

Causes of Construction Project Failures in Pakistan

Syed Saad Wasim

M.S Project Management, Department of Management Sciences,
SZABIST University, Karachi, Pakistan
Email – saadwaseem@hotmail.com

Abstract: Construction Project failure is a global problem and Pakistan Construction projects also suffer from this phenomenon. The purpose of this paper is to identify major causes which are critical factors in the performance of a Project. The Project Management Body of Knowledge (PMBOK) emphasized measurement of project success or failure is dependent on three key factors; Time, Cost & Scope. We have investigated through literature review the various causes behind this triple constraint which are real forces encounter during the lifecycle of a construction project. The 33 major causes identified through literature and Interviews with the Project Managers were transformed into a questionnaire. Further the questionnaire survey was conducted with the industry professionals directly managing construction projects in the demography of Pakistan. The findings were the identification of top ten causes of construction project failure in Pakistan: (1) Incompetent Contractor, (2) Delays in Procurement of long lead items, (3) Delays in Payments to Contractors, (4) Inaccurate Cost Estimates, (5) Inaccurate Project Schedule & Incompetent Project Team, (6) Lack of Project Planning, (7) Incompetent Project Manager, (8) Delays in providing site access to contractors, (9) Lack of cash flows & (10) Delays in design phase

Key Words: Causes, Construction Project Failures, Pakistan, Project Management

1. INTRODUCTION:

A Project is considered failed if performance baselines of Project Management Plan approved from customer or client do not met requirements. The overrun in cost, delays, abandonment, accident and disputes are few common problems of construction failures in Pakistan. The collapsing of Sher Shah Bridge Karachi, cost overrun Neelum-Jhelum Hydropower Plant, Muzaffarabad & partial demolition of Baloch Colony Bridge in Karachi, Pakistan are few notable construction Project failures.

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.

1.1 Problem Statement:

Nawaz, Shareef & Ikram (2013) according to them It is not appropriate to blame contractors as the sole responsible for delay, failure or abandonment of construction projects. The failure of smooth cash flow can disrupt and halt project momentum. And most of the projects are failed because disruption of cash flows.

Xinhai, Aneesa, Maloof & Wahab (2011) according to them 16 identified important causes of delays are: Payments and Finance issues, Quality of material, Inaccurate Time estimation, Delays in supplier & subcontractors payments, Poor site management, Old technology, Natural disasters, Poor site conditions, Material Shortages, Delays caused by sub-contractors, Change in drawings, Improper equipment, Inaccurate cost estimation, Change orders, Organization Changes, Regulatory Change. The effect of these causes was resulted in Time overrun, Cost overrun, Abandonment, Negotiations and Court cases and Disputes.

2. 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.

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. The experience of design professionals familiarize with the similar kind of project experience in the past will provide better planning and understanding of the project specifications. The success of project is dependent on the drawings and plan that activities proceed without any hindrance. The Darya Khan in Dera Ismail Khan Bridge construction was not completed on time because of errors in specifications. The design was revised several times due to unavailability of data provided by the design team for construction.

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. The study has identified the various factors that have an effect on the project delays of overtime, over budget, disputes, negotiations, Lawsuits, Litigation & Abandonment. The Project delays in the construction industry of Pakistan are very common issue. The most common factors of delays are improper planning, poor site management, insufficient experience, shortage of material on site, delay in payments, shortage of equipment etc. Beside that natural disasters such as flood and earthquakes are also sometimes the factors of delays. The research concluded that financial stability of the client is the key for successful project beside that decision making timely to ensure that no slippages in the project schedule. The consultant has a role to fully understand the client necessities to ensure that all information incorporated in the design drawings as per the client’s requirements. The contractor’s delays occur because of deficiency in getting the right equipment and material for usage in the construction. This sometimes becomes the cause of dispute that an excellent material is used for construction. Unavailability of owner supplied material timely is also a cause of delays. The shortage of labourers, changes in the government, regulations and weather are also the cause of project delays. In Pakistan construction projects the delay is caused mainly because of government changes and the new setup proposed new design of project and the billing process is not easy with these changes. The shortfall of electricity in Pakistan in the construction projects which also halt many hours of equipment without production and due to this large construction project suffers.

