



Causes of Construction Project Delays in Pakistan

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Abstract:

Construction project failure becomes an immense problem in all around the globe and same it also spark the construction industry of Pakistan which are also facing failure in very large number from last few decade. The purpose of this article is to highlight the major factor which causes failures to project, According to PMBOK the project success and failure depend on the three core factor which are time, cost and scope. The causes are investigated through different research paper review, interview session and survey based questionnaire distributions. The paper is carryout by studying various related research paper which had identified the causes as well as carrying out questionnaire based interview and survey for identifying the major causes which are directly associated with the project triple constraint factor i.e. time, cost and scope. To analyze the data, we applied a statistical formula to calculate the RIR value for importance of causes of failure, Around 35 major causes were selected from literature review, interview session and questionnaire based survey. Often which the top ten causes were highlighted and explain with logical evaluation which if followed by the project stakeholder will result in the project success in define triple constraint.

The data help us in the identification of top ten causes of construction project failure in Pakistan: Incompetent Contractor, Change in Government Tenure/ Change in interest, Insufficient data collection and survey before design, Lack of Risk Planning, Lack of Management support for the project, Inaccurate Project Schedule & Incompetent Project Team, Organizational Changes, Pandemic, Delays in payments to Contractors, Delays in Design Phase.

Keywords: construction projects, Project Failure, causes of Failure, Pakistan

Introduction:

The construction industry of Pakistan contributes as a backbone in Pakistani economy through its tremendous share and wonders each and every year. Pakistan is struggling from the last few year in the stability of their economical condition, for which the government also normalize the policy for construction sector in order to boost their economical condition. But still there is a huge flaw in construction industry which is failure, which may be related due to cost, time and scope. Due to failure the national economy also suffers a lot.

There is a common perception that Construction mega projects are not only difficult, but often unsuccessful. Whether megaprojects succeed or fail and the ways in which they do so are important for a variety of reasons

In construction industry, construction delay refers to the time overrun in specified completion data or time overrun in the delivery of the construction project on which all parties agreed. Assaf SA. & Al-Hejji S. (2006)

In Construction industry Cost overrun refers to an instance in which the provision of contracted goods or services are claimed to require more financial resources than was originally agreed between a project sponsor and a contractor [User Guide, 2005].

In construction management a project is consider to be failed if it does not achieve the planned baseline on which both the client and contractor agreed before the commencement of the project. It may be due to cost overrun, delays, abandonment, dispute between parties, savior accident, change of government policy, less interest by the client are some of the common and main problem often which construction project failed in Pakistan. Like BRT Peshawar, Lawari Tunnel, Mohmand Dame, Neelum-Jhelum hydropower plant, Thar coal project, Family Health Project in Sindh, Pak-Iran Textiles Ltd, Orange lion train, Billion tree Tsunami and kalam road are some of the project which faces serious criticism due to excess amount of cost as well as delays due to which its consider a failed project in Pakistan.

According to Project Management Body of Knowledge (PMBOK), Project success or failure is majorly dependent on three key performance indicators time, cost and scope. These are also considered triple constraint in a project and are baseline to measure project performance. If deviation occurs in any one of the performance indicators, simply can impact overall project performance either negatively or positively.

Literature review:

PMBOK (2010) it states stakeholder identification is very important aspect of a project. This process helps in understanding their influence, demands, expectations and needs that are necessary in the success of a project. And failure to identify them can lead to project delays, cost overruns, unexpected issues and may face consequences of project cancellation.

Saqib et al, (2008) described that the rise in uncertainties in technology has made construction industry dynamic in nature. With the passing time the construction projects are becoming difficult and complex. The project team is facing novel changes. The effectiveness of the project can be improved through the study of critical success factors and project success.

Research is made in order to find the variables which affect the project during construction. Seventy seven factors were chosen which categorized into seven groups of questionnaire to collect the feedback from the respondents. Once the relationship get defined, it will be useful to make the project successful. The project team is entangled with dense changes.

Jha and Iyer (2006) mentioned that attributes which impact quality performance of project are competency and support of team manager, supervision and proper feedback of team workers, harmony among project participants and owner's decision making power as well as competency.

