political Pressures; governmental regulation; and Performance and in Palestine.

In this research all those challenges took into consideration to highlight the impact of them in the Palestinian's PCI, to find solutions dealing with them to get the best practice in managing projects with the

best result for the whole society by having best using the CM concepts, such as recourses and getting the best quality, performance and society and government satisfaction.

### **2.5.1 Social Culture**

The word 'culture' has many meanings, which have been changed over the past two generations. About presented 160 different definitions of culture. (Kwaniand and Ofori, 2001), found a simple definition that "culture involves what people think, what they do, and what they produce". Also found that culture as a set of values, beliefs, norms, attitudes and habits of a group of people, pointing out that a society's beliefs and values have an impact on the way business is conducted in that society. (Kwaniand & Ofori, 2001).

According to Emuze & James (2013), found several definitions of culture which consists of behaviors related to many issues such as language, religion, values, standards, and customs that are shared by a group of people and learned from birth.

It is necessary to reconsider the arrangements and procedures of PCI's effort that's required in Palestine to reflect the personality and cultural values of individual developing countries in the practices and procedures of construction.

The PCI exposure a masculine culture; where relationships are characterized by argument, conflicts and crises (tough environment). As a

result, employees (male and female) are found that they are subjected to a very hostile environment. Women who are attracted to this field are facing the PCI in the same barriers, as women in other sectors. In this male-dominated profession, there are added stereotypes regarding the nature of the profession and the professional themselves. Women who do not enter this field tend to fill specialized technical jobs rather than managerial working posts. This leads to the distinction between gender career opportunities that have an inevitable consequence of the high staff turnover rate for women in construction companies (Waziri & Khalfan, 2014).

Dainty et al., (2000) found that younger women became disillusioned with their career choice more rapidly than men, and sought to leave the industry early on in their careers.

Palestine culture is closed on itself that due to the occupation policy that make any exchange of new trends not easy, and why most of stakeholders involved in the CI feel not comfortable for any change in management if not refuse it.

Change management and time management are both essential in improving the culture of the CI in Palestine. Since the Palestinian society in the past didn't give attention for improving the mentality to respect the time and enhance the performance. Changing and improving the behavior will help in dealing with this cultural issues; such as thinking of new trends in the local market like "make technology for all"; which means that all organizations level must encourage to accept the change and not feel of

danger; especially for those who think it is not possible to learn anything new in this field and it is limited to the new generation, which poses a threat to their career positions, the new technologies should be perceived through the whole organization as a tool to enhance the company position in the market rather than a change that should be resisted.

Due to environmental concerns and the need to reduce costs. The CI worldwide has experienced increased innovation and modernization (Marrengula et al ,2012). And as Palestine is one of the developed countries, it should keep pace with developing technology to enhance performance that will reflect on increasing the degree of acquisition of new technology associated with the lack of skills; high levels of innovation, and raise governmental sector investment in research and development (Marrengula et al ,2012).

Palestine culture are one of the key challenges that make the necessary of efforts need to study and analyze this topics , because of the unique situation in Palestine due to the occupation that made allot of barriers to extend our vision through the whole world, So to give this aspect its right , studying the current situation in the West Bank should take into consideration to find alternative methods that help in solving the problems, obstacles that arise from this challenge, to be able devise practices, procedures and relationships that are suited to the culture in West Bank, then to formulate procurement approaches which enable and facilitate the integration of the construction process in the context.

## 2.5.2 Socio-Political Pressures

Construction environment regulators, governments affect the process of development and building approval and enforcement of compliance with acts and regulations (Akanni, et al, 2013).

For the government it is important to understand how political changes can specifically influence their behavior of a business. Political variables take a gander at political impacts, for example, government support, regulations and standards, employment laws, transportation approach, environmental regulations and tax policy (Taherkhani, et al, 2012).

Palestine has faced a bad political situation due to the Israeli occupation since 1948. Shweiki (2013) clarified that Strikes, Israeli attacks and border closures were the most critical factors affecting project delay in Palestine in general and in Gaza for special. That had a major effect on the Palestinian PCI. It has also prevented implementing or even has also thought of an illustration sustainable construction in West Bank, which made this trend to be the major barriers and challenges facing the Palestinian community, (Osaily ,2010).

It's important to highlight this theme in this study since Palestine face a very special political situation that affect the PCI, that help finding how much political situation have an impact on the performance of this industry.

### **2.5.3 The Environment**

Since eighties the environmental issue has been a major subject of research and international attention must be paid for this issue to protect it when they attain a high level of socio-economic development, and as the political situation in Palestine which faced with high levels of land disgracing it should take the most attention specially in reducing the area of lands that could be site for projects (Ofori, 2000).

Appearing of these challenges has put adoption of sustainable development standards in construction by experts to concentrate on cost, time and quality only as conventional design and pay very little attention on environmental impacts. This trend of construction sustainability makes sound, environmentally responsible practices into one discipline that looks at the environmental, economic and social effects of a building or building project as a whole.

A best practice in production process will result in reducing negative impacts on environment, minimize waste, and reduce planning risk, extended building life and viability Azix et al,( 2012).And so according to Ofori (2000) the government should take the responsibility as a construction client to encourage the construction companies and practitioners to continuously search for inputs and ways of working, by using technologies, materials, and so on, which will minimize the bad side effects on the environment, and evaluate the inputs that could provide some positive environmental features.

And so Palestine's government should take this responsibility to encourage construction organizations to share the improvement of the PCI by studying the environment in all fields (Ofori, 2000).

The Palestinian environmental issue now a day's take a large scale in the evaluation of the projects, and fail to comply with environmental regulation can result in project delay or termination, disqualification from future work opportunities, fines, civil action, and even criminal prosecution. Also, it is paramount that top management as all parties in Palestinian organizations have full knowledge and understanding of environmental regulations and permit requirements.

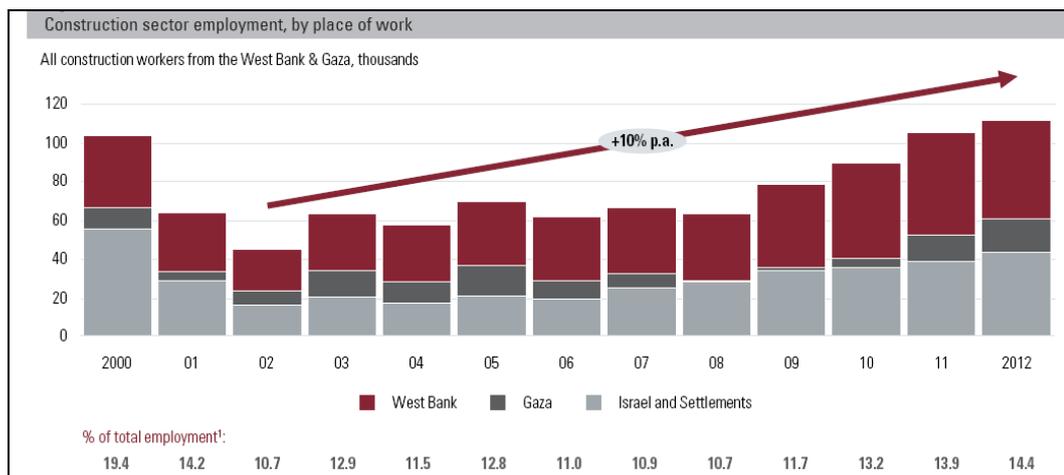
#### **2.5.4 Work Force challenges**

People are the most important resource in construction organization. Planning and implementation of the action in construction operations depend on knowledge and skills of people having a talented managers in place to guide and direct operations are crucial. (Muir & PE, 2005). Obviously, having a sufficient number of skilled and unskilled workers to perform the work is a bare necessity. Finding and recruiting sufficient numbers of skilled, talented people is becoming increasing difficult. There are several factors contributing to this challenge. That includes construction by nature is dangerous, dirty, and hard work.

Disregarding the instability, construction remains necessary for employment, with the world utilizing 14.4% of Palestinian employees. However, despite steady growth since 2001/2 (reaching over 112,000

formal workers in 2012), the number of individuals currently utilized isn't considerably larger than in 2000 (around 103,000 – Figure 2.2).

In 2012, the amount of employees utilized in construction activities grew by virtually half-hour in Gaza, however, by solely around 3d within the West Bank. Also, around 400th of all Palestinian construction workers worked in Israel or in an exceedingly settlement (accounting for quite 57 of Palestinian employment in Israel and also the settlements).



**Figure (2.2):** Construction Sector employment in palestine in 2000-2012

Source: PCBS, Labour Force Survey, 2000-2012.

Because of that, the focal point in the PCI in Palestine how to maximize long-term performance is?, it is important to provide the worker with the necessary training needed. Through enhancing the leadership and empowerment. That would be useful to aid in effectively coordinating work activities by providing the communication link between management and work crews, provides the opportunity for upward mobility and gives motivated individuals the chance to advance professionally. And lead to high levels of commitment, enthusiasm, self-motivation, productivity, and innovation.

Most studies focus on empowerment due to the high benefits to the employee and the organization can get feelings of appreciation, belonging, and heightened self-esteem. It also enables employees to make decisions for which they are accountable and responsible. According to (Muir & PE, 2005) Research indicates the level of empowerment does influence productivity. A high empowerment, increased productivity yields in contrast level. Empowerment of the workforce is one of the keys to improving construction performance.

### **2.5.5 Helath and public safety**

International Labor Organization(ILO)( 2001) has defined the Occupational health and safety as: “The prevention and maintenance of the highest degree of physical, mental and social well-being, the prevention of ill-health among workers caused by their working conditions, the protection of workers from factors adverse to their health in their employment, and the placing and maintaining workers in occupational environments adapted to their individual and psychological conditions.” that describe health refers to the protection of bodies and minds of people from illness resulting from materials, processes or proceeding used in the work place whereas safety is protection of people from physical injury (Hughes and Ferret, 2008). Safety means a state in which no danger of a damage causing accident exists.

The workers in construction workplaces are exposed to hazards of occupational diseases and injuries and the adverse effects of excessive long

hours of work. Machines, plants and other sophisticated construction equipment constitute a danger to the operators, who in most cases do not have prior skills for operating such machines or plants. Duties should be assigned to labor with regard to his physical and mental health and skills. Moreover, employers must have complete control over their employees, thus ensuring adherence to safety practices. The company must comply with all provisions of safety and health regulations that relate to the construction works itself (Muiruri and Mulinge ,2014)

There are a number of factors that have a negative impact on health and safety management in Palestine, which include poor infrastructure; problems of communication because of low literacy level; unorganized practices on construction sites; adherence to traditional methods of work; lack of equipment; improper use of equipment and corruption; extreme weather conditions. The CI culture in Palestine also does not promote health and safety. The competitive tendering practices and award of most public contracts to the lowest bidder in most projects is forcing contractors to drive their prices low while reducing costs which in turn affects health and safety (Muiruri and Mulinge ,2014)

Some of the major challenges of health and safety management in the constructions sites noted by previous studies included but not limited to; inadequate personal and protective equipment, poor maintenance of personal protective gear, lack of top management support in the management of health and safety in construction sites, inadequate enforcement mechanisms, inadequate welfare facilities, absence of safety

and health committees, unawareness of health and safety matters among the workers and lack of equipped first aid kits on the construction sites. Welfare facilities were also noted as a big challenge since they are not adequately provided as well as personal protective equipment. Some site supervisors indicated that lack of adequate funds, lack of monitoring and evaluation, lack of personal protective equipment implementation programs among others as some of the factors that give rise to the above challenges (Muir and PE,2005). That explains the importance of studying this challenge to save the life of all involved in the C.P and enhancing performance of CI in Palestine.

### **2.5.6 Legal Issues**

Construction business is conducted through contractual arrangements that at times results in disputes. Claims, disputes, and financial the most common issues that represent the legal aspect of the CI and have been steadily on the rise for years. Hassanein and El Nemr, (2008) affirm that, claim was defined by Hughes and Barber in their reference “Claims in Perspective” as “a request, demand, application for payment or notifications of presumed entitlement to which the contractor, rightly or wrongly at this stage, considers himself entitled with respect to an agreement has not yet been reached”.

The various types of claims include delay/disruption, extra work claims, acceleration, impossibility-of-performance, defective design

(error or omission), interference, and superior knowledge claims (Muir& PE, 2005).

In construction disputes, the nonattendance of contract documentation is the most well-known issue. In any construction dispute which goes to litigation, the gathering with the better documentary record than backing its position will be in a better position to win. Cautious contract organization can save the Company a huge amount of dollars in unnecessary legitimate expenses and discourage subcontractors, suppliers and other outsiders from seeking after meritless claims and litigation ( Hassanein and El Nemr, 2008).

Financial issue is one of the legal parts, according to finance, is the set of activities dealing with the management of funds, It includes the decision of accumulation and utilization of funds. Construction project finance is a unique financing and accumulations service that is particularly intended to support those in the CI, offering informed funding and services specific to construction business needs. Access to finance incorporates issues, such as, the accessibility of finance in the form of deposits, finance, payments, or insurance to individuals or firms. The accessibility of such services can be compelled for instance by physical access, affordability or eligibility. (Bondinuba, 2012).

In CI, There is always a risk of financial related misfortune, and few gatherings are at more hazardous than others, (construction executive, 2014).

According to (BurtonShAw-Gunn, 2009), there are moreover numerous risks connected with financing of large-scale investments, both by private and also public organizations. In terms financial means requirements for projects, regardless of whether it is a public, public-private or a privately-funded venture and speculators are regularly afraid about settling on decisions because of lack of full information in the field of financing methods and their related risks.

In C.P, the fundamental issues are in the evaluations and estimation of their profitability and guaranteeing the correct modes of financing. As the fund could be by internal, external or the client the projects must be secured to be able control project cost and financial performance that will be key areas to be managed (BurtonShAw-Gunn, 2009).

This study will give attention to the financial part as a major subject, due to the previous studies which most of them taken attention for claims, contract problems, legal perspectives for construction in Palestine and has been studied as a special and specific topics.

### **2.5.7 Government Regulation**

Government regulation is one of the challenges facing PCI in the way of increasing this regularity since the public construction sector is always coming under greater regulation through the construction codes and licensing requirements. By applying these established construction standards and codes to satisfy the structural integrity that affects the public safety, although of that allot of multi specifications for contracts will

appear that form a challenge facing this sector with different currency and different conditions that are dependent on the funded organizations or country (Abedmoussa, 2008).

Since Palestinians code and international codes are mainly be relied upon in the governmental institutions, but it also often needs modifications that are unnecessarily restrictive to fit with the Palestinian situation. Some local codes are outdated and obsolete and prohibit the use of often superior, cost-effective materials and systems (Muir, PE, 2005).

Therefore, the governmental institutions could be directly related to or indirectly contributing in the construction sector wherever a governmental body owns a construction project. that serve the community through their needs and by its various branches that concern of public building projects which work separately in some cases or together to manage public projects .As well as, they could control and supervise the construction sector. Therefore, the construction sector is organized according to PCU law and the laws enacted by the previously mentioned governmental institutions (Abedmoussa, 2008).

### **2.5.8 Performance**

Okuwoga (1998) stated, the performance of the CI is considered as a source of concern to both public and private sector clients. Rashed (2014) stated that the performance is the processes and procedures that involved within a project to get the activities done in the right way.

That various definition appears many reasons and factors which attribute to the performance problem facing the public construction sector in Palestine. Abu Shaban, (2008) affirm that, the CI performance problems can be classified in three layers: problems of shortages or inadequacies in industry infrastructure (mainly the supply of resources), problems caused by clients and consultants and problems caused by contractor incompetence/ inadequacies. Or it could be because of incompetent designers/contractors, poor estimation and change management, social and technological issues, site related issues and improper techniques and tools.

Also, Samson and Lema (2002) found that the traditional performance measurement systems have problems because of the large and complex amount of information with absence of approaches to assist decision maker understand, organize and use such information to manage organizational performance.

The performance challenge could be categorized according to the component they related to; the components are the cost, the time and the quality.