Chen & Lee (2007) the performance of a project manager is not only associated with his capability of acquiring profit but also dependent on whether he or she can implement the managerial practices of the leadership behaviour effectively and efficiently. A performance evaluation model incorporates leadership behaviours with some essential factors that may affect them are proposed. The data in this research reveal that the evaluator the capability of making decision and giving-seeking information are the most considers important leadership behaviours to a project manager. This is because project managers are usually asked to handle or acquire the information or solutions for solving the problems of their projects autonomously. At the same time, the technical competence and the manager’s position level in a company are considered to be the two most significant factors that may influence the performance the project managers. Therefore, to introduce or develop some novel and powerful technologies or tools to aid project managers for carrying out their jobs and establish the project matrix and project team-based organizations with convenience for communication are the essentials of a company.

3. RESEARCH METHODOLOGY:

The methodology of this paper is both qualitative and quantitative to determine, evaluate and analyze the major causes of construction project failures in Pakistan. The PMBOK (Project Management Body of Knowledge) was reviewed for the project management best practices in managing successful projects. The failure causes in terminology of construction is the objective of our research. The construction failure and delay causes identified globally through past research (Table 1) and further interviews with ten project managers within the demography of Pakistan help us in identification of maximum number of construction failure causes. These 33 causes was converted into questionnaire survey and distributed among 155 professionals directly managing construction projects in Pakistan.

Table 3.1

S. No	Researcher	Methodology	Key Findings
1	Abbas, Wajid, Iqbal, & Zafar. (2014)	Case Study	Lack of Senior Management support for the project, Lack of Communication, Scope creep, Lack of vision, Lack of Planning & Organizational Changes
2	Naeem Jawed. Faisal, Muhammad Ali, Usman, Fiaz, Tahir. Ahmad, Qazi & Farooq (2013)	Questionnaire	Lack of cash flow, Lack of Planning, Incompetent Project Manager, Incompetent Design team & Senior Management support for the project
3	Haseeb, Xinhai-Lu, Aneesa, Maloof-ud-Dyian & Rabbani (2011).	Interview / Questionnaire	Lack of Planning, poor site management, insufficient experience, shortage of material on site, delay in payments, shortage of equipment
4	Haseeb, Xinhai-Lu, Aneesa, Maloof-ud-Dyian & Rabbani (2011)	Interview / Questionnaire	Finance and payments, Inaccurate time estimation, Quality of material, Delay in payments to supplier and subcontractor, Poor site management, Old technology, Natural disasters, Unforeseen site conditions, Shortage of material, Delays caused by subcontractors, Changes in drawings, Improper equipment, Inaccurate cost

			estimation, Change orders, Organizational changes and Regulatory changes
5	Doloi (2013)	Questionnaire	lack of technical and competency level by the contractors & The scope and design complete detail unavailability
6	Rizwan, Fawwad & Farhan (2013)	Questionnaire	The access of site to contractor for starting construction as indicated in the contract document, the supply of the owner equipment's or materials and most importantly furnishing the contractor with construction drawings in order to develop shop drawings for review and approval timely causes delay in the completion of a project.
7	Akram, Nafees , Marina , Uroosa, & Shabeer (2014)	Questionnaire	Design drawings are not completed on time by the Architect leads to extension in schedule. Natural calamity, fire, strike, & government legislations.
8	Sajid, Usman & Shaukat (2015)	Interviews	Project Managers competency are essential for successful projects
9	Musarat, Inderyas, Khan, & Shah (2010)	Interviews / Questionnaire	Commitment of owner for funding for smooth cash flow
10	Alzahrani & Emsley (2013)	Questionnaire	Lack of quality procedures
11	Brown, Adams, & Amjad. (2007).	Case Study	Lack of Skilled Staff and manpower
12	Nawaz, Shareef & Akram (2013).	Questionnaire	Lack of smooth cash flow, poor site management, unapproved change order & frequent changes in scope
13	Choudhary, Hinze, ASCE, Arshad & Gabriel (2012)	Interview / Questionnaires	Lack of skilled workers

Next, 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

The ranking of causes for construction project failures in Pakistan are shown in Table 2.