According to Nourfar (2006), the factors which ensure the success of projects are practical schedule, proper provision of resources, funds allocations and precise objectives etc.

The strategic significance of human resources and identified personal factors indicated success of the project (Ebtehag and Afshari, 2006).

Chan et al, (2004) discussed that for a long time a number of researchers tried to determine the factors affecting the success of construction projects. A large number of variables have been included in literature; however no consensus can be made. The five key groups identified to be important for the project success were project management actions, external environment, project-related factors, human related factors and project procedures. It's notable to differentiate between the terms success factors and bench mark of success factors. Bench mark judges the failure of project in as much as success factor indulged into the management system and display results of project directly or indirectly.

Five vital success factors highlighted by Nguyen et al, (2004) which were proficient project manager, provision of necessary economical aids to meet the ends of the project, active and multitasking personal of project, dedication to the project and approach to resources.

According to Assaf SA, Alkhalil M & Al-Hazmi M. (1995), main causes of delay according to clients are slow progress of contractor, labor shortage and poor skills, and errors in design. According to Assaf SA, Alkhalil M & Al-Hazmi M. (1995), main causes of delay according to contractors are design modifications and changes, payments by clients, and approval and preparation of design drawing. According to Assaf SA, Alkhalil M & Al-Hazmi M. (1995), main causes of delay according to consultants and engineers are slow decisions of client, subcontractor issues, and cash flow during construction.

Aibinu AA, Jagboro GO. (2002). Studied the effects of construction delays on completion or delivery of construction project in Nigerian large construction industry and mentioned them as: time overrun, cost overrun, dispute, arbitration and abandonment. In construction industry of Saudi Arabia, Assaf SA, Al-Hejji S. (2006). Found that approximately 70% of the large construction projects experienced time overruns.

Naeem, Jawad, Faisal, Ali, Usman, Fiaz, Tahir. Ahmad & Farooq (2013). According to them time and costs are dependent on the specifications feasibility and drawings developed by the designers. The drawings if are well defined than it makes easier for the Project Manager in making decisions quickly without delaying any project activities.

Haseeb, Xinhai, Aneesa, Maloof & Rabbani (2011) according to them the problems of project delay occur in the construction industry of Pakistan resulted in clash, claims, total desertion and slow growth of the construction sector

Research Methodology:

This research were conducted both qualitative and quantitatively. The main objective of the paper is to identify the core problem due to which most of the project failed in Pakistan. The PMBOK (Project Management Body of Knowledge) was also touch for the project management points of views which are dare needed in successful planning and management of the projects. The core factors which are highlighted in construction project failure were taken as Time, Cost & Scope and the area of our research. For carrying out research the previous work on the same problem were been thoroughly studied during literature review in order gain sufficient information regarding failure of the construction project. The next option which we utilize in our research was taken one to one interview with the season and sound professionals who have serve construction industry more than ten year in order to gain their experience point of view regarding failure of the construction project in Pakistan.

The third point of our research was to carry out questionnaire based survey amongst contractor, client and consultant along with the labors which will be discussed in the table listed below.

All the literature review, the answers of the interview session and from the questionnaire based survey were compile in the table form which include 35 major causes were distributed.

The relative importance index (RII) method was adopted to determine the relative importance causes affecting project failures in Pakistan. The five point Likert scale ranges from (1=Not Important) & (5=Very Important) was adopted and transformed to RII for each causes as follows:

$$RII = \sum W / A * N$$

W=weighting given to each factor by respondents (1to 5)

A= high weightage (i.e. 5 in this case)

N= total number of respondents Through the Likert scale we had enable to identify the ranking of causes for construction project failures in Pakistan as shown in Table 1