- ***Challenges related to cost***

Iyer and Jha (2005) remarked that project performance in term of cost has been studied since 1960s. These studies range from theoretical work based on the researcher experience one end of structured research work on the other end. Moreover, Pheng and Chuan (2006) by Abu Shaban

(2008) stated that there have been many past studies on project performance according to cost and time factors.

Project complexity, client characteristics and contractor characteristics are highly correlated with the cost performance Abu Shaban (2008).

Basically the most sophisticated challenges faced the construction project in West Bank related to the project budget, in which affect the performance of the project, some time the project stakeholders have to decrease the scope of work by erasing some activities to keep budget under control, and that really create a conflict of interest through the project parties.

- *challenge related to time*

Abu Shaban (2008) remarked that studies in various countries appear to have contributed significantly to the body of knowledge relating to time performance in C.P over the past three decades.

A number of unexpected problems and changes from the original design arise during the construction phase, leading to problems in cost and time performance.

A poor site management, unforeseen ground conditions and low speed of decision-making involving all project teams are the three most significant factors causing delays and problems of time performance in

local building works and project complexity, client type, experience of team and communication are highly correlated with the time performance.

Chan and Kumaraswamy (2002) to increase speed of construction and so to improve the construction time performance have proposed technological and managerial strategies. Effective communication, fast information transfer between project participants, best selection and training of managers, and detailed construction programs available with advanced software can be remarked as a solution to enhance the performance.

- *Challenges related to quality*

Time, cost, quality are the three critical objectives of construction management, are not independent but intricately related. Trade-offs between project duration, total cost, and quality are extensively discussed in the project management because of its practical relevance and it is one of the highly important issues in project accomplishment and has been ever taken into consideration by project managers.

Improving quality is considered by many as the best way to enhance customer satisfaction, to reduce manufacturing costs and to increase productivity. Any serious attempt to improve quality must take into account the costs associated with achieving quality, since nowadays it does not suffice to meet customer requirements, it must be done at the lowest possible cost as well. This can only happen by reducing the costs needed to achieve quality and the reduction of these costs is only possible if they are

identified and measured. Quality is said to be an ambiguous term understood differently by different people. It is sometimes defined as activities designed to improve the organization and its services and also known as achieving pre-defined standards. It is also believed that quality is the characteristics of a product or service that bear.

It is believed that quality is a factor affecting decision making and paying attention to it can make our decision economics. In other words, avoiding quality, as a worthwhile investment, is not economic. Quality is not an abstract, instrumental, luxurious and unnecessary paradigm and new approach to the management thinking assuring the production of high quality products and services, giving serious attention to quality is found to be the main success factor of organizations. Quality management points to attain a sustained consistent level of quality, that won't be change over time, the quality process shall improved till sky, the quality is a journey rather a destination.

But in west bank there is a group of challenges that faces the CI such as: absence of clear code of conduct that related to quality issues, no quality system to control the contractor activities according to, the stuff unwillingness to accept the quality system, no quality system to rank contractors according to, and the prevailing perception that quality is inferior than the other components of the project.

This research will study the factors affecting the performance of PCI and then analyze the result to be able form a framework help in developing

this sector in the future to minimize the problems with using the maximum resources and opportunities available.

## **2.6 Summary**

In this chapter, CI, PCP and the challenges facing this sector had been discussed, so the importance of the performance and the subsequent in managing the PCP in West Bank had been highlighted.

This research aims to implement the best practice in public building construction sector in Palestine Generally and particularly in West Bank.

Next chapter presents the methodology that is used in this research to collect data, by highlighted the status existing for the challenges in implementation construction sector in West Bank, in different words, an attempt to clarify the impact of the challenges and by what variables that could affect the construction sector performance. to find out those factors through the real practice in C.P in West Bank and put the hand on the existing gap, and to find out a way to bridge such a gap.

## **CHAPTER 3**

### **RESEARCH METHODOLOGY**

#### **3.1 Introduction**

This chapter introduces the methodological approach overview used during the research that studying and identifying the challenges facing PCI in Palestine , by studying the current situation in the local C land, building a framework that can be implemented by evolving better policies, strategies and rational decisions to decision makers and managers to achieve best performance; this is adopted by reviewing of literature related to CI to select the appropriate way conducting the analysis

First and foremost, the researcher reviewed the literature that related to the construction sector. An interviews were conducted; then the questionnaire was distributed and the result were analyzed; then the framework and results and conclusion were formulated.

#### **3.2 Research Methodology Diagram**

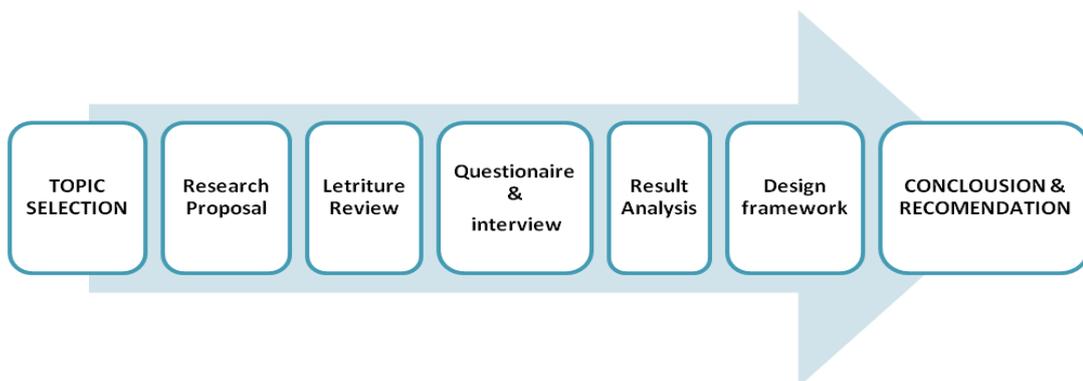
To outline the approach utilized in the research as a part of this exploration, which begins, with the selection of the theme and completion with the conclusion and recommendation, involving the questionnaire design and the data collection and developing the framework.

Seven phases are included in this research and represented in figure (3.1); that clarify a flowchart of the methodology, that driving achievement the research purpose.

Selecting the topic considered the first phase of this study. The second phase involved creating the study objectives and the research plan after that is to identify and define the research problems.

The third phase is reviewing the literature to reveal the previous studies that are related to the PCI and challenges facing construction sector. Then doing preliminary studies to investigate the Palestinian situation about implementing project management in public CP, by interviewing some government organization, consultants, and managers of donor countries' institutions, contractors, and other stakeholders to help in data gathering about the status quo.

The fourth phase illustrates designing and testing the questionnaire contents by contact with experts, to get their opinion about whether the target of this research would be useful to fulfill and develop the framework and get the recommendations. Based on the experts notes the questionnaire was modified.



**Figure (3.1):** The methodology flowchart

The next move of this stage was distributing around (350) questionnaires to the targeted sample to reach the research objective by collecting data and analyze it.

The fifth phase of the research is statistical data analysis using Statistical Package for the Social Sciences (SPSS) program to execute the required analysis. Developing a framework is a crucial step to enhance and enrich the implementation of PCP management in West Bank. Eventually the research conclusions and recommendations exhibited.

### **3.3 The Research Approach**

Saqfelhait (2012) defined the research strategy as “the way in which the research objectives can be questioned.” Therefore, selecting research technique is an entirely essential choice the researcher needs to look forward to the methodologies, to figure out which of them will fulfill the targets of the study and the researcher needs, contrasting the accessible data and the required data. There are two fundamental ways to deal with research, the quantitative and qualitative methodologies, or the mixed method (Creswell, 2009). Both methodologies have advantages and disadvantages; whatever, there are inquiries about where one is more helpful or more suitable than the other.

The quantitative approach uses the numerical values, while the qualitative approach uses the textual results, the first one describes the closed-end questions, the questionnaire and survey method, and the second

focus on the open-ended questions, the interviews and focus group method, (Creswell, 2009).

A quantitative approach is used to anticipate and reach the final result utilizing numbers and numerical values. While the qualitative one is use(Creswell, 2009) to be able to achieve high thoughts and perception comprehend and understand how stakeholder consider issues, opinions and construct a basis for decision-making. For reaching the end goal of this research the analyst used qualitative method basically for the most part and quantitative method when expected to help in comprehension the real situation (Rashed,2014) and (Creswell, 2009).

At the point when contrasting quantitative and qualitative research methods, Hancock (1998) noticed that qualitative research is interested in finding the responses to questions that start with: why? How? In what way? While quantitative research is more worried with questions like: how much? How many? How often? To what extent?

The mixed method is utilized as a part of this study for information accumulation, which involves an incorporation of quantitative and qualitative approaches. These mix method was used: “The sequential transformative strategy, which has two distinct data collection phases, one following the other” (Creswell, 2009). In this research, the initial phase was qualitative followed by the quantitative that is implicit the prior phase . The researcher can have the capability to investigate the issue from assorted points of view and closures with a call for action (Creswell, 2009).

Then, the sequential explanatory strategy was adopted, which is described by gathering and analyzing of quantitative information in a first stage followed by qualitative data gathering and analyzing them as the second phase that builds on the outcome of the preliminary quantitative implications. This configuration normally received to clarify and translate quantitative implications, especially when sudden results emerge from a quantitative study (Creswell, 2009).

### **3.4 The Sample Size**

The questionnaire was designed, and 350 questionnaires were distributed to the participant to gauge and get a patent picture about the challenges facing PCI in Palestine implementing, to pinpoint and understand those challenges for enabling a successful projection to make construction management more efficient and responsive.

There are two populations targeted in this research, they are Organizational population: it will cover all PC projects in West Bank governorates, in the last five years, and Human population: it will cover all individuals and groups concerned with the CP that will focus on engineers, and other staff who is related to CI contractors who implement the CP, local authorities, and NGO's agencies.

It was not a simple work to decide the quantity of the organizations, and contractors; because of several categorizations in different specializations the firms had, might be tallied more than one time. The

researcher considered each firm once , as per its highest classification then we chose to make a comprehensive sample.

### **3.4.1 Project owners -Governmental Organization (GO)**

The first stage is represented by the GO as an owner for the CP; even though they control these projects directly or owned it by donors after completion.

According to alfarra & allouh, (2007) Palestinian Governmental Structure consist of 22 ministries ,which they distributed according to each field needed to build our community and they are : Ministry of Information, Finance, Foreign Affairs, Civil Affairs, Economy, Agriculture, Education and Higher Education, Health, Housing and Public Works, Interior, Justice, Labor and Social Affairs, Planning, Tourism, Transport, Local Government, Prisoner Affairs, Religious Affairs, Telecommunications and Technology, and ministry of Women's Affairs. In this research, the owner of those projects' are; government organizations , related ministries, municipalities, international agencies, and large public owners.

### **3.4.2 Construction Projects (C.P) representative**

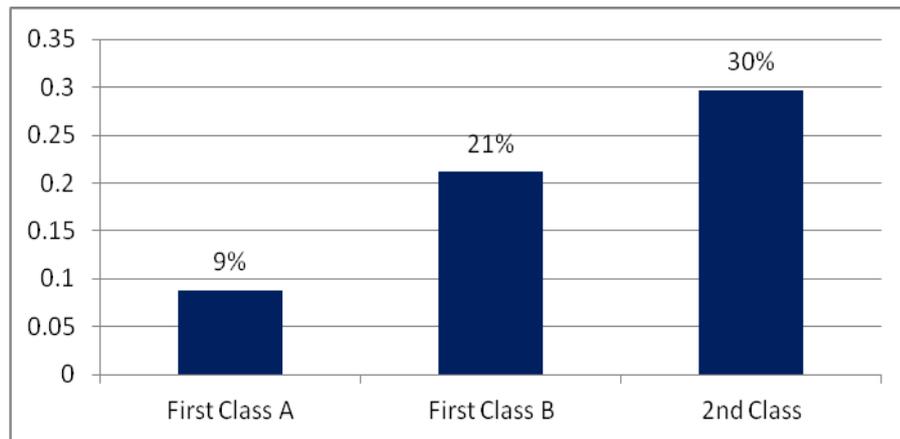
The second population is represented by engineering consulting companies in Palestine who have a valid membership in the engineering association were selected and approved by the owners' representatives, which they are (205) offices distributed in all regions by various specialties. (138) class consultants were targeted; which located in

Ramallah City, Nablus, Bethlehem and Hebron Cities by (45), (43), (14) and (37) respectively (Engineering Association, 2015).

### **3.4.3 Contractors companies**

The third population represented contractor companies. In 2015, the number of contractor companies in building field reaches 317 contractors in West Bank, and the involved sample mainly are the three main categories first class A, first class B, second class; which consist of 148 companies distributed according these categories and region (23), (56) and (69) companies respectively. Other categories will be excluded as a result of the concentration of government institutions in their CP on the categories previously mentioned companies. The classification depends on the capital, staff, experience, history of the achieved projects. (PCU,2016)

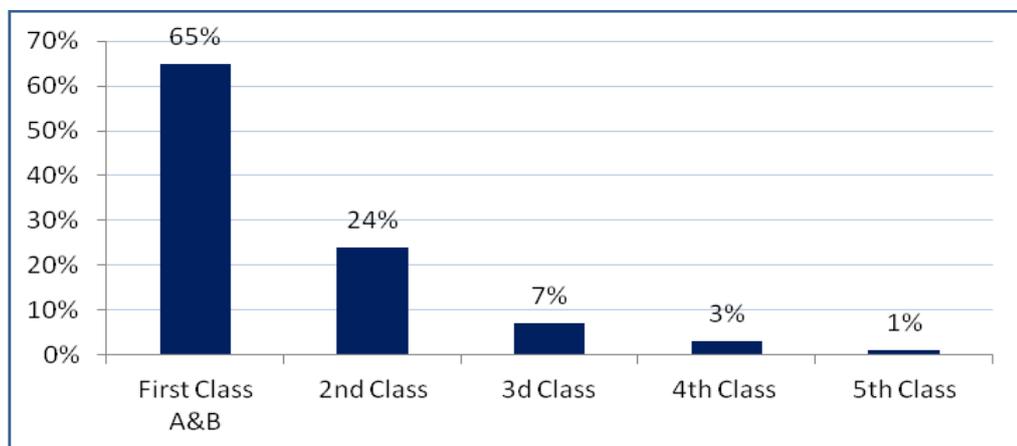
The researcher chooses the three principle classifications first class A, first class B, and second class; since it was found that around 95% of the total implemented projects in West Bank were finished by the first three degrees of the registered classified contractors (Rashed, 2014). In this way, the researcher proposed to concentrate on these three classified contractors due to the highest percent of public projects implemented in West Bank. Figure (3.2) Shows the percentage of these companies according to the CI field in Nablus ,Ramallah, Bethlehem and Hebron as a north middle and south region from total CI companies.



**Figure 3-2:** The Percentage of the Classified Targeted Contracting Firms in Palestine. (PCU,2014).

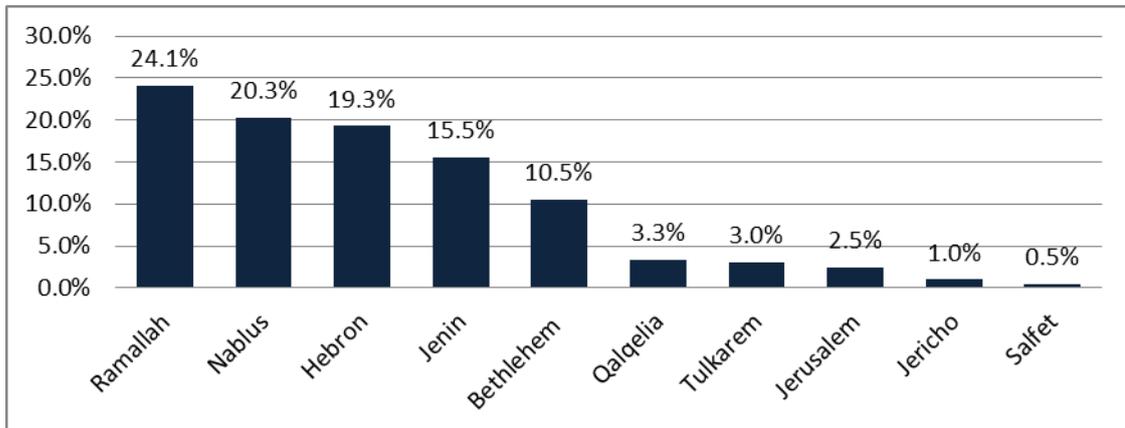
The researcher gave the contracting companies' opinions an interest regardless of its location. Figure (3.3) shows the percentage of the implemented projects with its classification degree.

