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Causes, Effects and Minimizing Methods of Construction Projects Delays in Outskirt of Areas Afghanistan

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Abstract - *Delay of construction projects is a common problem around the world, but it is a critical challenge to developing countries. Afghanistan had a promotion in the implementation of construction projects in the last two decades, unfortunately, some construction projects failed to be completed within the deadline and initial estimated budget. Review of previous studies shows, most projects delayed due to causes as;(1) poor coordination between parties, (2) lack of experienced staff, (3) poor financial ability of contractor, (4) insufficient planning by contractors, (5) poor supervision by governments, (6) order changes by client, (7) payment delay during project progress, (8) late procurement of construction materials, (9) project drawing change, (10) changes in specification, insufficient study of the site and tender form. where the effects of these causes are time overrun, cost overrun, dispute, arbitration, litigation, and total abandonment. how to prevent a project from delay? it needs methods of minimizing the delay of construction projects and the main purpose of the research is; first to identify causes and effects of project delay in outskirt areas of Afghanistan in the second part of the research we will identify the methods to prevent construction projects from a delay.*

Key Words: delay causes, delay effects, in construction industry

1. INTRODUCTION

This document The construction industry has its importance in the economies of countries. The construction industry is the provider of employments; it reduces the unemployment rate in the Job market of the country. According to Economy Watch, the construction industry contributed around one-tenth of the total amount of GDP in the whole world, so that it provides jobs for seven percent employed persons out of all. Most of the countries in the world compete to gain developed technology to control time and budget's high consumption. Projects in the construction industry face time overrun due to some causes that impede construction project. These causes are different from project to project and country to country. Delaying of construction project postpone other correlated programs and consequently drive the project toward complexity, to prevent construction project from delaying, causes, effects and minimizing methods of delays in outskirt areas of Afghanistan are the main purpose of our studies in research.

2. literature review:

(Callegari, Szklo and Schae, 2018) conducted research on cost overrun and delays of megaprojects in Brazil. The massage deduced from this study is that; bigger projects include unmanageable risks that cannot be predicted and mitigated efficiently. the Result shows that the average cost of a construction project risen 97.5 % above the initial estimated cost. the construction project experienced an average time escalation of 74.28%. (Kaliba, Muya and Mumba, 2009) studied delays and cost increases in road projects of Zambia. Data was collected with the help of a questionnaire, interview, case study from respondents and projects, where collected data was analyzed using Weight Opinion Average. $WA=\frac{1}{4}\times\frac{\sum_1^4 FiRi}{\sum_1^4 FiRi}\times 100\%$

Where WA is a weighted average, Ri is the type of response in the Likert scale, rang from 1 to 4 and Fi is the frequency of respondents. The main factors of delay in road construction projects were procurement of construction materials, project drawing change, poor coordination between parties, disputes and difficulties between contractors and clients, staffing problems in the project, poor overseeing of projects work on-site and changes in specification. For cost escalation, the main causes were; changes in project scope, protection and mitigating the cost of environment, technical challenges, inflation and government pressure, bad weather or climate condition. (Arditi, Nayak and Damci, 2017) studied the effects of organizational culture on delay in construction projects. Data collected using the questionnaire about each culture type in (US, India) from different companies located in the US and India. the relative importance of these culture types was measured. Consequently, this study distinguished that clan culture is dominated in the US construction organizations where Indian construction companies are dominated by market culture. The study shows that delay in construction projects time in US organization is comparatively lower than to Indian construction projects. Clan culture focus on teamwork, company loyalty to employees and staff related programs. where market culture in the company emphasis competition not only between employees but also between organizations. (Senouci, Ismail and Eldin, 2016) investigated time delay and cost overrun in Qatari public construction projects, therefore the researcher scanned extensively review of international and regional publication to