Item no	Causes / Factors	1	2	3	4	5	RII	Rank
1	Incompetent Contractor	10	7	9	35	22	0.73	1
2	Inadequate fund allocations,	8	12	25	33	22	0.70	19
3	Delays in payments to Contractors	8	27	8	25	41	0.72	9
4	Inaccurate Cost Estimates	9	17	23	10	41	0.71	11
5	Inaccurate Project Schedule & Incompetent Project Team,	13	12	12	27	35	0.72	6
6	Lack of communication between parties,	10	21	20	25	17	0.64	31
7	providing services from utilities (such as water, electricity)	13	9	32	22	27	0.68	25
8	Unrealistic contract duration and requirements,	12	8	17	32	22	0.70	20
9	Delays in providing site access to Contractors	16	7	27	33	26	0.68	24
10	Poor qualification of the contractor's technical staff	12	21	16	31	38	0.71	16
11	Delays in Design Phase	6	17	23	41	27	0.72	10
13	Delay in approving major changes in the scope of work	8	14	22	14	33	0.71	14
14	Unclear and inadequate details in drawings	15	7	12	17	31	0.70	17
15	Insufficient data collection and survey before design	4	16	22	15	32	0.72	3
16	Lack of Management support for the project	3	16	31	28	29	0.72	5
17	Frequent breakdown of construction plants and equipments	24	14	19	26	21	0.61	32
18	Change in Government Tenure/ Change in interest	5	21	25	25	39	0.73	2
19	Shortage of Equipment	26	12	34	11	18	0.57	34
20	Effect of terrorist activities	14	31	12	23	31	0.65	30
21	Lack of Resource Planning	15	12	25	31	26	0.68	27
22	Lack of Quality Procedures	17	1	23	17	25	0.68	26
23	Un-use of advanced engineering design software	5	21	25	25	33	0.71	13
24	Delays in payments to consultant / Designer	26	22	23	23	17	0.57	33

25	Lack of Stakeholders Management	14	27	41	32	35	0.66	28
26	Lack of Change Control Process	14	21	31	41	37	0.69	23
27	Scope Creep	13	16	26	16	38	0.69	22
28	Improper construction methods implement	11	12	16	23	32	0.71	12
29	Suspension of work by owner	11	12	23	34	26	0.70	18
30	Lack of Risk Planning	1	21	23	41	25	0.72	4
31	Organizational Changes	11	6	31	31	31	0.72	7
32	Natural Disaster	12	21	31	25	41	0.70	21
33	Lack of planning or Less Emphasis to planning	12	12	21	25	33	0.71	15
34	Pandemic	12	7	14	23	29	0.72	8
35	Dispute amongst stakeholder	11	22	41	33	26	0.66	29

1. *Incompetent Contractor:*

Incompetent contractor are ranked 1st in the top ten finding

Which reflect that the majority of respondent are blaming directly contractor for the project failure. Which reflect experience of the respondent with the contractor and as well as from the previous paper study the incompetent contractor is on the top.

For this pre-qualification is one of the major process for the selection of experience and competent contractor which is selected based upon their past experience which include both technical evaluation as well financial evaluation of the contractor, based upon this the contractor is selected. Which play a key role in the success of the project.

The organization or owner/client or consultant procurement department has to play a vital role in the entire selection process. Usually procurement specialist lack technical expertise and therefore seeks assistance from the technical department or project team in the bidding and contract awarding process. In cases procurement department without seeking technical support can select incompetent contractor for a project.

2. *Change in Government Tenure/ Change in interest*

Change in government tenure/change in interest ranked 2nd in the top ten finding.

This factor has much and major impact on the projects as compare to others. As we look in the past project which were start in the past by the previous government is facing serious problem in the current government due to the change in interest and priorities of the new government. Due to this change the projects faces a lot especially in fund releasing they are facing very difficulties and in many cases the projects get terminated or get totally modified which result in time ,cost and scope changes which lead to project failure.

3. *Insufficient data collection and survey before design*

Insufficient Data Collection and survey before design ranked 3rd in the top ten finding.

During the planning and feasibility stage of the project if the data collected for the project is not sufficient or it lack the major area of the project which are involve in the scope of the project but was missies during the surveying process it has savior impacts on the projects .As we have seen in the BRT Peshawar during its planning and feasibility stage many routes were misses with the underpass and overpasses which lead to several time construction and demolishing the many area of the BRT Route as well as the stations . due to insufficient data collection before actual design which lead to high overcast as well as time over run and lead the project failure.

4. *Lack of Risk Planning*

Lack of Risk Planning is ranked in 4th in the top ten finding.

