Factors Affecting the Performance of Construction Projects in Pakistan

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https://doi.org/10.26782/jmcms.2019.06.00025

Abstract

There is a French dictum “when the construction industry prospers everything prospers”. Construction, a term that encompasses activities related to the creation of physical infrastructure and related activities, plays a crucial role in the economy of any country with estimated share of 40-60 % in gross fixed capital formation and having linkage of more than 60 other associated industries. Today, construction is the second largest sector in Pakistan’s economy after agriculture. Roughly 30-35% of employment is directly or indirectly affiliated with the construction sector.

In Pakistan, a Construction Project can be categorized as high risk as it is very complex and involves a variety of stakeholders looking after their own interests. In order to make sure that the projects are completed within the key measures of budgeted cost, allocated time and required quality, identification of causes affecting the project performance is very much necessary so that stakeholders can take proactive steps to avoid such situations and manage effectively and systematically to achieve the project performance objectives of time, cost and quality.

The purpose of this Paper is to investigate the major obstacles and constraints in the performance of construction projects in Pakistan. In this paper a local construction project case study and facts which I observed during my 16+ years of experience in dealing with construction projects are taken into account to document the bottlenecks. The case study is the construction of Earth Dam Project in

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Tribal region of KPK, where I worked as a Resident Engineer. The project performance has been suffered adversely equally by roles played by the design consultant, the Employer, the supervisory consultant, the Contractor and country political situation and regional security. Finally, main recommendations with discussions are presented that will help to overcome the related obstacles and hindrances in project performance in construction industry of Pakistan.

Similar methodology is adopted in Document of the World Bank Discussion Paper Series: Technical Note:9 LOCAL CASE STUDIES November 2007, where case studies of several past infrastructure projects in different sectors including roads, airport, motorway and irrigation were reviewed to document the bottlenecks which occurred during the various processes involved in the life cycle of infrastructure projects. Identifying such processes allows a better understanding of the capacity constraints in planning, designing, programming, procurement, contract administration, financing and budgeting, execution and other stages in a project cycle.

**Keywords**: Construction Project, the project performance objectives, planning, designing programming, infrastructure projects.

I. **Introduction**

The construction industry is in developing stage in Pakistan. With the recent economic policies and international agreements in the construction sectors of the country, Pakistan now offers a growing market for the construction industry [I]. The China-Pakistan Economic corridor (CPEC) Project US$45 billion has been the key to inject foreign investment into the country. CPEC will create some 700,000 direct jobs during the period 2015–2030, would add up to 2.5 percentage points to the country's growth rate [IV]. Over $33 billion worth of energy infrastructures will be constructed between 2018 and 2020 as part of the corridor's fast-tracked "Early Harvest" projects to help alleviate Pakistan's chronic energy shortages, which regularly amount to over 4,500MW, and have shed an estimated 2-2.5% off Pakistan's annual GDP [IV]. UAE, Singapore, Malaysia, China are pouring in huge investments in the construction sector. This will open new vistas for the economic development of Pakistan and bring new trends in construction project performance. The next 2-3 years are going to be the moment of reckoning for the construction industry to demonstrate its managerial, financial and technical powers to establish new benchmarks in construction management, construction quality, Project time management, risk sharing and machinery management, latest tools and technique of monitoring project performance etc [IV].

The major obstacles to improving the performance of Pakistani construction industry are found to be lack of expertise/resources in construction project management and its applied areas [III]. There is an urgent need to eliminate bottlenecks such as corrupt practices in the industry and investigating the industry performance [XI]. In order to make sure that the projects are completed within the budgeted time and cost the Pakistan Engineering Council (PEC) being the statutory regulatory body, in 1996 has carried out standardization of “country specific “Standard Form of Bidding
Documents (Civil Works prepared by a team of experts comprising employers, consultants and constructors, based on FIDIC Books (Rain Bow 99 Red, Yellow, Silver and the Green book) [III]. The FIDIC contracts have traditionally been based on the principle of balanced risk sharing and, as such, have been widely accepted on the employer's and the contractor's side as a reasonable compromise. However, the employer, the consultants and the contractors are not well educated with FIDIC clauses due to its tough complicated legal English language which is not easy to understand without a lawyer [IX].

The client (Employer) can play its de facto role of a regulator in a more positive manner, provided that the relationship between client, “the engineer” (consultant), and the contractor is honored as laid down in the FIDIC contract documents in letter and spirit. Inadequate client capacity to plan, procure, program, administer and manage projects, imbalanced conditions of contracts, flawed procurement procedures (pre-qualification, bid evaluation, negotiations and re-negotiations with the lowest bidder) cause significant disputes which alter the project performance [V].