In addition, Figure (3-3) that illustrates the Percentage of the implemented projects according to the classification degree for the registered classified contracting companies in West Bank.



**Figure (3-3):** Executed projects Percentage according to the classification degree for the registered classified contracting companies in West Bank (PCU, 2003).

Also, Figure (3-4) shows the location distribution of the contracting companies throughout the West Bank.



**Figure 3-4:** Classified contractor's percentages with respect to the location in the West Bank (PCU, 2003).

### 3.5 Designing the Questionnaires

The questionnaire is the fundamental the field study tool to concentrate on, and is utilized on a large scale by the researchers to get the certainties about the circumstances and strategies that already are existed.

The questionnaire was designed in English and translated to Arabic language because it is a mother language in order to be easily- understood by respondents; especially that some of them are not recognizable with the English language, and to serve the research language it is presented in English in the Appendix A.

The questionnaire aimed to cover the main issues beginning with a covering letter that clarifies the motivation behind the research, the significance and the confidentiality of information exhibited . In order to

accomplish the research aim, the questionnaire separated into three main division:

-Part one: basic information

-Part Two: The construction challenges; which cover facts about some variables, and practices concerning with the factors affecting the performance of CP.

-Part three : how to deal with these challenges, and open-ended questions.

### **3.6 Interviews**

A face-to-face interpersonal interviews with some involved project manager for PCI in governmental organization, consultants companies, project managers and donors. In which an interviewer asks unstructured, structured, and semi-structured interviews to get important information according to their experience that help in building the framework.

### **3.7 Sampling, Instrumentation and Procedure**

The sample consisted of 350 various parties as explained in the sample and the population who work in West Bank in the last five years , the respondents were (300). Those aged from 20 to- more than 50 years, their qualifications ranged from (high school, Diploma to PhD). Moreover, the respondents were varied in terms of job title and years of experiences. The demographic variables are shown in table 3-1 and 3-2.

**Table (3-1): Distribution of Sample According to Study Independent Variables**

<b>Variable</b>	<b>Class</b>	<b>Frequency</b>	<b>Percentage %</b>
<b>Sex</b>	Male	219	73
	Female	81	27
<b>Age</b>	Less than 20	2	0.7
	20-less than 30	141	47.0
	30-less than 40	95	31.7
	40-less than 50	23	7.7
	over 50	39	13.0
<b>Qualification</b>	Secondary	4	1.3
	Diploma	10	3.3
	Bachelor	218	72.7
	Master	63	21.0
	Ph.D	5	1.7
<b>Position</b>	Project Engineer	142	47.3
	Project Manager	76	25.3
	Employee	23	7.7
	General Manager	15	5.0
	Other	44	14.7
<b>Experience</b>	Less than 2 years	24	8.0
	2-less than 5 years	59	19.7
	5-less than 10 years	107	35.7
	10-less than 20years	65	21.7
	20-less than 30years	31	10.3
	More than 30 years	14	4.7
<b>Total</b>		<b>300</b>	<b>100.0</b>

**Table (3-2): Distribution of Sample According to General Information about the company**

<b>Variable</b>	<b>Class</b>	<b>Frequency</b>	<b>Percentage %</b>
<b>Location of work</b>	North W.B	27	9.0
	Middle W.B	40	13.3
	South W.B	113	37.7
	Arab countries	21	7.0
	Foreign countries	3	1.0
	North, Middle and South	53	17.7
	Middle and South	43	14.3
<b>Work type</b>	Governmental organization	60	20.0
	Engineering Consultant office	102	34.0
	Contractor	102	34.0
	Donor Institute (NGO's)	36	12.0
<b>Firm classification</b>	1st class (A)	62	60.0
	1st class (B)	20	20.0
	2nd Class	20	20.0
<b>Number of accomplished projects</b>	Less than 10	70	23.3
	10-49 projects	159	53.0
	50-100 projects	51	17.0
	More than 100 projects	20	6.7
<b>main-sector of projects</b>	Building	118	39.3
	infrastructure	79	26.3
	Electro-mechanical	27	9.0
	Others	76	25.4
<b>projects that your organization prefer</b>	Governmental Organization	40	13.3
	Non-profit Foreign Institutes	53	17.7
	Municipalities	126	42
	Private Local Institutes	26	8.6
	Other	55	18.4
<b>Types of construction</b>	Lump-Sum Contracts	11	3.7
	Unit Price Contracts	36	12.2
	Cost Plus Contracts	159	53.1
	Design-Build Contracts	14	4
	Other	80	27

<b>The disagreements happening during execution of works are mostly between</b>	Owner and engineer	11	3.7
	Owner and Contractor	63	21
	Engineer and Contractor	226	75.3
<b>Total</b>		<b>300</b>	<b>100.0</b>

### 3.8 Instrumentation

To reach the study target , the researcher utilized around 100 questions adjusted from previous literature and the own experience of researcher's in the field of construction engineering. The questionnaire comprised of three sections; the first one focused on the general data (demographic profile) such as (qualification, age, job title, experience, the main-sector of projects that company dealing with, and number of projects that the company has accomplished so far), whereas the second and third ones consisted of the following domains: (critical reasons of conflict which can have an impact on the performance of PCI and some facts about Some Practices of projects thorough execution the projects , number of challenges and barriers for implementing management in CP, the ways to deal with such challenges and an open-end questions). The scores of reaction to each item were computed according to a five-point Likert scale, in which strongly agree=5 points, agree=4 points, Natural = 3 points, disagree = 2 points and strongly disagree =1 point.

### **3.9 Validity of the Questionnaire**

To ensure the validity of the questionnaire, six person who specialized in CI were consulted their opinion in the questionnaire four of them were holding Ph.D. degree in the field of our study and the questionnaire was modified and improved according to their comments and recommendations and that really helped in developing a comprehensive questionnaire that survey the desired issue. The questionnaire, then, was piloted on 2 governess engineers with comparable levels of demographic information. The reason for the pilot study was to figure out if the inquiries were comprehensible. The respondents' comments and the stakeholder recommendations were mulled over to adjust and enhance the questionnaire's substance and wordings by overlooking, including, or rethinking things.

### **3.10 Reliability of the Questionnaire**

Cornbach Alpha formula by the SPSS was used to measure the reliability of the questionnaire, and the result was (0.98), which is worthy with the end goal of the study.(Creswell, 2009) . Cronbach's alpha is a measure of internal consistency, that is, how closely related a set of items are as a group. It is considered to be a measure of scale reliability. (SPSS FAQ).

The final draft of the questionnaire which include 350 distributed questionnaire given to the population of the study in West Bank. And by distributing, gathering and returned back the questionnaire to the researcher

It took about six weeks. (312) are the total number of the returned questionnaires ,(12) of them were excluded due to their responses were neither consistent nor completed. and only (300) were analyzed.

Data collected using those methods will be integrated and categorized to ensure the questions of the study are answered, it's worth mentioning that the questionnaire was formulated and distributed online, and that really helped in getting a quicker response easily and within a short period of time.

### **3.11 Data Analysis**

To provide study questions answers. (SPSS-17) was used to analyzed the collected data collected. Means, frequencies, standard deviations, t-tests for Independent Samples and One Way ANOVA and person correlation matrix. The following scale was used by the researcher to analyze the findings, and represent the estimation level of employees' responses.

**3.5 -and more: High 1.7–3.49.: Moderate Less than 1.7: Low**

## **CHAPTER 4**

### **RESULTS AND DATA ANALYSIS**

#### **4.1 Introduction**

The following scale will be a guide for analyzing and describing a result of the study .the meaning and specification of the result is focused on standard deviation and means .means vary from 1to 5 and the key of describing them as table(4-1).

Statistical Package for Social Science (SPSS) analyzing program was used after finishing the data collection to present answers to the study questions. Means, frequencies, standard deviations, One-Way Analysis of Variance (ANOVA), were utilized to discover descriptive statistical analysis. To analyze the findings, the following scale is representing the estimated level of stakeholders' responses: 3.5 and more means High level, 2.5-3.49 implying Medium level, and less than 2.5 implying the Low level

#### **4.2 Results and Discussion**

This study aimed at clarifying the Challenges Facing Public Constructions Industry (PCI) in Palestine: framework for implementation. It is also aimed at defining the effect of several variables on the employees' responses. To fulfill the points of the study, the researcher analyzed the information as per the study questions and the outcomes were as per the following:

- **Results related to the First Question.** What are the cultural, the political, the environmental, the human, the health and safety, the organizational, and the performance's challenges facing the PCI in Palestine?

To answer this question, the researcher used means and standard deviations as shown in Table (4-1).

**Table (4-1): Means, Standard Deviations and estimated level of the extent the conflicts happening between the project stakeholders within the public construction project (PCP).**

<b>Item</b>	<b>Means</b>	<b>Standard deviations</b>	<b>Estimated level</b>
After contract signing, before execution commencement	2.27	0.87	Low
During project execution	3.98	1.00	High
After project completion	3.14	1.11	Moderate
<b>Total</b>	<b>3.12</b>	<b>0.65</b>	<b>Moderate</b>

Table (4-1) demonstrates that the total degree the extent the conflicts happening between the project stakeholders within the PCP was (3.12) which suggests a moderate level of estimation. The highest score for mean was given to the item "During project execution." which scored (3.98), which is realistic and logical result, because on the project execution the claims and conflicts are raising, Furthermore, the item that had the lowest mean score was given to "After contract signing, before execution commencement" which scored (2.27) .

**Table (4-2): Means, Standard Deviations and estimated level of the most disagreements happening during execution because of .**

<b>Item</b>	<b>Means</b>	<b>Standard Deviations</b>	<b>Estimated Level</b>
Interfering in woks & changing their specifications repeatedly	3.60	1.06	High
Delay of contractor payments	3.62	1.12	High
Supervising engineer un-commitment	2.74	1.16	Moderate
Slow in making decisions	3.41	1.09	Moderate
Not compensating the contractor under force majeure conditions	3.15	1.18	Moderate
Delay in receiving or delivering the work site	2.79	1.17	Moderate
Lack of authorities given to engineers	3.25	1.14	Moderate
Poor experience in work execution	3.23	1.15	Moderate
Oral instructions & orders	3.60	1.09	High
Delay in work execution	3.84	1.04	High
Not documenting the daily works	3.43	1.11	Moderate
Shortage of manpower assigned to the project	3.41	1.13	Moderate
Non abidance with needed specifications	3.75	1.04	High
Absence of the implementation plan	3.67	1.14	High
<b>Total</b>	<b>3.69</b>	<b>0.70</b>	<b>high</b>

Table (4-2) demonstrates that the total degree of the reasons for the most disagreements happening during execution was (3.69) which suggest a moderate level of estimation. The highest mean was given to the item "Delay in work execution.", which scored (3.84), which is reasonable due to the prevailing culture to delay the activities till the last moment. Furthermore, the item that had the lowest mean score was given to

“Supervising engineer un-commitment” which scored (2.74), general speaking we have a commitment through our engineers.

**Table (4-3) : Means, Standard Deviations and estimated level of the reason of contractual disagreements.**

<b>Item</b>	<b>Means</b>	<b>Standard Deviations</b>	<b>Estimated level</b>
Not feeling in contract importance.	3.38	1.16	Moderate
Speed in contract formulation and un review it.	3.03	1.2	Moderate
Lack of essential understanding and perception of contractual and legal consequences.	3.62	1.05	High
Differing interpretations of the contract due to lack of clarity.	3.49	1.09	Moderate
<b>Total</b>	<b>3.38</b>	<b>0.88</b>	<b>Moderate</b>

Table (4-3) demonstrates that the total degree of the reason of contractual disagreements was (3.38) which suggest a moderate level of estimation. The highest score of mean was given to the item "Lack of essential understanding and perception of contractual and legal consequences " which scored (3.62), because in Palestine the tendering process somehow is new, most of people are biased to the traditional way, they didn't like the contracts and documentation process. Furthermore, the item that had the lowest mean score was given to “Speed in contract

formulation and un review it” which scored (3.03), that’s mean the consultants firms usually review their documents, tenders and contracts.

**Table (4-4): Means, Standard Deviations and estimated level of factors related to culture.**

<b>Item</b>	<b>Means</b>	<b>Standard Deviations</b>	<b>Estimated Level</b>
Employees gender is a hostile environment	3.00	1.20	Moderate
Suspicious cultures that prevailing inter, between stakeholders	3.40	1.01	Moderate
Culture and tradition against anything new	3.17	1.07	Moderate
Shortage by using modern techniques in design	3.36	1.02	Moderate
Blindly imitate other projects	3.43	1.19	Moderate
Shortage in employee training to use modern techniques	3.28	1.07	Moderate
Shortage in using modern techniques in communication	3.00	1.08	Moderate
Negative attitude against modern techniques	2.82	1.06	Moderate
<b>Total</b>	<b>3.18</b>	<b>0.81</b>	<b>Moderate</b>

Table (4-4) demonstrates that the total degree of factors related to culture was (3.18) which suggest a moderate level of estimation. The highest mean was given to the item "Blindly imitate other projects." which

scored (3.43), even in the CI the engineers like to keep the traditional way due to lack of creativity. Furthermore, the item that had the lowest mean score was given to "Negative attitude against modern techniques" which scored (2.82), people in this area trends to be conservatives.

**Table (4-5): Means, Standard Deviations and estimated level of factors related to political considerations.**

<b>Item</b>	<b>Means</b>	<b>Standard Deviations</b>	<b>Estimated Level</b>
Strikes, Israeli attacks and border closures and Cities' entrances (due to occupation)	3.29	1.13	Moderate
Israeli restrictions on labor and materials imports	3.64	1.06	High
Transportation policy, Goods retention at ports	3.51	1.08	High
The collapsed security situation	3.63	1.04	High
Unstable relation between Donors and Palestinian authorities	3.60	1.06	High
The condition that required by donors	3.65	1.05	High
The difficulties in issuing licenses in C areas	4.03	1.07	High
<b>Total</b>	<b>3.62</b>	<b>0.68</b>	<b>High</b>

Table (4-5) shows that the total degree of factors related to political was (3.62) which suggests a moderate level of estimation. The highest mean was given to the item "The difficulties in issuing licenses in C areas " which scored (4.03), and accordingly we have a very limited project in area C that directly affect the public sector in Palestine, that make these areas

considered as neglected communities through West Bank. Furthermore, the item that had the lowest mean score was given to “Strikes, Israeli attacks and border closures and Cities' entrances (due to occupation)” which scored (3.29), according to the respondents.

**Table (4-6): Means, Standard Deviations and estimated level of factors related to environmental considerations.**

<b>Item</b>	<b>Means</b>	<b>Standard Deviations</b>	<b>Estimated Level</b>
Unfavorable weather conditions	3.07	1.08	Moderate
High level of pollution	2.76	0.97	Moderate
Lack in water resources	3.10	1.06	Moderate
Neighbors objection on implementation of some activities in the projects	3.36	1.05	Moderate
<b>Total</b>	<b>3.07</b>	<b>0.81</b>	<b>Moderate</b>

Table (4-6) shows that the total degree of factors related to environmental considerations were (3.07) which suggest a moderate level of estimation. The highest score of mean was given to the item “Neighbors objection on implementation of some activities in the projects.” which scored (3.36), so the government as owner or beneficiary for the public project should compensate the neighbors of these project in case they negatively affected maybe their land used on these projects or some thing like that, otherwise the government should formulate a stringent, sever regulation to make the neighbours stop disturbing the public project. Furthermore, the item that had the lowest mean score was given to “High level of pollution” which scored (2.76) ,most of our projects don’t produce a harmful compounds nor deleterious elements.