distinguish fairly the problem and data was gathered from 122 public construction projects. ANOVA and regression analysis were done in this work to identify the relationship of cost overrun with the contract price. Consequently, cost overrun for building projects escalated with contract prices but cost overrun for drainage projects decreased with an escalation of contract prices. (Hamzah *et al.*, 2011) studied causes of construction delay in Malaysia. The researcher summarized the causes of construction delay to three main groups. Excusable, non-excusable, concurrent. Excusable caused by owner or client, concurrent caused by a third party (the act of God), non-excusable caused by contractors. each of these three groups contains different factors for construction delay. Excusable contains (late in approving design documents, delay in approving shop drawing, poor coordination among parties, slowness in the decision-making process). Non-excusable contains factors (difficulties in financing, conflicts in sub-contractors, rework due to mistakes in construction, conflicts between contractors and other parties, poor coordination with other parties) concurrent contains factors (fire, flood, damage by wind, snow, labor dispute. (Alsharif and Karatas, 2016) conducted research on causal factors of delay in Nuclear Power Projects. Carefully, casual factors of delay and cost overrun were investigated with the help of weekly data collected from an operable nuclear power plant in Michigan USA. In-depth analysis was undertaken to distinguish causal factors of delay that have a huge impact on cost and schedule activities of nuclear projects, three main factors that have a major impact on project progress were distinguished: productivity, plant assisting Engineering and design errors/engineering change request. (Alsuliman, 2019) studied causes of delay in Saudi public construction projects. Data collected via questionnaire from 211 respondents; where 112 factors were distinguished that occur in all phases. These factors were divided into four main classes as (1) before tender award (2) during award (3) after award (4) general. Factors included in the first class are; no clear vision from the government side in the projects, lack of accuracy in site investigation, lack of coordination among ministries and companies, lack of accuracy in specification and drawings, lack of experienced and skilled Engineers. The second class includes factors as; insufficient study of the site and tender form, award to the lowest bidder, insufficient analysis of competitor, an award of the project to contractors with low financial and technical potential, tenders are limited to specific contractors, tenders investigating committee are fixed and does not change. Third class includes factors as; delay in delivery of site, dispute on the site of project, government insufficient and inexperienced technical staff for overseeing, lack of project management administration, insufficient coordination among service provider involved in project, non-qualified consultant, lateness of the contractors in submitting the sales and requesting the supplies, weakness and no financial ability of contractors. The fourth class includes factors as; inexpert engineers for supervision, poor salaries and incentives for Engineers, corruption in estimating quantities, and prices. (Sweis, 2008) investigated delays in construction projects in Jordan. A questionnaire was prepared based on the Open Conversion System and 40 potential delay causes were categorized under three major class (1) Input factors included labor, material, equipment (2) Internal environment included contractor, client, Engineer (3) External factors included; weather, government law. The questionnaire was sent to a random sample of consultants, client, and contractors, ANOVA analysis was done on collected data. It was ranked by taking the average score of collected data for all the respondents. Consultant responses indicate that these three causes are most significant; (1) contractor's insufficient planning for a project (2) contractor's financial problem (3) order changes from the owner side. The contractor's responses indicate that the following factors are more critical; (1) contractor's finance problems (2) order changes by owner (3) lack of labors. The owner's responses indicate that; these three factors are more critical; (1) project insufficient planning and secluding by contractors (2) contractors finance problems (3) unexperienced staff were assigned to project. Consequently, the factors that are ranked by all respondents most critical were contractor's financial problems and client's order changes but the least critical factors were weather conditions and government law changes. (Aziz, 2013) conducted research on delay factors in construction projects. This work main object was to distinguish and rank factors that caused the delay in Egyptian construction projects on respect of relative importance. Construction project practitioners, experts were invited to participate in forming of questioner about 99 factors were listed as part of the questionnaire survey in 9 categories. The questionnaire was responded by experts from the public and private construction companies. For data analysis, the Relative Impotence Index was used. Factors were ranked according to their importance and twenty most critical and twenty least critical were tabulated in this work five factors from twenty top are payment delay during project progress, bribes, insufficient planning, equipment shortage, poor site management. Five factors from the least critical are labor wounds in a site, no on-time site clearance, theft on-site, the clash among labors, wasting of time by traffic control at a job site.(Yang, Yang and Kao, 2010) conducted research on schedule delay in construction projects under Build Operate Transfer contracts. As build operate transfer makes escalation in public construction projects through private investment and this method is accepted approximately in all countries around the world gradually increasing. As many construction projects are implemented in different stages, sometimes construction projects face hinders that postpone the project performance from its pre-scheduled time and budget. In this conducted research factors were recognized in different stages with the help of a questionnaire survey using traditional statistical analysis methods and structural equation modeling methods. Consequently, result of studies shows that signing of agreement is the most significant stage

of project in which inappropriate contract planning, debt problem and uncertainty on government political issues, are most critical causes of delay for construction projects among eight stages; (1) feasibility study and plan (2) announcement and submission of applications (3) evaluation and selection (4) negotiation and signing of agreement (5) design (6) construction (7) operation (8) transfer. (Doloi *et al.*, 2012) studied factors affecting delay in Indian construction projects. In this research, it was asserted that Indian construction projects also experienced a delay during its implementation due to some factors, for better recognition of these factors questionnaire survey prepared and factors analysis and regression modeling were used to determine the importance of delay factors. From the factors analysis, most critical factors were distinguished as absence of commitment, poor site management, insufficient coordination, inappropriate planning, absence of clearance in project scope, no proper communication, and substandard contracts and from regression model deduced that slow decision by client, insufficient labor productivity and rework due to mistakes in construction are the causes that affect the overall delay of construction projects.(Sambasivan and Soon, 2007) conducted research on the causes and effects of delays in Malaysian construction projects. A questionnaire survey was performed to split causes and effects of construction delay from client, contractor, consultant and 150 respondents participated in this survey and the collected data was analyzed through relative importance index (RII) and factors were ranked according to high RII, that factors and effects of delay which have high RII value identified as most critical factors and effects of delay in construction projects, so that ten top critical delay factors are; inappropriate planning by contractor, insufficient site management, inexperienced contractor, insufficient finance of client and payment to completed work, subcontractors, lack of some construction material, skill labor, availability of equipment, insufficient communication mange parties, error during construction. Six effects were also ranked as time overrun, cost overrun, disputes, arbitration, litigation, and total abandonment.

3. CONCLUSIONS

Top ten most critical delay causes of construction projects in previous studies are; (1) poor coordination between parties, (2) lack of experienced staff, (3) poor financial ability of contractor, (4) insufficient planning by contractors, (5) poor supervision by governments, (6) order changes by client, (7) payment delay during project progress,(8) late procurement of construction materials, (9) project drawing change,(10)changes in specification, insufficient study of the site and tender form. Ten least critical delay cause are; (1) award to the lowest bidder (2) Clan culture and market culture of company (3) delay in approving shop drawing, (4) lack of accuracy in specification and drawings, (5) poor salaries and incentives for Engineers, (6) corruption in estimating quantities, prices, (7) equipment shortage, (8) poor site management. (9) labor wounds in a site, no on-time site clearance, theft on-site, the clash among labors, wasting of time by traffic control at a job site (10) rework due to mistakes in construction. Six effects of delay were also identified as cost overrun, time overrun, disputes, arbitration, litigation, total abandonment. Many authors have studied causes but few authors studied the effects of project delay but no one focused on minimizing methods of project delay. where we are studying minimizing methods with cause and effect of project delay in our research.

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BIOGRAPHIES

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