Table 3.2

S. No	Causes / Factors	RII	Percentile	Rank
1	Incompetent Contractor	0.817	81.7 %	1 st
2	Delays in Procurement of Long lead Items	0.787	78.7 %	2 nd
3	Delays in payments to Contractors	0.770	77.0 %	3 rd
4	Inaccurate Cost Estimates	0.768	76.8 %	4 th
5	Inaccurate Project Schedule	0.763	76.3 %	5 th
6	Incompetent Project Team	0.763	76.3 %	5 th
7	Lack of Project Planning	0.748	74.8 %	6 th
8	Incompetent Project Manager	0.746	74.6 %	7 th
9	Delays in providing site access to Contractors	0.743	74.3 %	8 th
10	Lack of Cash Flows	0.734	73.4 %	9 th
11	Delays in Design Phase	0.729	72.9 %	10 th

12	Poor Site Management	0.717	71.7 %	11 th
13	Changes to IFC Drawings	0.714	71.4 %	12 th
14	Incompetent Designer / Consultant	0.714	71.4 %	12 th
15	Shortage of Skilled Manpower / Worker	0.714	71.4 %	12 th
16	Lack of Management support for the project	0.712	71.2 %	13 th
17	Shortage of Material	0.712	71.2 %	13 th
18	Delays in approval of Shop Drawings	0.702	70.2 %	14 th
19	Shortage of Equipment	0.690	69.0 %	15 th
20	Lack of Communication	0.682	68.2 %	16 th
21	Lack of Resource Planning	0.673	67.3 %	17 th
22	Lack of Quality Procedures	0.673	67.3 %	17 th
23	Lack of Coordination between trades	0.673	67.3 %	17 th
24	Delays in payments to consultant / Designer	0.670	67.0 %	18 th
25	Lack of Stakeholders Management	0.670	67.0 %	18 th
26	Lack of Change Control Process	0.658	65.8 %	19 th
27	Scope Creep	0.653	65.3 %	20 th
28	Government or Regulatory Changes	0.609	60.9 %	21 st
29	Law & Order Issues	0.609	60.9 %	21 st
30	Lack of Risk Planning	0.592	59.2 %	22 nd
31	Organizational Changes	0.563	56.3 %	23 rd
32	Natural Disaster	0.514	51.4 %	24 th
33	Extreme Weather conditions	0.502	50.2 %	25 th

4. DISCUSSION ON TOP TEN FINDINGS:

4.1 Incompetent Contractor:

Incompetent contractor is ranked top on the list with 81% respondents blame contractor as sole responsible for project failure. Pre-qualification process is very essential part in selection of competent contractor for a 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.

4.2 Delays in procurement of Long Lead Items:

Ranked 2nd is the delay in long lead items that have a long duration of receivable timelines in the lifecycle of a project. These are either imported or have long manufacturing / production time. During the project planning phase procurement plan is developed with an understanding that delay in procurement of such items can impact the overall project timelines.

4.3 Delays in Payments to Contractors:

It is ranked 3rd maybe 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.

4.4 Inaccurate Cost Estimates:

It is ranked 4th because project costing must be estimated without deviation or it should be within the threshold limit of the budget approved by the customer. The cost estimates may vary from the design stage to the execution stage, so the estimator role is to estimate accurately on the approved Construction drawings. While estimating the estimator should take into consideration the cost of completion of similar historical projects, current market rates of material,

labour, equipment and other items. Also expert specialist opinion on the duration of completing each activity reduced the chances of inaccurate estimates.