Risk planning or risk analysis is the systematic assessment of decision variables which are subject to risk and uncertainty. The risk analysis process comprises: the establishment of probabilities of occurrence of adverse events; the setting of assumptive bounds to associated uncertainties; and the measurement of the potential impact of risk event out-

comes.

Most of the project gets delays or cost overrun due to poor risk planning e.g. no contingency plane for the sudden break down of electricity while u needed 7/24 hour thus it will create a problem. For the project to be successful there should be proper risk planning and risk management which must ensure that there is proper contingency plane in case of risk. Most of the construction project misses risk planning during the planning and feasibility stages which result in excessive impact when the encountered risk during the construction phase, due to which the project face more difficulties and in some time its lead to project failure. Risk management is a systematic approach to dealing with risk. A risk management system should: establish an appropriate context; set goals and objectives; identify and analyze risks; influence risk decision making; and monitor and review risk responses. The political, economic, financial and cultural categories of construction risk deserve greater research attention, as do those associated with quality assurance, and occupational health and safety. Temporal aspects of risk, and risk communication, are also important fields for investigation in order to get the project success.

5. Lack of Management support for the project

Lack of Management support for the project is ranked in 5th in the top ten finding.

As from the study poor top management support has been identified as one of the factors that lead to failure of the construction projects. The major problem which was identified during the literature study was that limited financial and technical support from the top and senior management who have high chance of success. This is because when senior management takes ownership of the project, they go out of their way to ensure cooperation from the department and therefore they generate greater commitment in the organization target. Thus for the project to be successful it must ensure that the top management will be fully engaged throughout the project life cycle. The involvement e.g. through project update sessions imply that they are willing to take appropriate actions to address issues by the project team, mitigate the project risks. Proved leadership, thus contributing to the project success.

6. Inaccurate Project Schedule & Incompetent Project Team

Inaccurate project schedule & incompetent project team are ranked in 6th in the top ten finding.

Because Inaccuracy in a Project schedule directly affects the cost and time of a project. The project planners has the role to estimate the schedule based on the construction drawings by calculating the manpower, equipment, procurement and other factor. Continuous monitoring of the schedule determines the progress of the project and if there is deviation than it raises flag to bring backs the project through proactive approach.

Selection of the right person for the right job is the ingredient for a successful project. In selection of project team the competency level of each member of the team is evaluated with the job description/ role to be performed by the individual. Some organizations adopt the strategy of retaining their staff without analyzing the specific job requirements. Such organization failed to identify the training required by the individual to perform in that role.

7. Organizational Changes

Organizational changes are ranked in 7th in the top ten finding.

Organization change refers to managing different changing aspect of the organization such as physical environment, introducing new technology, alteration in mission, business process and policies, change in management team, merger, reengineering etc. When the change is significant and primary experts call it organizational transformation. Companies face numerous situations during the process of change which leads to anxiety and ambiguity. In order to become a prosperous organization, it is imperative for the companies to incorporate upgraded technologies for producing goods, innovative products to be introduced which are anticipated by the market, modern methods of administration must be executed along with improvement in the expertise of the workers. Political, technical, economical and societal enticements prevailing in the outer environment of the company can bring change in the external environment. On the other hand, the policies, styles, systems and procedures adopted by the company's management along with the behavior of the workers influence the internal environment.

8. Pandemic

Pandemic are ranked 8th in the list of top ten finding.

Which are identifying through RII evaluation technique through public opinion of the survey based questioner.

As the outbreak of corona virus disease (Covid-19) has severely affected the global and Pakistani economy. Major victims of the Covid-19 outbreak are micro, small and medium and large construction industrial sector. This in turn had a significant impact on the national economy as a whole. The global GDP is likely to be affected between 2.3% to 4.8% (ADB, 2020). According to (UNCTAD, 2020b) it has also been predicted that the current pandemic outbreak may cause global foreign direct investment to shrink by 5%-15%. According ILO almost 25 million people around the globe could lose their job (loss of worker income of as much as USD 3.4 trillion).

