Chapter (1)

Introduction

1.1. General

It is almost axiomatic of construction management that the project may be regarded as successful if the building is completed on time, within budget, and is of the desired quality. It is commonly said; however, that whereas two out of those three can often be achieved, three out of the three cannot (Birkby and Brough, 2002) because of the complexities involved in a construction contract and in particular the many different trades and professions that are commonly involved. Delays in construction are a universal phenomena and the Middle East is not far from this. Delay is generally acknowledged as the most common, costly, complex and risky problem for both owners (in terms of performance), contractors (in terms of money) and even for consultants and suppliers. Every construction project can be improved. Improvement however, requires that management knows what to improve and how to improve it .Many contractors have chosen to ignore or dismiss the need for performance measurements. Labor productivity is one of the most important risks in construction projects (Tah and Carr 2001). According to Hanna et al. (1999) labor represents even the most significant risk to contractors. Construction industries in developing countries suffer from delays and cost overruns due to loss of labor productivity.

1.2. Statement of the problem

Like other developing countries, the Egyptian construction industry also suffers from delays and cost overruns which are indicators of productivity problems. Improving construction productivity will go along the way toward eliminating time and cost overruns. In 1987, a study carried out by the World Bank determined that 90% of construction projects were delivered late. Jearkjirm (1996) studied the performance of high-rise building construction projects in Bangkok and found that many projects exceeded time forecasts. In SA Al-Sultan (1987) surveyed the time performance of different types of public projects in Kingdom of Saudi arabia and concluded that 70% of them experienced time overrun. Battaineh (1999) evaluated the progress

reports of 164 building and 28 highway projects constructed during 1996-1999 in Jordan. The results indicated that delays were extensive: the average ratio of actual completion time to planned contract duration was 160.5% for road projects and 120.3% for building projects. A lot of the previous studies do not cover causes of delay for which contractor is responsible for, such as those related to labor, equipment, planning and site management, and construction methods. Some of those results indicated that labor productivity is one of the important causes of delay in construction. Like other developing countries such as Malaysia, Nigeria, Indonesia and Saudi Arabia.

Egypt is one of the most densely populated countries in the world with almost 75 million inhabitants. The country therefore adopted a labor incentive strategy to support its economic development. Although, the great contribution of construction industry in the Egyptian economy. There is a need for more research efforts concerning construction productivity. Identifying and evaluating the factors that influence productivity are critical issues faced by construction managers. Labor becomes more important input in the construction industry in developing countries .Since labor costs comprise between 25-40% of the total project cost (Kaming *et al.* 1998a, and Askar 1988), reducing labor costs present a great potential source of increased construction productivity. While firm's productivity is influenced by production factors other than labors, such as equipment, materials, methods of construction, and management; these resources are inanimate unless they are transformed into production uses by human elements. At the same time success of a construction company in today's competitive market largely depends on accurate estimation of productivity, and a reasonably correct assessment of the labor cost is fundamental to the accuracy of any estimate. So, labor has a significant influence on construction productivity in Egypt (Kazaz and Ulubeyli 2004).

In developing countries, buildings construction consumes 70% of the construction investment. The situation in Egypt is no different with about 80% of the construction investment directed to buildings construction (CAPMS 2008). The majority of the constructions workers are employed on building sites as most of the civil engineering works are not mechanized. With an increasing demand for more

efficient construction industry to underpin development in the growing economy, there is now an urgent need to identify the main problems affecting Egyptian workers productivity. Therefore, the effort in this research will be directed to identify the most severe problems affecting labor productivity in buildings construction projects.

1.3. Objectives of the research

The major issues which this study sets out to address are as follows:

1.3.1. To provide a general overview of construction labor productivity.
1.3.2. To identify the importance of labor productivity loss as a major cause of delay in construction projects in Egypt, in order to assess the size of the problem.
1.3.3. To confirm Egyptian construction labor productivity problems.
1.3.4. To establish a model of evaluating the severity of these problems.
1.3.5. To evaluate the resulting model using reliability analysis.

1.4. Limitations of the research

The research will be limited to the following:

1.4.1. Only the causes of delay and factors affecting labor productivity.
1.4.2. Only buildings construction projects in both public and private sector; projects of other types will not be discussed.
1.4.3. Only projects built in Greater Cairo Governorate - Egypt.
1.4.4. Problems that occur during the construction phase only.

1.5. Research layout

This dissertation is divided into seven chapters, as follows:

Chapter 1: Contains an introduction which is intended to give an overview of the importance of labor productivity in construction projects, followed by the statement of the problem, the objectives and limitations of the research.

Chapter 2: Presents a historical background on the labor productivity. Also discussing the techniques used to report and measure labor productivity, followed by discussing loss in labor productivity and then productivity in developing countries. This chapter also illustrates the importance of labor productivity in construction as a cause of delay. First, reviewing the literature on the causes of delays in construction projects in order to identify these causes. After identifying the causes, it presents how the investigation was done to evaluate the importance of the loss of labor productivity as a delay cause.

Chapter 3: This chapter reviews the literature on the factors affecting construction labor productivity, finally identifying the factors affecting labor productivity included in this research.

Chapter 4: Presents the research methodology, which explains how the investigation was done and the methods of selecting the sample, and collecting and analyzing data.

Chapter 5: Presents and analyses the data collected from the survey and then discusses the results from various types of construction building projects in greater Cairo. It also provides a comparison between these results and those of other countries. This chapter also presents full statistical analysis to the data collected and tests the reliability of the scale in order to develop the severity model for factors affecting labor productivity in Egypt.

Chapter 6: Includes the conclusions and recommendations for further research works.