**Table (4-7): Means, Standard Deviations and estimated level of factors related to work force considerations.**

<b>Item</b>	<b>Means</b>	<b>Standard Deviations</b>	<b>Estimated Level</b>
No training courses applied on employees	3.60	1.05	High
Low level of commitment and affiliation	3.51	1.16	High
Low level of motivation and creativity	3.55	1.11	High
The stuff quality (labors) and their efficiency is inferior	3.28	1.05	Moderate
The stuff quantity (labors) is less than required	3.43	1.11	Moderate
High rate of turn off of labors	3.29	1.05	Moderate
Hiring labors without contractual documents	3.65	1.14	High
<b>Total</b>	<b>3.47</b>	<b>0.85</b>	<b>Moderate</b>

Table (4-7) demonstrate that the total degree of factors related to workforce considerations were (3.47), which suggest a moderate level of estimation. The highest score for mean was given to the item "Hiring labors without contractual documents." which scored (3.65), hiring labors based on the hiring and firing policy is really bad way to deal with big projects since the new labors have no experience in dealing with the project, also the worker doesn't know precisely his duties nor his responsibilities. Furthermore, the item that had the lowest mean score was given to " The stuff quality (labors) and their efficiency is inferior" which scored (3.28), that a clear evidence that we have an efficient labors in Palestine.

**Table (4-8): Means, Standard Deviations and estimated level of factors related health and safety.**

<b>Item</b>	<b>Means</b>	<b>Standard Deviations</b>	<b>Estimated Level</b>
Poor safety practice within the life cycle of project, inferior working conditions	3.63	1.177	High
Staff negligence for the health and safety procedures in the project	3.84	1.093	High
Lack of employee skills regarding health and safety during the project	3.80	1.15	High
No clear document clarifies the safety procedure in projects.	3.78	1.133	High
<b>Total</b>	<b>3.78</b>	<b>1.133</b>	<b>High</b>

Table (4-8) shows that the total degree of factors related to health and safety was (3.76) which suggest a high level of estimation. The highest score for mean was given to the item "Staff negligence for the health and safety procedures in the project." which scored (3.84). Furthermore, the item that had the lowest mean score was given to " Poor safety practice within the life cycle of project, inferior working conditions" which scored (3.63), according to the previous result its crystal clear that in West Bank construction project there is a serious attempt to consider the safety component and treat it as a vital part of the project, but due to cultural issues the staff especially the un skilled personnel still neglect such component.

**Table (4-9): Means, Standard Deviations and estimated level of factors related to legal issues.**

<b>Item</b>	<b>Means</b>	<b>Standard Deviations</b>	<b>Estimated Level</b>
The international codes doesn't perfectly fit the Palestinian situation	3.21	1.01	Moderate
Conflicts between tender documents	3.22	1.07	Moderate
Variance of explanation regarding the contract and specification paragraph	3.49	0.95	Moderate
Unclear formulation within contracts, detailed drawings and specification	3.40	1.01	Moderate
<b>Total</b>	<b>3.32</b>	<b>0.87</b>	<b>Moderate</b>

Table (4-9) demonstrate that the total degree of factors related to legal were (3.32) which suggest a moderate level of estimation. The highest score for mean was given to the item "Variance of explanation regarding the contract and specification paragraph." which scored (3.49). Furthermore, the item that had the lowest mean score was given to " The international codes doesn't perfectly fit the Palestinian situation" which scored (3.21), both results could be justified that there is no private code for Palestine that considering the special condition that Palestine pass through.

**Table (4-10): Means, Standard Deviations and estimated level of factors related to quality.**

<b>Item</b>	<b>Means</b>	<b>Standard Deviations</b>	<b>Estimated Level</b>
Technical Project complexity	3.13	0.99	Moderate
Poor working conditions	3.18	0.97	Moderate
Weaknesses in project management	3.64	1.10	High
Inadequate management strategy	3.64	1.03	High
Shortage in integration within strategic governmental plans related to the CI	3.80	1.08	High
Poor attention to employee and his rights	3.74	0.99	High
Absence of clear code of conduct	3.66	1.12	High
No quality system to control the contractor activities according to	3.35	1.05	Moderate
The staff unwillingness to accept the quality system	3.68	1.04	High
No quality system to rank contractors, according to	3.51	1.13	High
The prevailing perception that quality is inferior than the other components of the project	3.56	1.10	High
Lack of coordination between stakeholders	3.52	1.11	High
<b>Total</b>	<b>3.53</b>	<b>0.77</b>	<b>High</b>

Table (4-10) demonstrate that the total degree of factors related to quality were (3.53) which suggest a high level of estimation. The highest score for mean was given to the item "Shortage in integration within strategic governmental plans related to the CI." which scored (3.80). Furthermore, the item that had the lowest mean score was given to "Technical Project complexity" which scored (3.13), which is mean that it

doesn't matter how much the project is complicated we can implement the quality system, but according to the respondents the government should formulate a comprehensive plans to coordinate and launching a national wide quality system in coordination with the other C.P components.

**Table (4-11): Means, Standard Deviations and estimated level of factors related to cost .**

<b>Item</b>	<b>Means</b>	<b>Standard Deviations</b>	<b>Estimated level</b>
Currency exchange rate fluctuation	2.95	1.05	Moderate
High cost of transportation and materials transfer and imports due to barriers, and Israeli restriction against labors	3.47	1.05	Moderate
Project design costs	3.67	1.03	High
Awarding the contracts to the lowest bidders	3.93	1.18	High
High competition between rivals	3.70	1.12	High
<b>Total</b>	<b>3.54</b>	<b>0.78</b>	<b>High</b>

Table (4-11) demonstrate that the total degree of factors related to cost was (3.54) which suggest a high level of estimation. The highest score for mean was given to the item "Awarding the contracts to the lowest bidders." which scored (3.93), the prevailing pattern in Palestine is to award the contracts to the lowest bidders, in which the contractors losses money just to have cash to stay competing in market, that really harm and have a bad effect on the projects, seriously the government and owner should award the contract based upon other components rather than the cost, such as making an evaluation report 70% money wise and 30%

technical wise. Furthermore, the item that had the lowest mean score was given to "Currency exchange rate fluctuation " which scored (2.95), this could be attributed to the implementation of new policy in some project by subjecting the tender to the CCI (construction cost index) in which if there is a noticeable variation in exchange rate the contractor should be compensate.

**Table (4-12): Means, Standard Deviations and estimated level of factors related to time.**

<b>Item</b>	<b>Means</b>	<b>Standard Deviations</b>	<b>Estimated level</b>
Estimate duration of projects not consistent with the capabilities of Contractors (unrealistic deadline)	3.25	1.09	Moderate
Delay due to closures and materials shortage	3.66	1.10	High
Delay of owners' payments to contractor	4.01	1.10	High
Considering time management (schedule) as a paper work rather than firms to do activity in accordance to such schedule	2.64	0.97	Moderate
<b>Total</b>	<b>3.39</b>	<b>0.77</b>	<b>Moderate</b>

Table (4-12) demonstrate that the total degree of factors related to time were (3.39) which suggest a moderate level of estimation. The highest score for mean was given to the item " Delay of owners' payments to contractors." which scored (4.01), due to the turmoil political situation some time a considerable lateness occurs in payment which cause a serious

financial trouble to the contractor and deviation on the project cash flow and S-curve. Furthermore, the item that had the lowest mean score was given to "Considering time management (schedule) as a paperwork rather than firms to do activity in accordance to such schedule " which scored (2.64).

With concern the, challenges facing PCI in Palestine. The challenges are describes as bellow:

**Table (4-13): Means, Standard Deviations and estimated level of the factors and the total degree.**

<b>Item</b>	<b>Means</b>	<b>Standard Deviations</b>	<b>Estimated Level</b>
Challenges related to culture	3.18	.813	Moderate
Challenges related to Political Considerations	3.62	0.86	High
Challenges related to Environmental Considerations	3.07	0.81	Moderate
Challenges related to Work Force Considerations	3.47	0.85	Moderate
Challenges related to health and safety	3.78	1.04	High
Challenges related to legislations	3.32	0.87	Moderate
Challenges related to quality	3.53	0.77	High
Challenges related to time	3.54	0.78	High
Challenges related to cost	3.39	0.77	Moderate
<b>Total</b>	<b>3.43</b>	<b>0.67</b>	<b>Moderate</b>

Table (4-13) shows that the total degree of challenges was (3.43) which suggest a moderate level of estimation. The highest mean was given to the domain "Challenges related to health and safety." which scored

(3.78) that really emphasis the safety component as one of the most leading components through the project life cycle and managerial basic that is safety is first and foremost. Furthermore, the item that had the lowest mean score was given to the domain "Challenges related to Environmental Considerations" which scored (3.07).

Regarding to the way of dealing with those challenge the result are shown in table (4-14) as below:

**Table (4-14): Means, Standard Deviations and estimated level of dealing with challenges.**

<b>Item</b>	<b>Means</b>	<b>Standard Deviations</b>	<b>Estimated Level</b>
Solving disagreements through the courts	3.01	1.13	Moderate
Arbitrators	3.26	1.02	Moderate
Dialogue and reconciliation	4.00	1.03	High
One side surrenders	3.64	1.07	High
Trusted third party from related parties	3.51	1.11	High
<b>Total</b>	<b>3.48</b>	<b>0.76</b>	<b>Moderate</b>

Table (4-14) shows that the total degree of dealing with challenges was (3.48) which suggest a moderate level of estimation. The highest mean was given to the item "Dialogue and reconciliation." which scored (4.00). Furthermore, the item that had the lowest mean score was given to "Solving disagreements through the courts" which scored (3.01), actually this is a good indication regarding the statistical issues in Palestine, that we can solve most of problems through dialogue and reconciliation by finding a remedial solution and voiding the courts and legal suing.

In order to answer the open question at the end of the questionnaire, the respondents according to table (4-13) choose the health and safety challenges, political challenges, challenges related to time, and the challenges related to quality to be the most critical challenges faces the CS in Palestine then we figure out the challenges among these ones to be the most important challenges which is respectively staff negligence for the health and safety procedure in the project, the difficulties in issuing license in c areas, delay of owner payment to contractor, and shortage in integration within strategic governmental plans related to CI.

Regarding the question related to the most precaution to avoid the challenges that face the construction project, that most repeated answers is the following:

**Table (4-15): Frequency, and Percent most precaution to avoid challenges that faces the C.P.**

<b>The most precaution to avoid challenges that faces the C.P</b>	<b>Frequency</b>	<b>Percent</b>
Negotiation and dialogue	44	45.4%
Documentation procedures (meetings, contracts, etc.....	16	16.5%
Arbitrator	29	29.9%
Resorting to law and courts	8	8.2%
<b>Total</b>	<b>97</b>	<b>100.0%</b>

It is obvious from the previous table (4-15) that most precaution to avoid the challenges that faces the C.P was negotiation and dialogue, then arbitrators, documentation and finally resorting to the law.

In relation to the question: Are there any significance statistical differences refer to variables as age, gender, specialization, location, years of experience... etc., in perceiving those challenges? The results are shown in table (4-16) as bellow:

**Table (4-16): T-test for Independent Samples of the challenges facing PCI in Palestine due to gender.**

Total	Gender	N	Mean	S. D	t	Sig.*
	Male	219	3.41	0.67	-0.607	0.545
	Female	81	3.47	0.67		

\*The mean difference is significant at the 0.05 level.

Table (4-16) shows no statistical significance differences at ( $\alpha = 0.05$ ) on the total degree challenges facing PCI in Palestine due to gender. The significance was (0.545) which is more than (0.05).

**Table (4-17): Frequencies, Means and Standards Deviations of challenges facing PCI in Palestine due to age.**

	Age	N	Mean	S.D
<b>Challenges Facing PCI in Palestine</b>	Less than 20	2	2.73	0.00
	30-less than 30	141	3.43	0.76
	30-less than 40	95	3.44	0.63
	40-less than 50	23	3.39	0.55
	Over 61	39	3.47	0.48
<b>Total</b>		<b>300</b>	<b>3.43</b>	<b>0.67</b>

**Table (4-18): Results of One Way ANOVA of the challenges facing PCI in Palestine due to age.**

Age	Source of variance	Sum of Squares	df	Mean Square	F	Sig.
Total	Between Groups	1.093	4	0.273	0.595	0.666
	Within Groups	135.439	295	0.459		
	<b>Total</b>	<b>136.532</b>	<b>299</b>			

\* The mean difference is significant at the 0.05 level.

Table (4-18) shows no statistical significance differences at ( $\alpha = 0.05$ ) on the total degree of challenges facing PCI in Palestine due to age. The significance was (0.666) which is more than (0.05).

**Table (4-19): Frequencies, Means and Standards Deviations of challenges facing PCI in Palestine due to qualification.**

		Qualification	N	Mean	S.D
<b>Challenges Facing PCI in Palestine</b>		Secondary	4	3.19	0.53
		Diploma	10	3.08	0.90
		Bachelor	218	3.49	0.65
		Master	63	3.27	0.68
		Ph.D	5	3.60	0.68
<b>Total</b>			<b>300</b>	<b>3.43</b>	<b>0.67</b>

**Table (4-20): Results of One Way ANOVA of the challenges facing PCI in Palestine due to qualification.**

Qualification	Source of variance	Sum of Squares	df	Mean Square	F	Sig.
<b>Total</b>	Between Groups	3.972	4	0.993	2.210	0.068
	Within Groups	132.561	295	0.449		
	<b>Total</b>	<b>136.532</b>	<b>299</b>			

\* The mean difference is significant at the 0.05 level.

Table (4-20) shows no statistical significance differences at ( $\alpha = 0.05$ ) on the total degree challenges facing PCI in Palestine due to qualification. The significance was (0.068) which is more than (0.05).

**Table (4-21): Frequencies, Means and Standards Deviations of challenges facing PCI in Palestine due to position.**

	Position	N	Mean	S.D
<b>Challenges Facing PCI in Palestine</b>	Project Engineer	82	3.52	0.49
	Project Manager	45	3.36	0.77
	Employee	14	3.50	0.82
	General Manager	10	3.64	0.34
	Other	23	3.17	0.61
<b>Total</b>		<b>174</b>	<b>3.43</b>	<b>0.62</b>

**Table (4-22): Results of One Way ANOVA of the challenges facing PCI in Palestine due to position.**

Position	Source of variance	Sum of Squares	df	Mean Square	F	Sig.
<b>Total</b>	Between Groups	6.440	4	1.610	3.651	0.066
	Within Groups	130.092	295	0.441		
	<b>Total</b>	<b>136.532</b>	<b>299</b>			

\* The mean difference is significant at the 0.05 level.

Table (4-22) shows no statistical significance differences at ( $\alpha = 0.05$ ) on the total degree challenges facing PCI in Palestine due to position. The significance was (0.066) which is more than (0.05).

**Table (4-23): Frequencies, Means and Standards Deviations of challenges facing PCI in Palestine due to experience.**

	Experience	N	Mean	S.D
<b>Challenges Facing PCI in Palestine</b>	Less than 2 years	24	3.70	0.42
	2-less than 5 years	107	3.35	0.83
	5-less than 10 years	59	3.57	0.44
	10-less than 20years	65	3.31	0.71
	20-less than 30years	31	3.52	0.40
	More than 30 years	14	3.36	0.52
<b>Total</b>		<b>300</b>	<b>3.43</b>	<b>0.67</b>

**Table (4-24): Results of One Way ANOVA of the challenges facing PCI in Palestine due to experience.**

Position	Source of variance	Sum of Squares	df	Mean Square	F	Sig.
<b>Total</b>	Between Groups	4.749	5	0.950	2.119	0.063
	Within Groups	131.783	294	0.448		
	<b>Total</b>	<b>136.532</b>	<b>299</b>			

\* The mean difference is significant at the 0.05 level.

Table (4-24) shows no statistical significance differences at ( $\alpha = 0.05$ ) on the total degree challenges facing PCI in Palestine due to experience. The significance was (0.063) which is more than (0.05).