4.5 Inaccurate Project Schedule:

It is ranked 5th 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.

4.6 Incompetent Project Team:

It also ranked 5th because selection for 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 analysing the specific job requirements. Such organization failed to identify the training required by the individual to perform in that role.

4.7 Lack of Project Planning:

It is ranked 6th because weak planning in a project creates opportunities for project failure. The planning phase defines the methodology on the execution strategy of a project from the project kick off meeting to the closing and handing over of the project. The PMO (Project Management Office) can play important role in the planning stage and monitor throughout the lifecycle of a project is a win-win model. It ensures that everything in the project is in cohesive mode with resources, budget, procedures schedule, cost, procurement and others are aligned to achieve project objective.

4.8 Incompetent Project Manager:

It is ranked 7th because competency of Project Manager is utmost important requirements in a project and is considered as the captain of a ship who ensures that it does not sink in any situation. The basic qualities of project manager are good communicator, decision making skills, inspire project team, team building skills, integrity, project management skills & problem solving attitude in achieving the objective of the project. While selecting project manager, knowledge on project management with previous experience of similar nature projects can project success.

4.9 Delays in providing site access to Contractors:

It is ranked 8th because contractors are dependent on customer in getting timely site access, mobilization of contractor to site sometime may take several months to complete which include construction of site offices, equipment's, machinery, plants, storage areas and other facilities those included in contractor schedule. The customer should ensure that contractor site access is provided as per approved schedule by the customer. Failure to provide timely access can sometime provide opportunity for the contractor to make claims for delays and lead to disputes.

4.10 Lack of Cash Flows:

It is ranked 9th because contractor's lack of control over cash flow has been the major factor in the failure of a project. Cash flows problems are caused by many factors such as intensive works by the labours, payments to suppliers or sub con paid before receiving payments from customer, purchase of fixed assets, time lag between billing and receiving its collection, cash used for long lead item, overstock of inventory are other reasons. The contractors must ensure that it has adequate funds available to manage the project.

4.11 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 develop 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 survey enabled us in determining top ten causes of construction project failure in the demography of Pakistan are: (1) Incompetent Contractor, (2) Delay in Procurement of long lead items, (3) Delay in Payments to Contractors, (4) Inaccurate Cost Estimates, (5) Inaccurate Project Schedule & Incompetent Project Team, (6) Lack of Project Planning, (7) Incompetent Project Manager, (8) Delay in providing site access to contractors, (9) Lack of cash flows & (10) Delay in design phase. Other failure causes such as Poor site management, Changes to IFC drawings, Incompetent Designer/Consultant, shortage of skilled manpower, Lack of management support for project, Shortage of material, Delay in approval of shop drawings & Shortage of equipment although could not make it to top ten but their importance was rated high by the industry professionals.

Our recommendations are split into two groups based on results: Prescription for Contractors & Prescription for Customer

5.1 Prescription for Contractors:

We recommend that selection of competent Project Manager is the most critical role performed by the contractor or client. The Project Manager knowledge on Project Management, experience of managing similar project and industry expertise are essential for managing successful project. The Project Manager selected for the project must have all authority by Contractors top management in terms of finances and resources for the project. The Project Manager Key role is the selection of its competent & dedicated project team comprising of execution, planning, contracts, cost and procurement to ensure project success can be achieved. However selection of incompetent project team can lead to lack of project planning, Inaccurate estimates, Inaccurate schedules & delay in procurement of long lead Items can cause project failure.

5.2 Prescription for Customer:

The customer or Client role is to ensure selection of competent Contractor for the project. The Pre-qualification process must be scrutinized in a manner that all requirements of project specifications are in line with the contractors experience and resources to meet project requirements. The customer must adhere to its contractual binding with the contractor by providing complete construction package, timely access to construction site, timely release of contractor invoices and timely providing owner furnished material to ensure completion of project within cost and time given by the contractors.

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