On Pakistani economy it has been reported that Pakistan has lost one third of its revenue and export dropped by 50% due to Covid-19 outbreak and lockdown. Due to Pandemic the Pakistan real GDP growth in FY2021 could be expected to contract by 1.3% as national and global economic activity slow down,

As the national economy is going through the hard time due to Covid-19 pandemic in the world which destroy almost all the economies of the developed and underdeveloped countries which had direct impact on the ongoing and the project which was planned to be start in the upcoming years. Due to falls in the national economy the market rates also affected which result in increase in the price material which will directly impact the estimated cost of the project as well as time overrun due to lockdown.

9. Delays in payments to Contractors

Delays in payment to contractor are ranked 9th in the top ten finding.

Because contractors are executing several projects for different customers at the same time and timely billing process provide them with cash flow to manage projects without hurdles. In some cases the contractual obligations between the contractor and customer are not adhered due to delay in verification of bills by the consultant or customer and deviation in invoice items with the contract bill of quantity items can impact project completion date.

10. Delays in Design Phase

It is ranked 10th because delays in design phase confirm that there are definite chances of slippages in project completion. The execution phase should not start until the design is fully completed, but to fast track the process incomplete construction drawings are developed for tendering purpose while design in process. This fast track process is a vague process and could affect major on the project cost. In some instances the contracts are awarded without final design completion and contractors are forced to proceed with execution can create chances of dispute later in the project with change request. The common causes of design delay are shortage of resources, underestimating the design requirements, lack of stakeholders or end users engagements, approvals from regulatory authorities and lack of coordination.

5. CONCLUSION AND RECOMMENDATIONS

The questionnaire based survey, literature review and interview session with the expertise enriched us with the data and the key factor for determining the top ten causes of construction project failure which the construction project failed if not taken serious into account during or before it cause failure.

During our research all the 35 main causes/factor which were selected for ranking was taken from literature review and after interview with the expertise which give us the clue to add it in the main causes for questionnaire survey based distribution. The literature review and The questionnaire survey response enabled us in determining top ten causes of construction project failure in the demography of Pakistan through RII technique are: (1) **Incompetent Contractor**, (2) **Change in Government Tenure/ Change in interest**, (3) **Insufficient data collection and survey before design**, (4) **Lack of Risk Planning**, (5) **Lack of Management support for the project**, (6) **Inaccurate Project Schedule & Incompetent Project Team**, (7) **Organizational Changes**, (8) **Pandemic**, (9) **Delays in payments to Contractors**, (10) **Delays in Design Phase**

Other failure causes also include Inaccurate Cost Estimates, Improper construction methods implement, Un-use of advanced engineering design software, Delay in approving major changes in the scope of work, Lack of planning or Less Emphasis to planning, Poor qualification of the contractor's technical staff, Unclear and inadequate details in drawings, Suspension of work by owner, Inadequate fund allocations, Unrealistic contract duration and requirements are some of the others finding which have low RII values as compared to the top ten ranked factor due to which we didn't highlighted in the explanations section. But it's also play a key role in project success and failure.

Our Recommendations are divided into two main category which include recommendations to Contractor & recommendation to Client

Recommendations to Contractor:

For contractor it is recommended to them that if they want to successfully complete their project then they must focus on their management team which must include competent professional experienced

project manager who have sound and seasoned knowledge of handling technical project of any nature.. they must possess the authority to finance any activates in the site as well as to take ground based decision which is best for the project at the time, they must posses the authority to select their team who play a key role under their leadership which include technical and non technical staff for the execution of the project work. they must have the competent team for Procurement planning, risk planning, execution of work, contract duration and estimation in order to complete the project without any problems.

However selection of incompetent project manager and project team can lead to lack of project planning, Inaccurate estimates, Inaccurate schedules & delay in procurement of long lead Items can cause project failure.

Recommendation to Customer:

Our recommendation for the cline or customer is that if they want their project to be successful they must select competent contractor through technical and financial evaluation. Which include the pre-qualification process due to which all the specialties of the contractor are scrutinize referring to the nature of their project being they want to construct. The customer must provide complete construction package, early access to construction site, timely release of the contractor invoices and timely providing of material in order to ensure successful completion of the project without facing any delays or cost overrun.

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