**Table (4-25): Frequencies, Means and Standards Deviations of Challenges Facing PCI in Palestine due to project location.**

Project location		N	Mean	S.D
<b>Challenges Facing PCI in Palestine</b>	North W.B	27	3.37	0.41
	Middle W.B	40	3.20	0.88
	South W.B	113	3.39	0.83
	Arab countries	21	3.62	0.33
	Foreign countries	3	4.15	0.19
	North, Middle and South	53	3.51	0.35
	Middle and South	43	3.52	0.47
<b>Total</b>		<b>300</b>	<b>3.43</b>	<b>0.67</b>

**Table (4-26): Results of One Way ANOVA of the Challenges Facing PCI in Palestine due to project location.**

<b>Project location</b>	<b>Source of variance</b>	<b>Sum of Squares</b>	<b>df</b>	<b>Mean Square</b>	<b>F</b>	<b>Sig.</b>
<b>Total</b>	Between Groups	5.312	6	0.885	1.977	0.069
	Within Groups	131.220	293	0.448		
	<b>Total</b>	<b>136.532</b>	<b>299</b>			

\* The mean difference is significant at the 0.05 level.

Table (4-26) shows no statistical significance differences at ( $\alpha = 0.05$ ) on the total degree challenges facing PCI in Palestine due to project location. The significance was (0.069) which is more than (0.05).

**Table (4-27): Frequencies, Means and Standards Deviations of Challenges Facing PCI in Palestine due to work type .**

<b>Work type</b>		<b>N</b>	<b>Mean</b>	<b>S.D</b>
<b>Challenges Facing PCI in Palestine</b>	Governmental organization	60	3.33	0.84
	Engineering Consultant office	102	3.45	0.50
	Contractor	102	3.43	0.78
	Donor Institute (NGO's)	36	3.55	0.42
<b>Total</b>		<b>300</b>	<b>3.43</b>	<b>0.67</b>

**Table (4-28): Results of One Way ANOVA of the Challenges Facing PCI in Palestine due to work type.**

<b>Work type</b>	<b>Source of variance</b>	<b>Sum of Squares</b>	<b>df</b>	<b>Mean Square</b>	<b>F</b>	<b>Sig.</b>
<b>Total</b>	Between Groups	1.140	3	0.380	0.831	0.478
	Within Groups	135.392	296	0.457		
	<b>Total</b>	<b>136.532</b>	<b>299</b>			

\* The mean difference is significant at the 0.05 level.

Table (4-28) shows no statistical significance differences at ( $\alpha = 0.05$ ) on the total degree challenges facing PCI in Palestine due to work type. The significance was (0.478) which is more than (0.05).

**Table (4-29): Frequencies, Means and Standards Deviations of Challenges Facing PCI in Palestine due to firm classification.**

		<b>Firm classification</b>	<b>N</b>	<b>Mean</b>	<b>S.D</b>
<b>Challenges Facing PCI in Palestine</b>	1st class (A)		69	3.41	0.85
	1st class (B)		19	3.24	0.94
	2nd Class		33	3.36	0.77
	Special		4	3.56	0.10
	International		8	3.56	0.22
	Office		9	3.76	0.49
<b>Total</b>			<b>142</b>	<b>3.41</b>	<b>0.79</b>

**Table (4-30): Results of One Way ANOVA of the Challenges Facing PCI in Palestine due to firm classification.**

<b>Firm Classification</b>	<b>Source of variance</b>	<b>Sum of Squares</b>	<b>df</b>	<b>Mean Square</b>	<b>F</b>	<b>Sig.</b>
<b>Total</b>	Between Groups	2.004	5	0.401	0.625	0.681
	Within Groups	87.191	136	0.641		
	<b>Total</b>	<b>89.195</b>	<b>141</b>			

\* The mean difference is significant at the 0.05 level.

Table (4-30) shows no statistical significance differences at ( $\alpha = 0.05$ ) on the total degree challenges facing PCI in Palestine due to firm classification. The significance was (0.681) which is more than (0.05).

**Table (4-31): Frequencies, Means and Standards Deviations of Challenges Facing PCI in Palestine due to the number of accomplished projects.**

<b>Number of accomplished projects</b>		<b>N</b>	<b>Mean</b>	<b>S.D</b>
<b>Challenges Facing PCI in Palestine</b>	Less than 10	70	3.43	0.76
	10-49 projects	159	3.35	0.73
	50-100 projects	51	3.67	0.28
	More than 100 projects	20	3.41	0.39
<b>Total</b>		<b>300</b>	<b>3.43</b>	<b>0.67</b>

**Table (4-32): Results of One Way ANOVA of the Challenges Facing PCI in Palestine due to the number of accomplished projects.**

<b>Number of accomplished projects</b>	<b>Source of variance</b>	<b>Sum of Squares</b>	<b>df</b>	<b>Mean Square</b>	<b>F</b>	<b>Sig.</b>
<b>Total</b>	Between Groups	3.944	3	1.315	2.935	0.054
	Within Groups	132.588	296	0.448		
	<b>Total</b>	<b>136.532</b>	<b>299</b>			

\* The mean difference is significant at the 0.05 level.

Table (4-32) shows no statistical significance differences at ( $\alpha = 0.05$ ) on the total degree challenges facing PCI in Palestine due to the number of accomplished projects. The significance was (0.054) which is more than (0.05).

**Table (4-33): Frequencies, Means and Standards Deviations of Challenges Facing PCI in Palestine due to main-sector of projects.**

Main sector of projects		N	Mean	S.D
<b>Challenges Facing PCI in Palestine</b>	Building	129	3.41	0.70
	Infrastructure	90	3.54	0.69
	Electro-mechanical	38	3.25	0.78
	Others	43	3.48	0.37
<b>Total</b>		<b>300</b>	<b>3.43</b>	<b>0.67</b>

**Table (4-34): Results of One Way ANOVA of the Challenges Facing PCI in Palestine due to main-sector of projects.**

Main sector of projects	Source of variance	Sum of Squares	df	Mean Square	F	Sig.
<b>Total</b>	Between Groups	2.242	4	0.561	1.232	0.298
	Within Groups	134.290	295	0.455		
	<b>Total</b>	136.532	299			

\* The mean difference is significant at the 0.05 level.

Table (4-34) shows no statistical significance differences at ( $\alpha = 0.05$ ) on the total degree Challenges Facing PCI in Palestine due to main sector of project. The significance was (0.298) which is more than (0.05).

**Table (4-35): Frequencies, Means and Standards Deviations of Challenges Facing PCI in Palestine due to the projects that your organization prefer.**

Preferred projects		N	Mean	S.D
<b>Challenges Facing PCI in Palestine</b>	Governmental Organization	58	3.39	0.80
	Non-profit Foreign Institutes	139	3.40	0.70
	Municipalities	29	3.54	0.31
	Private Local Institutes	63	3.43	0.64
	Other	11	3.73	0.35
<b>Total</b>		<b>300</b>	<b>3.43</b>	<b>0.67</b>

**Table (4-36): Results of One Way ANOVA of the Challenges Facing PCI in Palestine due to the projects that your organization prefer.**

Main sector of projects	Source of variance	Sum of Squares	df	Mean Square	F	Sig.
<b>Total</b>	Between Groups	1.609	4	0.402	0.880	0.476
	Within Groups	134.923	295	0.457		
	<b>Total</b>	<b>136.532</b>	<b>299</b>			

\* The mean difference is significant at the 0.05 level.

Table (4-36) shows no statistical significance differences at ( $\alpha = 0.05$ ) on the total degree Challenges Facing PCI in Palestine due to the projects that your organization prefers. The significance was (0.476) which is more than (0.05).

**Table (4-37): Frequencies, Means and Standards Deviations of Challenges Facing PCI in Palestine due to the types of construction contracts.**

		<b>Contract Type</b>	<b>N</b>	<b>Mean</b>	<b>S.D</b>
<b>Challenges Facing PCI in Palestine</b>		Lump-Sum Contracts	37	3.34	0.75
		Unit Price Contracts	163	3.49	0.61
		Cost Plus Contracts	14	3.45	0.30
		Design-Build Contracts	82	3.34	0.79
		Other	4	3.78	0.24
<b>Total</b>			<b>300</b>	<b>3.43</b>	<b>0.67</b>

**Table (4-38): Results of One Way ANOVA of the Challenges Facing PCI in Palestine due to the types of construction contracts.**

<b>Contract Type</b>	<b>Source of variance</b>	<b>Sum of Squares</b>	<b>df</b>	<b>Mean Square</b>	<b>F</b>	<b>Sig.</b>
<b>Total</b>	Between Groups	2.004	4	0.501	1.099	0.357
	Within Groups	134.528	295	0.456		
	<b>Total</b>	<b>136.532</b>	<b>299</b>			

\* The mean difference is significant at the 0.05 level.

Table (4-38) shows no statistical significance differences at ( $\alpha = 0.05$ ) on the total degree Challenges Facing PCI in Palestine due to the contract types. The significance was (0.357) which is more than (0.05).

**Table (4-39): Frequencies, Means and Standards Deviations of Challenges Facing PCI in Palestine due to the disagreements.**

Disagreements		N	Mean	S.D
<b>Challenges Facing PCI in Palestine</b>	Owner and engineer	23	3.21	0.83
	Owner and Contractor	82	3.39	0.69
	Engineer and Contractor	195	3.47	0.64
<b>Total</b>		<b>300</b>	<b>3.43</b>	<b>0.67</b>

**Table (4-40): Results of One Way ANOVA of the Challenges Facing PCI in Palestine due to the disagreements.**

Disagreements	Source of variance	Sum of Squares	df	Mean Square	F	Sig.
<b>Total</b>	Between Groups	1.601	2	0.801	1.762	0.173
	Within Groups	134.931	297	0.454		
	<b>Total</b>	<b>136.532</b>	<b>299</b>			

\* The mean difference is significant at the 0.05 level.

Table (4-40) shows no statistical significance differences at ( $\alpha = 0.05$ ) on the total degree challenges facing PCI in Palestine due to the disagreements. The significance was (0.173) which is more than (0.05).

**Table (4-41) :Pearson correlation Matrix to show the relationships between the challenges of challenges facing PCI in Palestine.**

Domain		Political Considerations	Environmental Considerations	Work Force Considerations	Health and safety	Legal	Quality	Time	Cost
<b>Culture</b>	Pearson Correlation	0.589**	0.406**	0.584**	0.590**	0.553**	0.615**	0.541**	0.515**
	Sig. (2-tailed)	.000	0.000	.000	0.000	0.000	0.000	0.000	0.000
<b>Political Considerations</b>	Pearson Correlation		0.612**	0.605**	0.660**	0.568**	0.666**	0.621**	0.664**
	Sig. (2-tailed)		0.000	0.000	0.000	0.000	0.000	0.000	0.000
<b>Environmental Considerations</b>	Pearson Correlation			0.589**	0.508**	0.512**	0.562**	0.532**	0.523**
	Sig. (2-tailed)			0.000	0.000	0.000	0.000	0.000	0.000
<b>Work Force Considerations</b>	Pearson Correlation				0.655**	0.583**	0.675**	0.504**	0.604**
	Sig. (2-tailed)				0.000	0.000	0.000	0.000	0.000
<b>Health and safety</b>	Pearson Correlation					0.502**	0.694**	0.482**	0.657**
	Sig. (2-tailed)					0.000	0.000	0.000	0.000
<b>Legal</b>	Pearson Correlation						0.679**	0.675**	0.581**
	Sig. (2-tailed)						0.000	0.000	0.000
<b>Quality</b>	Pearson Correlation							0.702**	0.709**
	Sig. (2-tailed)							0.000	0.000
<b>Time</b>	Pearson Correlation								0.702**
	Sig. (2-tailed)								.000

**\*\* Correlation is significant at 0.01 levels (2 tailed)**

Table (4-41) shows a significant relationship between al, l the challenges domains. The significance was (0.00) and was less than (0.01).

**General Comments from the previous table:**

- Culture related to quality, as much as culture can be enhanced and improve ability to create and not blindly imitate other projects and enhance using new technology, then the quality will increased.

-As much as the political situation improved and investment in area C increase that save this lands from settlement and people feel more safe, this will influence the manpower performance then quality increased.

-As much the workforces challenge resolved and their environment improved, they get more experience that affect and increase the quality of the construction.

- As much the health and safety challenge handled, labors feel more safe and secured, that affects and increases the quality of the construction.

-As much as the legal issues are not handled that badly affect the performance of the project especially the quality component, as a result of such issues in quality a conflict may rises between involved parties.

-As much as the quality needed to be improved the cost of the project will increase, moreover, there is a linkage between the quality issues and time.so if we need getting the best quality that means the cost will increase to reach the expected result and that also mean delay in time schedule if that issues is not considered since the beginning , but on the other hand it will save time and cost during maintenance period after finishing the projects.

-As much as the time of the project is extended then the cost will increase due to the overhead cost, and insurance cost will increase...etc, on the other hand, there is a direct relation between the legal issues and the cost since the conflict and claims cause an extra cost.

## **Chapter 5**

### **The Theoretical Framework**

#### **5.1 Introduction:**

This chapter illustrates the best practice in management implementation in PCP in West Bank. The created framework depends on the literature, variables observed by experts and supervisors in C.P in West Bank essentially the information attained from the conveyed questionnaire, and the directed interviews with respondents to get a deeper level of comprehension about the best management following practice in order to avoid obstacles and problems and getting high performance in C.P in West Bank.

Managing (CI) could be defined as the comprehensive processes, planning and organizing, for the purpose of developing and improving the performance of administrative and technical issues in the organization. This is could be achieved by participation of all involved in the whole management process by providing and facilitate factors needed as an integrated system of leadership, preparing and consistent change, to improve output effectiveness, with efficiency and high quality, saving time and effort, however, it will be an obstacle to move toward implementation stage without building a customized framework . So fundamentally the framework serves as a rule permitting us to actualize management in C.P in West Bank easily.

The framework output is a solution suggestion which display ideas, thoughts concept, and plans in a non-prescriptive way. So the created framework serves and give a tip off ways to deal with challenges rather than a constant rule the stakeholders had to enforce and committed to. Rashed,(2014), gave reasons, justifications why a framework is crucial and seriously needed to implement management, like, showing a diagram of new pattern to convey another vision of the firm, or updating the current one, giving a knowledge into the company's strength and weaknesses to precisely assess the present circumstance. At long last, a standout amongst the most vital reasons why a framework is key to enhance the chances to make such an endeavor to be more true as opposed to a desired wish.

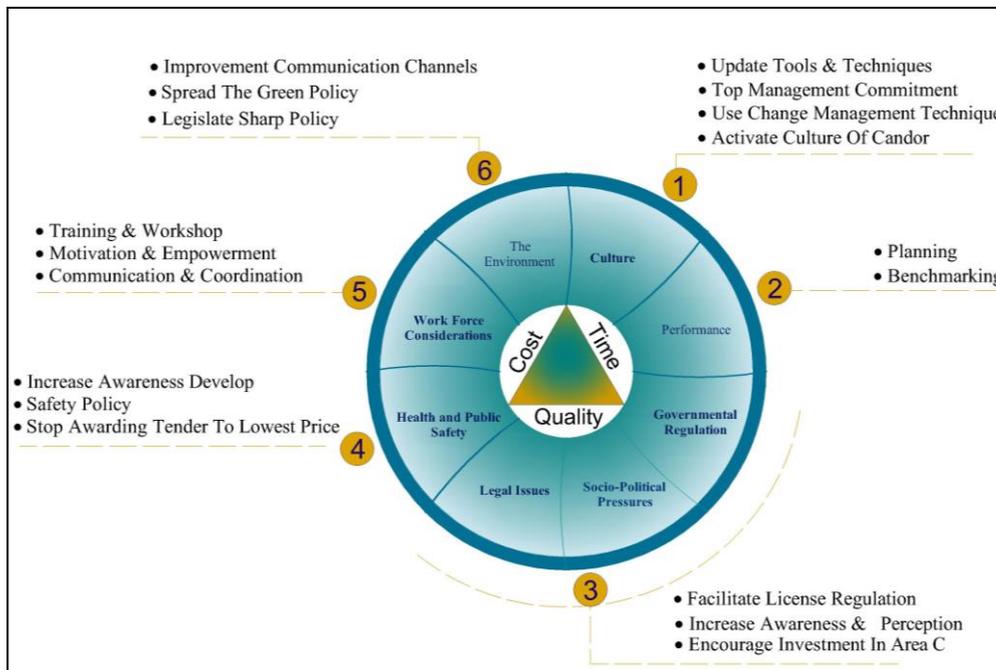
## **5.2 Framework Development Requirements**

In general, developing a good framework depends on a better understanding of the criteria, requirements needed. (Yusof and Aspinwall, 2000), in which they illustrate that the most critical prerequisite for a framework development, like, methodical and effectively comprehended by keeping it far from the confused phrases and un-essential practices; the structure must be straightforward ; having clear connections between the components or steps outlined, in simple word to be smoothly overflow; sufficiently wide to suit diverse contexts, that not very broad in which we can't control, and in the same time not very detailed to be implementable; represent a road map and planning tools for implementation; Implementable at reasonable cost and associated with time allotment in

which the planning, execution, and assessment stages is clear and simple to be taken after.

### 5.3 The Stages of the Framework

Creating the framework is the main purpose of this research for the PCP implementation by identifying the challenges facing PCI in West Bank. Figure 5-1 shows that framework, but it should be highly considered that this framework is a suggested solution and the performance success is not based only on the framework implementation, but getting also feedback to update it permanently will result in achieving better performance.



**Figure 5-1:** Framework for implementing PCI projects in West Bank

### 5.3.1 Stakeholders

In this phase, we should understand and highlight the stakeholders in the CI and especially in C.P that influence the whole process in a project life, and affect its performance.

Project Management Institute (PMI), (2001). A guide to the Project Management Body of Knowledge (PMBOK). Defines the stakeholders as: “Individuals and organizations who are actively involved in the project, or whose interests may be positively or negatively affected as a result of project execution or successful project completion.”

Another said that stakeholders would be: “those groups or individuals with whom the organization interacts or has interdependencies... any individual or group who can affect or is affected by the actions, decisions, policies, practices or goals of the organization”. (Carroll, 2006).

In the CS; a conflict of interests will appear in most of projects due to its nature diversity and demand , especially when the projects have too many stakeholders .

The checklist of stakeholders in a C.P is regularly huge and incorporates the owners who is considered proprietor of the facility operated for the benefit of government ministry sector, and facility users even if they are the owners or employee or beneficiaries, project managers

through execution phase, facilities managers, designers, consultants, shareholders (partnership), public administration, labors , subcontractors, suppliers, competitors, banks insurance companies, media, community representative, neighbors, general public, clients, and regional development agencies. Each one of these could impact over the course of the project at some time of the project life before or after finishing the whole work. Despite the fact that some could impact in the project more than often, the larger part of whom will do so at a set time. (Malkat & Byung-GYOO, 2012).

And so to achieve the expectations of stakeholders, and especially if these expectations differing between them, effective stakeholder management should implement by managing their relation with the project and the organization in order to support their objectives and create a good environment in which to promote a firm trust in each other. (Malkat & Byung-GYOO, 2012).

In this phase, the stakeholders should take into account that the framework is a result oriented, which means the stakeholders the most important pillar to achieve the attained results; in other words, they keep the results as the driver to motivate them in each step in this process.

### **5.3.2 Challenges and proposed solution**

At this stage, the challenges must be evaluated, arrangement and audit early indications for the execution stage, this phase could be

considered as go or not go indicator if the primary output are not enough. Here comes the role of those responsible to stop and take the right decision, to reduce the risk or at least taking correct action and put alternative plan that could be more in line with the ongoing situation. Furthermore, if the outcomes are satisfied, we have to move through the whole process.

And for that in this level we will highlight the challenge after analyzes the questionnaire and its rank in order to be able evaluate the situation and introduce a solution that could help in getting better performance in the PCI through its projects.

### **5.3.2.1 Culture**

It is essential to reconsider the arrangements and process of the CI in West Bank, and so there is a need to reflect the cultural attributes and values in their practices and procedures. Studies on the culture of CI and its related firms, projects and workers in West Bank would improve by helping managers to understand how to communicate with, and stimulate their employee , and enabling clients to appreciate how to offer incentives to, and steer construction firms to innovate, offering insights into the most effective way to transfer technology to local construction firms, and helping project managers to integrate the contributions of the project participants most effectively (Mahmood, et. al, 2006).

To do so we need to follow steps to improve the culture, include the following:

Top management commitment, how much they worried about implementing such a framework in their projects. This requires high commitment of top management for fulfillment development. Using the change management technique, executives who understand the development process shall pass their visions to the subordinates to break down barriers, challenges inside their own organization, by setting the example the top management want the others to live by, so the executives serve as a role models especially for whom may resist change. (Murray,2009)

Activates culture of candor by insisting on candor at all times, accept, and even welcome, troubling information when it's delivered, and praise those with the courage to surface unpleasant news. Activate culture of right action , praise and reward people who make things happen, even if they did something wrong at the beginning; make people feel free to make mistakes, unless they will not feel free to take bold actions. Take responsibility of mistakes rather than shift blame to others. (Murray,2009)

One of the most cultural issues is keeping the traditional way in the CI, or using an old tool, that way, tools and techniques should be updated regularly, to do so the engineers and the managerial and administrative staff should commit themselves to the technology development, keeping the update step by step.

### **5.3.2.2 The Environment**

Work on the environmental implications of construction activity in West Bank should be undertaken as a matter of urgency. Considering these issues and expertise constraints which country faces, emphasis should be on prevention of obstacles. And the actions required for solutions (Ofori ,2000).

The governmental role as a construction client would be vital. Construction organizations and professionals should be promoted to persistently looking for inputs and methods of working which will minimize the negative impact of construction activity on the environment . (Marrengula et al ,2012).

The aforementioned issues should be improved, that could be achieved by Improvement communication channels. Spread the green policy. Increase awareness of leadership in energy and environmental design (LEED) by focusing on Sustainable sites through. Water efficiency through using outside and inside water in smarter ways. An efficient application to be used in order to achieve water reduction, economical fixtures inside and outside the facility could be used; the recycling techniques should be optimized to decrease the water consumption.

According to the result attained from the questionnaire, it is obvious that the neighbor's objection is the most noticeable challenge, so the government should consider legislate a restrict policy to handle this

situation or compensate the neighbors, as discussed in more details in the previous chapter.

### **5.3.2.3 Work Force Considerations**

Construction operations rely on the knowledge and skills of people planning and executing the work. People are what distinguish one team or company from another. Having a talented manager in place to guide, manage and coordinate operations are essential. Clearly, having a sufficient number of skilled and unskilled workers to perform the work is a bare necessity. Finding and recruiting sufficient numbers of skilled, capable people is becoming increasingly difficult. There are several factors contributing to this problem.

Feigenbaum (1961) says to guarantee that the workforce skills are not neglected in a dynamic environment of change, training and developing and increasing skills and knowledge become important, and should be developed and maintained.

So Recruiting, training, motivation, workshop and empowerment are the main pillar for developing the performance of the CI.

After distributing questionnaire, we can see that there are lacks of recognition to the training significance in the construction sector in Palestine as a pivot tool to fulfill the required level of best performance throughout the PCP in West Bank. On the other side, effective

communication is part of the cement that holds together the bricks of the development process. In the construction sector in West Bank, beside communication and coordination weaknesses, especially in the large projects can generate a distrust situation between all involved parties , leading to critical problems that has negative impact on the project and then to all related parties in construction organization at all, so communication issues considered as an important issue in our framework.

#### **5.3.2.4 Health and public safety**

The laborers in construction workplaces are presented to risks of occupational infections and injuries and the adverse impacts of too much long works hours.

Some of the major challenges of health and safety management in the work sites noted by previous studies included but not limited to; inappropriate personal and protective equipment, poor maintenance of personal protective gear, absence of top management support in the management of health and safety in work sites, insufficient enforcement mechanisms, inappropriate welfare facilities, absence of safety and health committees, unawareness of health and safety matters among the workers and lack of equipped first aid kits on the construction sites(Arditi and Gunaydin, 1997). Welfare facilities were additionally noted as a major challenge since they are not enough provided as well as personal protective equipment. Some site chiefs demonstrated that absence of satisfactory

assets, lack of monitoring and evaluation, lack of personal protective equipment implementation programs among others as some of the factors that give rise to the above challenges (Muir and PE,2005). That explains the importance of studying this challenge to save the life of all involved in the C.P and enhancing performance of the CI in Palestine.

The most important proposed solution is taking the safety issues into consideration, raising the awareness related to safety issues by sustaining the principle that call safety is first and foremost, formulating the volume five and join this document caring of safety issues with the tender documents, stop awarding the tender to the lowest price but to the most suitable price who considering the safety and other component, a serious penalty should be submitted for any safety regulation violation to increase the precaution against any future practices(Muiruri and Mulinge ,2014).

Specific practices should be conducted on regular basis such as the site housekeeping, and the dust control especially in the infrastructure projects, the safety policy that agreed at the beginning of the project should be precisely implemented, the workers, foremen, engineers and the whole stuff should commit themselves with the personal perspective equipment (PPE)'s to avoid any hazards or dangerous situations, the site should be rounded with a safety fence to keep strangers out the project, this fence should be marked with highlighted warning sign (Konkolewsky, 2004).

Serious series of training and workshops should be held to increase the workers and technician safety skills, the training should be held for all levels with different directions of the stakeholders, from the top management to the lowest level among the firm's hierarchy.

### **5.3.2.5 Legal Issues, Socio-Political Pressures, and governmental Regulation**

Although in chapter two the legal, socio-political and governmental regulations were separated, discussed item by item, but in this chapter due to its robust linkage between them we are going to discuss all as one branched item.

Since the claim that the financial issues related to the legal issues, in CI the stakeholders must understand clearly the contract requirements prior to bidding. Keys to avoid claims during execution by using clear procedures, open and honest communication, and timely troubleshooting, those influences the cost of PCP then avoid any financial problems (BurtonShAw-Gunn, 2009).

According to political situation, Palestine lives in a unique situation that cannot change easily and so we cannot take any effective action except encouraging investment in area C to prevent the land from settlement, because of the turmoil political situation that led to a noticeable socio-political pressure, especially that the construction sector is highly related to

the political, financial situation in the region, in a certain period that negatively affect the construction sector in Palestine(Shweiki, 2013).

Therefore, governmental regulation could be modified to help improving the performance and enhance permitting needs, contractor licensing laws, and the associated cost is help in getting the outcomes needed especially in the lands that in danger. Other concern is the quality of code administration must give an attention that result the delays caused by waiting for inspection. Timely resolution of issues is often entangled in bureaucratic red tape (Rashed, 2014).

Increase awareness and perception through all involved in the process in any PCP in the CI will help get the best result that can be a good lesson for future projects.

#### **5.3.2.6 Technical Performance**

Project design, plans, specifications, and using codes to satisfy standards, requirements for getting construction planning, based on owner needs, and design company standard practice. Managing construction is the next step with utilizing appropriate way for the constructor implementation that conforms to this composite standard (Rashed, 2014). This stage consist of lunch system implementation, monitor and control practices.

This level considered one of the most important levels since the assessment of implementation process consider as essential step

,monitoring and checking the initial procedures and out puts that give us a good indication about the successes or failure of this phase , this stage could be considered as go or not go indicator if the preliminary results are in appropriate. So here the role of decision maker come to take the right action to stop there , before more losses, or thinking of another consistent plan with the current situation. Furthermore and if the preliminary results are confirmed with our expectation, we have to go through the whole process (Rashed,2014).

The result from evaluation help us to have Benchmarking that help in comparing our organization and projects performance as an indicators to us and other related competitors, and make a comparison between now and the past to see the differences, dimensions typically measured are the performance triangle components quality, time and cost (Arditi and Gunaydin, 1997)

Then let our organization develop strategies and make improvements or best practices adapting , all that to improve some aspect of performance. The performance here is related to the execution phase, how does the project smoothly flow or not, with sufficient experience the construction stuff would be more familiar with obstacles happened, regular trouble shooting would be conducted, right decision with less time and less effort would be taken, that will affect the overall project performance, decreasing losses and increase productivity and efficiency(Arditi,2000).

After implementing the aforementioned proposed solutions for the previous challenges, the overall project performance will be developed in all dimension cost, time and quality, that will lead us to result of the framework that is basically result oriented, which is mean that from the first beginning of the framework you need to think about the desired results that you looking to achieve.

### **5.3.3 Stage3: the core of the framework**

This part considered as the pivot section in this study, because it leads to implication, after studying the reality of construction sector in Palestine, identifying the challenges facing the construction industry, find out the proposed solution, here we are going to define how that could add or improve the CI performance or practices as all from different perspectives and in all dimensions.

#### **5.3.3.1 Improvement on cost:**

A applying the previous framework, the over-budget situation will be more avoided, the feasibility study will be more realistic and applicable, the waste in the resource will be minimized and the profit would be maximized, the financial resource would be optimized, the cost benefit analysis deviation would be almost zero, the unpredictable crisis would be demolished, with this implication if the framework is applied, we can say that we made a progress.

### **5.3.3.2 Improvement in quality:**

Through developing such a framework, we could supply a protective shield against quality issues , An early warnings of problems that play as a fundamental guard for both internal and external problems prevention.

If the framework is developed and implemented, we ensure that there is no changes compared to the agreed plans, the convenient direction should be kept, or at least execute the project with in-noticeable deviations.

No extra cost would be paid to quality problems we going to do the right things since the beginning and the quality commitment would be a practice rather than being an event (Rashed,2014).

The proposed framework is an repeated process, because of the difficulty inherent in the C.P. So what we are attempting to do through this framework is to make the quality execution in C.P as constant tendency that everyone involved through the project committed to.

### **5.3.3.3 Improvement on time:**

The projects after developing such a framework would be delivered on time because we are identifying the problems, and we find the most suitable solution for it, no unseen events will raise, most of the bad conditions and challenges is considered through the plans and the related baseline time schedule, the time schedule of the trainings and workshops

would be a restrict plans that should not be violated rather than a paper work.

The most important factors causing claims, delay and time problems are the poor site management, unanticipated ground conditions and delay in making decision involving all project teams (Tolson ,2009). But if the previous frameworks are being seriously implemented and conducted most of the previous obstacles would be killed or at least minimize to high percentage.

## **5.4 Conclusion**

In this chapter, based on the previous studies, and the questionnaire that we distribute and its implications , and the results the researcher get through interviews, comparing the condition in our area field, a customized framework is developed to facilitate the implementation of best management throughout the PCP in West Bank and make it smoother and feasible.

It is believed that the framework that we propose has directed toward most of the problems, obstacles found in the survey results mentioned in an previous chapter. It considers the challenges from different perspectives; it covers the whole construction stages, and offers performance development ways to support the activities of such a process and a guide to install them on project life cycle.

The principle reason of such framework is to act more as a guideline or a road map toward accomplishing the desired level of operation, activities performance rather than been as a fixed rule that the organization should follow and stick to.

As demonstrate in figure 5.1, this framework gives a comprehensive understanding of the components and obstacles facing the PCI. This framework considers the involved parties, as a starting point for a performance development. Evaluation process ensures that the most significant challenges considered and dealed. The proposed framework is taken from the management practices of these organizations, so we used their experiences regarding the problems they faced, and handled in the implementation projects that perceived to be considered by the decision makers, and the projects executers. The proposed framework is adaptable so it can be appropriate for a wide number of firms with various characteristics rather than a particular organization.

Generally the contribution of this framework it consider the first framework in our region that directly deals the challenges affect the construction sector from multi perspectives, and try to find a guidelines to handle these challenges, so this frame work is more like a roadmap rather than a fixed method to handle the status quo, in other words if any ministry or company can find alternative solutions that will be great.

## **CHAPTER 6**

### **CONCLUSIONS AND RECOMMENDATION**

#### **6.1 Introduction**

The PCS facing many important challenges and obstacles that showed in the previous chapters, and so the aim of this research is to develop a framework for best performance implementation of the PCP in West Bank, therefore the objectives were posed by the research questions. This section represents conclusions and recommendation taking into account the implications of this study. The issues barriers that were confronted all through the research are conveyed to light.

Due the special situation Palestine experienced, that its people live a day, and pressure to meet future demands and changes, that is reflected all the fields which affect any type of development specially in economic, this research will highlight on the PCS to examine the challenges that affect the performance of this sector to improve it and to reach the results and recommendations to be part of the improvement and illustrates other aspects as recommendations to the researchers subsequent as a proposed for completing and strengthen this work.

#### **6.2 Conclusions of the Research**

The Palestinian CS is one of the key economic sectors and is the principle main incentives improving the national economy. While it didn't

take its required upgrades in light of many challenges and barriers, which must be reviewed well to solve and control.

In this way, this research was done which aims to review the PC challenges in West Bank from the diverse nearby stakeholder points of view. It ought to be stressed that the motivation behind this exploration was to reveal insight into the issues of best management practices in West Bank, and to clarify the challenges and problems facing PCI; the research looked closely at the circumstance in the CS related to public projects, and analyzed the current situation.

In light of the result of the research, the principle discoveries that closed are:

1. The overview demonstrated that most of the Palestinian focused on gatherings is educated ; the outcomes showed that around (99%) of them are university graduates with different degrees, (72.7%) carried bachelor degree, and (21%) of the master, and the rest of secondary and postgraduate, Therefore upgrade their knowledge and recognition about enhancing performance will be easier.
2. A sizable proportion of respondents' Engineering Consultant office (34%) and (34%) Contractor and they have building projects as the major work for their companies. The data also showed that the majority of these targeted groups (53%) accomplished 10-49 projects.

3. The overview indicates showed that most of the respondents' position (47.3%) is project engineers, with an experience of years (35.7 %) between 5-10 years. And that definitely affects the PCP performance, because in usual the project engineers have a tendency to be over-loaded having numerous tasks to do, and often been stressed and for sure that will affect the overall performance of the projects.
4. The result showed that most contractors classifications (61%) are 1st class (A), and (37.7%) of their project's location in the West Bank are in the south.

### **6.3 The Research Contribution**

CI studies in West Bank will be added participate by this research. by illuminate and identifying essential issues affect the challenges that face this sector and the best implementation practices in the C.P in West Bank.

After literature auditing, several interviews were directed to measure the stakeholders perception about the most important challenging issues facing them and how they deal with this issues through implementing C.P to achieve the best performance in West Bank, the researcher distributed a questionnaire, by checking different researchers endeavors and researching the momentum circumstance in the West Bank utilizing the outcomes achieved from the questionnaire analysis, a customized framework were developed to pass the obstacle, enhance and improve the performance

concept in region of the C.P and reach the required level of the fulfillment to reach the customer satisfaction.

The core of this research is introduced through the created framework to encourage the execution of management principles in C.P on West Bank.

The researcher recommends to take the implication of this study seriously and used by the decision maker and to be highly considered from the contractors union, engineers association and the other cooperation in West Bank related to increase the willingness toward changes regarding the issue of performance through execution of the C.P in West Bank due to its noticeable benefits. implementing this framework in projects management in West Bank PCP will help handling the challenges that face this sector by implementing stages in parallel with construction project life cycle.

## **6.4 Results**

After analyzing the questionnaire of the challenges facing CS in West Bank and pinpoint the most one affect this sector and how to deal with them we can notice the result as bellow

1. Alluding table (4-4), that pointing around 68.6% of the respondents by means of 3.43 ranking blindly imitate other projects as the most important challenge related to culture.

2. Alluding table (4-5), that pointing around 80.6% of the respondents by means of 4.03 ranking difficulties in issuing licenses in C areas challenge related to political issues.
3. Referring to the Table (4-6), that shows around 67.2% of the respondents by means of 3.36 ranking neighbors objection on implementation of some activities in the project related to environmental.
4. Referring to the Table (4-7), that shows around 73% of the respondents by means of 3.65 ranking hiring labors without contractual documents related to workforce.
5. Referring to table (4-8) that shows the main challenge affecting the health and safety component with around 76.8% of respondents with a mean of 3.84 is staff negligence for the health and safety procedure in the project .
6. Moreover, regarding the prevailing legislation and laws the contractors should take advice, support, and help from specialists to clarify any equivocal thing or vague sentences through the contract, since more than 69% of respondents with a mean of 3.49 entail that the most noticeable challenge regarding the legislation issues is the variance of explanation regarding the contract and specification paragraph.
7. Referring to Table (4-10) that shows that more than 75% of the respondents with a mean of 3.8 reply that the most important challenge

regarding quality is the shortage in integration within strategic governmental plans related to construction industry, since around 50% of Palestine contracting firms have no quality departments or quality certification (Rashed, 2014).

8. Since we have no coordination between the official departments, then we need a more comprehensive plan to remedy the current situation. Regarding the cost the respondent with percentage 78.6% reply that awarding the contract to the lowest bidders is most important challenge facing the sector in West Bank, On the other hand, The lowest mean was given to the item "Currency exchange rate fluctuation" which scored (2.95). It should be noted that more than 80.2% of the respondents considering the delay of owner's payments to contractor are the most important challenge regarding the time challenges through the project life cycle.

9. General speaks the contractors, consultants, owners should think deeply about the tradeoff of the project component, because for example in some cases to keep the firm competitive advantage it is essential to focus on quality more than the cost, based on table (4-41) ,it obvious that all the challenges facing the project in the construction sector is highly related, the aforementioned table shows that there is -based on the distributed questionnaire and the results that the researcher get- a statistical relation between all variables so all the challenges should be considered as once on parallel, since the project is one unit, then its component and challenges should be handled as once, this is what the researcher try to do on his

framework; for sure the frame work is not the only way, others could try to handle these challenges with other way than the framework developed through this study

## **6.5 Results and Recommendations**

The practical recommendations to all interested institutes; owners and to project managers, engineers, a governmental organization that related to the CS, and contractors which could prompt better practices to accomplish performance in PCP in West Bank are as following:

1. The designer is recommending being more creative, and the special condition for every single project should be considered such as location, used material, end user...etc.
2. The government is recommending to:
  - a. Be more effective, to facilitate this issue with the specialized authorities to make such a step is easier to typical citizen.
  - b. Be stricter, compensate the citizen when needed and stop them otherwise related to environmental.
  - c. Legislate laws to punish those who use the labors and not giving them their rights, to make the labors more secure and invulnerable, which for sure affect the whole sector.

3. For the health and safety procedure in the project, It is exceptionally prescribed to PCU and engineering association to direct serious workshops, and training and education programs through periodic sessions , lectures, courses that helps the development staffs to be acquainted with vital issues such as safety concepts, quality issues and ideas and its advantages. These preparation programs plan to build staff acknowledging and comprehension of management triangle importance and to enhance their practices for future safety and health management.
4. Contract documents must be reviewed by contractors very well before signing the contract. Enough time should be spent study these documents and make necessary site visits to take a good picture of the contract conditions and the safety issues related to the proposed work, and check all the contract documents especially the documents concerns with safety issues.
5. Moreover, regarding the prevailing legislation and laws the contractors should take advice, support, and help from specialists to clarify any equivocal thing or vague sentences through the contract, since more than 69% of respondents entail that the most noticeable challenge regarding the legislation issues is the variance of explanation regarding the contract and specification paragraph.
6. The researcher recommends to be more seriously in this field and create a comprehensive quality system in this sector organizations, through

creating a quality department in the organization, and hiring staff specialized in this field; and focus on achieving the needed certified degrees such as ISO certificate (Rashed, 2014).

7. As we previously mentioned the consultant and owners should award the tender based on criterion exceed the monetary value such as the reputation, quality issues, technical experience, On the other hand, new policy in some project by subjecting the tender to the CCI (construction cost index) in which if there is a noticeable variation in exchange rate the contractor should be compensate. According to that the researcher is highly recommend the owner to commit himself to the cash flow, and the payment should be paid on time, to decrease the bad effect of such delaying on the contractor.

8. General speaks the contractors, consultants, owners should think deeply about the tradeoff of the project component, because for example in some cases to keep the firm competitive advantage it is essential to focus on quality more than the cost, results that the researcher get- a statistical relation between all variables so all the challenges should be considered as once on parallel, since the project is one unit, then its component and challenges should be handled as once, this is what the researcher try to do on his framework; for sure the frame work is not the only way, others could try to handle these challenges with other way than the framework developed through this study

9. Successful installation of management principles in the C.P can be done through improving, and committing to an effective managerial framework such, the one developed through this research. Achievement in performance requires that top management should be dedicated to that ambition, and live that vision to make it true. In other words, those in top management must provide the initiative, direction, commitment, resources for successful managerial practices.

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## **Appendix A**

### **Interviews**

Dear Sir,

This is an interview that will be conducted with stakeholders in the West Bank as a tool for getting a master's degree in Engineering Management, to study the stakeholders perceptions about challenges facing PCI through implantation of construction project in West Bank. The information in this interview will be used only for academic research purposes to help in developing the questionnaire that will be distributed, with a complete commitment to absolute confidence.

1. In your opinion, What are the cultural, the political, the environmental, the human, the health and safety, the organizational, and the performance's challenges facing the PCI in Palestine?
2. What is your organizations' perception of challenges and what is the impact of those challenges on PCI in Palestine ?
3. What is the impact of those challenges on PCI in Palestine?
4. How those challenges are dealt with?
5. What are the recommendations should be considered to cope with those challenges?

### Questionnaire for:

Identification the Challenges Facing Public Constructions Industry in  
Palestine:

#### *Framework for implementation*

Dear Sir:

This questionnaire considered as a part of the supplementary research to achieve a master's degree in the Engineering Management. Hopping the results finds realistic solutions for those challenges and formulate a framework that enable a successful projection to make construction management more efficient and responsive. Your contribution in filling this questionnaire will help in getting the best outcomes for the benefit of the Palestinian society first and the public construction sector second.

All responses and information will be used only for this research purposes. Any publication will be only statistical totals for groups of companies.

#### **Thanks for your assistance and cooperation**

The researcher: Hanan Ahmad Taha.....*Email:*  
*h\_t\_k21@hotmail.com*

Supervisors: Dr. Abed Al Fattah Shamleh

#### **Part One:**

**General Information:** Please choose the best answer from your point of view, mark (√) to the best answer:

#### ***A. General information about the person who is filling the questionnaire***

1. Gender: Female Male.
2. Age between:  
less than 20       30-less than 30       30-less than 40      40-  
 lessthan50       over 61
3. Respondent qualification:  
 Secondary       Diploma       Bachelor       Master       Ph.D
4. Respondent position:



3. The disagreements happening during execution of works are mostly between

Owner and engineer     Owner and Contractor     Engineer and Contractor

4. To what extent the conflicts happening between the project stakeholders within the public construction project:

1= Strongly disagree    2=Disagree    3=Natural    4=Agree    5=Strongly agree

<b>Reason</b>	<b>1 Strongly disagree</b>	<b>2 Disagree</b>	<b>3 Natural</b>	<b>4 Agree</b>	<b>5 Strongly agree</b>
After contract signing, before execution commencement					
During project execution					
After project completion					

5. Most disagreements happening during execution because of

1= Strongly disagree    2=Disagree    3=Natural    4=Agree    5=Strongly agree

<b>Reason</b>	<b>1 Strongly disagree</b>	<b>2 Disagree</b>	<b>3 Natural</b>	<b>4 Agree</b>	<b>5 Strongly agree</b>
Interfering in works & changing their specifications repeatedly					
Delay of contractor payments					
Supervising engineer un-commitment					
Slow in making decisions					
Not compensating the contractor under force majeure conditions					
Delay in receiving or delivering the work site					
Lack of authorities given to engineers					
Poor experience in work execution					

Oral instructions & orders					
Delay in work execution					
Not documenting the daily works					
Shortage of manpower assigned to the project					
Non abidance with needed specifications					
Absence of the implementation plan					

**6. The reason of contractual disagreements**

**1= Strongly disagree 2=Disagree 3=Natural 4=Agree 5=Strongly agree**

<b>Reason</b>	<b>1 Strongly disagree</b>	<b>2 Disagree</b>	<b>3 Natural</b>	<b>4 Agree</b>	<b>5 Strongly agree</b>
Not feeling in contract importance					
Speed in contract formulation and un review it					
Lack of essential understanding and perception of contractual and legal consequences Speed in contract formulation in the construction industry					
Differing interpretations of the contract due to lack of clarity					

**B. Below are a number of challenges, which can have an impact on public construction industry. Based on your experiences, give us your opinion on the importance of the following? (Please mark just one appropriate box).**

**1= Strongly disagree 2=Disagree 3=Natural 4=Agree 5=Strongly agree**

<i>Factors Related to Culture</i>	<b>1 Strongly disagree</b>	<b>2 Disagree</b>	<b>3 Natural</b>	<b>4 Agree</b>	<b>5 Strongly agree</b>
Employees gender is a hostile environment					
Suspicious cultures that prevailing inter between stakeholders					
Cultural and tradition against anything new					
Shortage by using modern techniques in design					
Blindly imitate other projects					
Shortage in employee training to use modern techniques					
Shortage in using modern techniques in communication					
Negative attitude against modern techniques					
<i>Factors Related to Political</i>	<b>1 Strongly disagree</b>	<b>2 Disagree</b>	<b>3 Natural</b>	<b>4 Agree</b>	<b>5 Strongly agree</b>
Strikes, Israeli attacks and border closures and Cities' entrances (due to occupation)					
Israeli restrictions on labor and materials imports					
Transportation policy, Goods retention at ports					
The collapsed security situation					
Unstable relation between Donors and Palestinian authorities					
The condition that required by donors					
The difficulties in issuing license in C areas					

<i>Factors Related to Environmental</i>	<b>1 Strongly disagree</b>	<b>2 Disagree</b>	<b>3 Natural</b>	<b>4 Agree</b>	<b>5 Strongly agree</b>
Unfavorable weather conditions					
High level of pollution					
Lack of water resources					
Neighbors objection on implementation of some activities in the projects					
<i>Factors Related to Work Force Considerations</i>	<b>1 Strongly disagree</b>	<b>2 Disagree</b>	<b>3 Natural</b>	<b>4 Agree</b>	<b>5 Strongly agree</b>
No training courses applied on employees					
Low level of commitment and affiliation					
Low level of motivation and creativity					
The stuff quality (labors) and their efficiency is inferior					
The stuff quantity (labors) is less than required					
High rate of turn off of labors					
Hiring labors without contractual documents					
<i>Factors Related to Health and Safety</i>	<b>1 Strongly disagree</b>	<b>2 Disagree</b>	<b>3 Natural</b>	<b>4 Agree</b>	<b>5 Strongly agree</b>
Poor safety practice within the life cycle of project, inferior working conditions					
Staff negligence for the health and safety procedures in the project					
Lack of employee skills regarding health and safety during project					
No clear document clarifies					

the safety procedure in projects.					
<b><i>Factors Related to Legal Issues</i></b>	<b>1 Strongly disagree</b>	<b>2 Disagree</b>	<b>3 Natural</b>	<b>4 Agree</b>	<b>5 Strongly agree</b>
The international codes don't perfectly fit the Palestinian situation					
Conflicts between tender documents					
Variance of explanation regarding the contract and specification paragraph					
Unclear formulation within contracts, detailed drawings and specification					
<b><i>Factors Related to performance</i></b>	<b>1 Strongly disagree</b>	<b>2 Disagree</b>	<b>3 Natural</b>	<b>4 Agree</b>	<b>5 Strongly agree</b>
• <b><i>Challenges related to quality</i></b>					
Technical Project complexity					
Poor working conditions					
Weaknesses in project management					
Inadequate management strategy					
Shortage in integration within strategic governmental plans related to the construction industry					
Poor attention to employee and his rights					
Absence of clear code of conduct					
No quality system to control the contractor activities according to					

The staff unwillingness to accept the quality system					
No quality system to rank contractors according to					
The prevailing perception that quality is inferior than the other components of the project					
Lack of coordination between stakeholders					
<ul style="list-style-type: none"> <li><i>Challenges related cost</i></li> </ul>	<b>1 Strongly disagree</b>	<b>2 Disagree</b>	<b>3 Natural</b>	<b>4 Agree</b>	<b>5 Strongly agree</b>
Currency exchange rate fluctuation					
High cost of transportation and materials transfer and imports due to barriers, and Israeli restriction against labors					
Project design costs					
Awarding the contracts to the lowest bidders					
High competition between rivals					
<ul style="list-style-type: none"> <li><i>Factors Related to Time</i></li> </ul>	<b>1 Strongly disagree</b>	<b>2 Disagree</b>	<b>3 Natural</b>	<b>4 Agree</b>	<b>5 Strongly agree</b>
Estimate duration of projects not consistent with the capabilities of Contractors (unrealistic deadline)					
Delay due to closures and materials shortage					
Delay of owners' payments to contractor					
Considering time management (schedule) as a paper work rather than firms to do activity in accordance to such schedule					

**Part three:**

**A. Dealing with Challenges:**

1= Strongly disagree    2=Disagree    3=Natural    4=Agree    5=Strongly agree

<b>Dealing with challenges facing public construction projects within execution phase through</b>	<b>1 Strongly disagree</b>	<b>2 Disagree</b>	<b>3 Natural</b>	<b>4 Agree</b>	<b>5 Strongly agree</b>
Solving disagreements through the courts					
Arbitrators					
Dialogue and reconciliation					
One side surrenders					
Trusted third party from related parties					

**B. What are the most four challenges that facing your firm within the execution of C.P?**

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**C. From your perspective, what is the most precaution to avoid the challenges that faces the C.P?**

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**D. Any other comments? Please specify?**

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## الاخوه والأخوات المحترمين ذوي العلاقة بقطاع الإنشاءات العامة في فلسطين

### الموضوع: بحث علمي

بعد التحية،

بين يديكم استبانة كأداة لجمع المعلومات لدراسة علمية بعنوان "التحديات التي تواجه القطاع الإنشائي العام في فلسطين"، ويهدف هذا البحث إلى رصد التحديات التي تواجه هذا القطاع من أجل العمل على مواجهتها ، كما يعتبر هذا البحث جزء من متطلبات الحصول على درجة الماجستير في الإدارة الهندسية من جامعة النجاح الوطنية.

نرجو تعاونكم بتعبئة هذه الاستبانة، مع العلم أن المعلومات التي سندلون بها سوف تستخدم لأغراض البحث العلمي فقط، وسوف يتم التعامل معها بسرية تامة ، لأسئلتكم واستفساراتكم يرجى التواصل على البريد الإلكتروني:

**h\_t\_k21@hotmail.com**

### وشكرا لتعاونكم

الباحثة: حنان

طه

### الجزء الأول : معلومات عامة

أولاً: معلومات معبئ الاستمارة

1. الجنس :

ذكر  أنثى

2. الفئة العمرية:

أقل من 20  20- أقل من 30  30 أقل من 40  
 40-أقل من 50  50-أقل من 60  فوق 60

3. المؤهل العلمي لمعبئ الاستبانة:

ثانوية فما دون  دبلوم متوسط  بكالوريوس  
 ماجستير  دكتوراة

4. المركز الوظيفي لمعبئ الاستبيان:

مهندس مشروع  مدير المشروع  موظف اداري  
 مدير المؤسسة  غير ذلك

5. عدد سنوات الخبرة لمعبئ الاستبيان :

أقل من 2  2- أقل من 5  5-أقل من 10  
 20- أقل من 30  اكثر من 30 سنة

ثانيا: معلومات عن المؤسسة التي تعمل بها:

1. المنطقة الجغرافية للمشاريع التي تنفذها الشركة (يمكن اختيار أكثر من إجابة):

- شمال الضفة  وسط الضفة  جنوب الضفة  
 بلدان عربية  بلدان أجنبية

2. المؤسسة التي تعمل بها :

- مؤسسة حكومية  مكتب هندسي استشاري  مقاولات  ممول (NGO's)

3. إذا كنت تعمل بشركة مقاولات ما هو تصنيف شركتكم

- درجة أولى (ألف)  درجة أولى (باء)  درجة ثانية

4. عدد المشاريع العامة التي تم انجازها بواسطة المؤسسة خلال الخمس سنوات الأخيرة:

- اقل من 10  10-49 مشروع  50-100 مشروع  أكثر من 100 مشروع

5. نوع المشاريع ذات العلاقة بالعمل:

- مباني  طرق وبنية تحتية  الكترو-ميكانيك  غير ذلك

الجزء الثاني : التحديات التي تواجه القطاع الإنشائي

أولا : حقائق عن بعض الممارسات في القطاع الإنشائي:

1. المشاريع التي تفضل مؤسساتكم تنفيذها هي مع :

- المؤسسات الحكومية  المؤسسات الأجنبية وغير الربحية  البلديات  
 مؤسسات محلية خاصة  غير ذلك

2. أنواع العقود التي تفضلها المؤسسة التي تعمل بها لتنفيذ المشاريع:

- العقود المقطوعة (L.S)  عقود سعر الوحدة  عقود التكلفة زائد  
 عقود التصميم والبناء  غير ذلك \_\_\_\_\_

3. أكثر الخلافات تحدث أثناء تنفيذ المشاريع الإنشائية تكون بين :

- المالك والاستشاري  المالك والمقاول  الاستشاري والمقاول

4. مدى حدوث الخلافات بين الأطراف ذات العلاقة في مراحل تنفيذ المشاريع الإنشائية العامة

- 1 = غير موافق بشدة 2 = غير موافق 3 = وسط 4 = موافق 5 = موافق بشدة

السبب	1 غير موافق بشدة	2 غير موافق	3 وسط	4 موافق	5 موافق بشدة
بعد التوقيع قبل البدء بالتنفيذ					
أثناء التنفيذ					
بعد الانتهاء					

### 5. أكثر أسباب الخلافات التي تحدث أثناء التنفيذ

1 = غير موافق بشدة 2 = غير موافق 3 = وسط 4 = موافق 5 = موافق بشدة

السبب	غير موافق بشدة	غير موافق	وسط	موافق	موافق بشدة
استمرار تغيير الأعمال وتغيير مواصفاتها بشكل متكرر					
تأخير الدفعات المالية عن المقاول					
عدم التزام المهندس المشرف بالحضور البطء في اتخاذ القرارات					
عدم تعويض المقاول بسبب الظروف القاهرة					
تأخر تسليم موقع العمل للمقاول					
قلة الصلاحيات الممنوحة للمهندسين في المشاريع					
قلة الخبرة في تنفيذ الأعمال					
التعليمات والطلبات الشفهية					
تأخر المقاول في تنفيذ الأعمال					
عدم توثيق الأعمال اليومية					
النقص في الأيدي العاملة					
عدم التقيد بالمواصفات المطلوبة					
غياب خطة التنفيذ					

### 6. سبب الخلافات التعاقدية:

1 = غير موافق بشدة 2 = غير موافق 3 = وسط 4 = موافق 5 = موافق بشدة

السبب	غير موافق بشدة	غير موافق	وسط	موافق	موافق بشدة
عدم الشعور بأهمية العقد بين الاطراف					
التسرع في صياغة وتوقيع العقود دون مراجعتها					
نقص الفهم والوعي الكافي للإطراف بالعقود وتبعياتها القانونية					
اختلاف تفسيرات العقود بسبب عدم وضوحها					

ثانيا : التحديات التي تؤثر القطاع الإنشائي العام من خلال رأيك وخبرتك :

موافق بشدة	موافق	وسط	غير موافق	غير موافق بشدة	التحديات المتعلقة بالثقافة
					عدم ترحيب البعض لإشراف العنصر النسوي
					توتر العلاقات وتدني مستوى الثقة بين الأطراف
					الثقافة السائدة وسيطرة الاشخاص المحافظين
					ضعف استخدام المعدات والتكنولوجيا الحديثة
					تقليد أعمى لمشاريع أخرى
					ضعف تدريب الموظفين على استخدام التكنولوجيا
					ضعف في تبني الوسائل الالكترونية في الاتصال
					مواقف سلبية تجاه التكنولوجيا الحديثة
موافق بشدة	موافق	وسط	غير موافق	غير موافق بشدة	التحديات المرتبطة بالسياسة
					إجراءات الاحتلال من مداممة اماكن العمل و الاغلاقات والحواجز
					القيود الإسرائيلية على العمالة واستيراد المواد
					حجز البضائع في الموانئ
					تدهور الوضع الأمني
					تذبذب العلاقة بين المانحين ومؤسسات السلطة
					الشروط المتعلقة بالمانحين
					مشاكل في منح التراخيص للمشاريع في لمناطق C
موافق بشدة	موافق	وسط	غير موافق	غير موافق بشدة	التحديات المرتبطة بالبيئة
					الأحوال الجوية غير المواتية
					مستوى عال من التلوث

					نقص في مصادر المياه
					اعتراض جيران المشروع
موافق بشدة	موافق	وسط	غير موافق	غير موافق بشدة	<b>التحديات المرتبطة بالقوى العاملة</b>
					غياب التدريب الكافي للموظفين
					تدني مستوى التزام وانتماء الموظفين
					تدني مستوى دافعية وابتكار الموظفين
					تدني مستور كفاءة الموظفين (أو عمال)
					قلة عدد الموظفين (أو عمال)
					ارتفاع معدلات ترك العمل
					عدم توقيع عقود عمل مع الموظفين والعمال
موافق بشدة	موافق	وسط	غير موافق	غير موافق بشدة	<b>التحديات المتعلقة بالصحة والسلامة العامة</b>
					غياب إجراءات الصحة والسلامة في المشروع
					إهمال الموظفين لإجراءات الصحة والسلامة في المشروع
					ضعف مهارات الموظفين في الصحة والسلامة في المشروع
					غياب دليل الصحة والسلامة أو عدم الاهتمام به
موافق بشدة	موافق	وسط	غير موافق	غير موافق بشدة	<b>التحديات المتعلقة بالقضايا القانونية واللوائح القانونية</b>
					تدني مستوى ملائمة الكودات المستخدمة مع الوضع السائد
					تعارض النصوص مع الوثائق المتعلقة بالمشروع
					تفاوت التفسيرات بخصوص فقرات الاتفاقية أو

					المواصفات
					عدم وضوح الصياغة في العقود والنصوص التفصيلية والمواصفات
موافق بشدة	موافق	وسط	غير موافق	غير موافق بشدة	<b>التحديات المتعلقة بالأداء</b>
<b>● التحديات المتعلقة بالجودة</b>					
					التعقيدات الفنية بالمشروع
					سوء ظروف العمل
					ضعف إدارة المشروع
					ضعف تكامل خطط المشاريع الانشائية الحكومية
					ضعف الاهتمام بالموظف وحقوقه
					غياب واجبات عمل واضحة للموظف
					غياب نظام مراقبة جودة عمل المقاول
					عدم رغبة طاقم المشروع في قبول نظام الجودة
					عدم وجود نظام الجودة لتقييم المقاولين
					الاعتقاد السائد بأن الجودة اقل أهمية من عناصر المشروع الأخرى
					ضعف التنسيق بين الجهات ذات العلاقة
<b>● التحديات المرتبطة بالمتغيرات الاقتصادية</b>					
					تذبذب سعر الصرف للعملة.
					ارتفاع تكاليف النقل
					ارتفاع تكاليف تصميم المشروع.
					الالتزام بإحالة العطاءات لأقل الأسعار .
					قوة المنافسة بين الشركات.
<b>● التحديات ذات الصلة بالوقت</b>					
					التقديرات الزمنية غير واقعية
					التأخيرات بسبب نقص المواد في السوق

					التأخير في الدفع من المالك إلى المقاول
					عدم الالتزام بالجدول الزمني

ثالثاً : التعامل مع التحديات

A. كيفية التعامل مع التحديات

1 = غير موافق بشدة 2 = غير موافق 3 = وسط 4 = موافق 5 = موافق بشدة

موافق بشدة	موافق	وسط	غير موافق	غير موافق بشدة	يتم التعامل مع التحديات التي تواجه المشاريع الإنسانية العامة أثناء تنفيذها من خلال :
					اللجوء للمحاكم
					اللجان الرسمية
					التفاهم والحوار
					تنازل احد الأطراف
					طرف ثالث موثوق من الاطراف ذات العلاقة

B. ما أكثر اربع تحديات تواجهكم اثناء تنفيذ المشاريع الإنسانية مرتبة حسب الاولوية؟

1.

2.

3.

4.

C. ما الإجراءات التي تتخذونها للوقاية من الخلافات التي تنشأ أثناء تنفيذ المشاريع الإنسانية العامة في فلسطين؟

D. هل لديك أية ملاحظات أخرى حول هذه الدراسة؟

جامعة النجاح الوطنية

كلية الدراسات العليا

التحديات التي تواجه القطاع الانشائي العام في فلسطين  
اطار عمل للتطبيق

إعداد

حنان احمد طه

إشراف

د. عبد الفتاح الشملة

قدمت هذه الأطروحة استكمالاً لمتطلبات الحصول على درجة الماجستير الإدارة الهندسية ، بكلية

الدراسات العليا ، جامعة النجاح الوطنية، نابلس - فلسطين

2016

## التحديات التي تواجه القطاع الانشائي العام في فلسطين

### اطار عمل للتطبيق

#### إعداد

#### حنان احمد طه

#### إشراف

#### د. عبد الفتاح الشملة

#### الملخص

نظرا لطبيعة مشاريع البناء العامة في فلسطين ووضعها الخاص، ووفقا للتعقيد السياسي وطوبوغرافية المكان فإن متطلبات أصحاب المشاريع ممكن ان تكون مختلفة. فلسطين تعاني من العديد من المشاكل التي تؤثر على أداء المشاريع تتوضح في المكونات الرئيسية لها وهي التكلفة والوقت والجودة. منذ تطوير هذا القطاع ومساهمته الكبيرة في الدخل المحلي الإجمالي في فلسطين، تأتي أهمية هذه الدراسة من خلال التعرف على التحديات التي تواجه هذا القطاع خلال دورة حياة المشروع الذي يتطلب شعور عال من اليقظة والمهارة في الادارة ووضع الاستراتيجيات للتصدي لها .

تم توزيع الاستبيان على الفئة المستهدفة من مؤسسات حكومية ذات علاقة بالقطاع الانشائي والمكاتب الهندسية الاستشارية والمقاولين وبعض الخبراء في هذا المجال لاستقصاء ارائهم داخل الضفة الغربية كعينة الدراسة لتمثيل منطقة فلسطين. تم توزيع 350 استبيان للحصول على صورة واضحة عن هذه التحديات، و 312 استبانة تم الحصول عليها وتحليلها وتصنيفها من خلال البرنامج الاحصائي (SPSS).

بالاعتماد على النتائج التي تم الحصول عليها من خلال الاستبانة التي تم توزيعها تم تطوير إطار عمل يهدف الى تحسين مستقبل هذا القطاع عن طريق التقليل من المشاكل والتحديات التي تواجهه من خلال استغلال امثل للموارد والفرص لجعل إدارة المشاريع الانشائية العامه أكثر كفاءة واستجابة، من خلال المهارات وتطبيق استراتيجيات الإدارة المناسبة والتي تتناول كيفية تطبيق أفضل الممارسات الإدارية في المشاريع الانشائية العامه في الضفة الغربية.

واستنادا إلى الدراسات السابقة، وراي الخبراء في هذا المجال في الضفة الغربية من خلال المقابلات التي أجريت مع المشاركين للحصول على مستوى أعمق من الفهم حول تطبيق أفضل الممارسات الإدارية وذلك لتجنب العقبات والمشاكل و الحصول على الأداء العالي في المشاريع الانشائية العامه في الضفة الغربية.

وقد اوصت الدراسة المصممين ان يكونوا أكثر إبداعا، والنظر في الشروط الخاصة لكل مشروع على حدة مثل الموقع والمواد المستخدمة، المستخدم النهائي ... الخ. وعلاوة على ذلك، هناك مسؤولية كبيرة على الحكومة، التي يقع على عاتقها أن تكون أكثر صرامة، أكثر فعالية وتطوير هذا القطاع .