While PEC as a regulator is not effective to verify the particulars submitted such as equipment, staff, past experience, current capabilities and commitments, introduction of equitable documents, setting up independent tribunals for dispute resolution, monitoring the performance of consultants and contractors. Standardization of selection rules are the areas where PEC is required to play its role in addition to its current role as a registrar of contractors, consultants and professionals [III].

II. Project Methodology

The methodology of the project is accomplished through the following:

- Review of literature to give an overview about contract documents, Construction Contracts, FIDIC and its clauses, Roles, duties and rights of contracting persons/parties in various project stages, Prequalification procedures and dispute resolutions mechanism.
- Presenting real life case study to evaluate the impacts of role played by different parties and external factors affecting the project performance in Pakistan, Unethical and corruption practices by parties in Pakistan construction projects. Study and analyze the case study to learn lessons.
- Using the collected information in the previous stages and the results of the real life case study, causes of poor performance of construction industry in Pakistan will be identified followed by conclusion and discussions.
- Proposed recommendations will be given for the concluding problems that will help to develop and support the Construction industry performance, implementation of the standard FIDIC based contract documents in construction projects in Pakistan and improve the roles of stakeholders.

III. Literature Review

A construction contract is a legal agreement between an employer (sometimes referred to as the client) and a contractor to construct, repair, modify, renovate or even demolish something in an agreed time frame, for an agreed price and to agreed standards.
Approach of Standard Forms of Contract

The idea of standard form contracts is to include provisions that are beneficial to both parties. It is therefore important to be familiar with the three Rs when deciding which contract to use:

i. **Rights** – these are entitlements that one party has against another, entitling the party who has the right to compel the other party to do or not to do something.
ii. **Responsibilities** – these are obligations to do, or not to do something, for the party who has the right.
iii. **Risks** – Risks can be absorbed, avoided, shared, transferred or mitigated under the terms of the contract. In this way, they can be dealt with in a way that both parties are comfortable with and not caught off guard, as long as they are not ignored or not considered at all [II].

Standard Forms of Contract in Pakistan

Pakistan Engineering Council (PEC) in 1996, carried out standardization of “country specific” documents prepared by a team of experts comprising employers, constructors and consultants. This document incorporates FIDIC (Red Book) General Conditions of Contract Part-I (1987 reprinted in 1992 with further amendments), Particular Conditions of Contract Part-II, Instructions to Bidders and sample appendices required for bidding. PEC has recommended to use its document prepared for International Competitive Bidding (ICB) for the works costing more than Rs. 50 million. Regarding the works costing less than 50 million, PEC recommends to use its documents for Local Competitive Bidding (LCB). For such type of contract the Employer asks the bidders to quote their prices on percentage above/below basis of the schedule prepared by the Employer. In Government Agencies generally, Composite Schedule of Rates (CSR), has been used for this purpose. This CSR is revised periodically to cater for the prevailing market rates of various inputs to the works [III].

Contract Documents

Typically, the phrase Contract Documents is used to describe the entire scope of a construction contract. The priority of the contract documents was demonstrated in sub-clause 1.5 in the FIDIC “Red Book” in accordance to the following sequence:

- The Contract Agreement-The Letter of Acceptance-The Letter of Tender-The Particular Conditions, Part-II (PCC)-The General Conditions, Part-I (GCC)-The Specifications-The Drawings [VII].

FIDIC 1987 Red Book Critical Clauses affecting the project performance

The owners, consultants and contractors in a study by researchers have chosen the following clauses as numbered in FIDIC as the most important clauses that impact the construction project performance.
Table 1 Contractor’s Claims under FIDIC Clauses in 1999 Red Book

| Sub-Clause | Title                                    | Time | Money |
|------------|------------------------------------------|------|-------|
| 1.9        | Delayed Drawings or Instructions         | x    | x     |
| 2.1        | Right of Access to the Site              | x    | x     |
| 4.7        | Setting out (errors)                     | x    | x     |
| 4.12       | Unforeseen Physical Conditions           | x(c) | x     |
| 4.24       | Fossils                                   | x(c) | x     |
| 7.4        | Testing                                   | x    | x     |
| 8.4        | Extension of Time for Completion         | –    | x     |
| 8.5        | Delay Caused by Authorities              | –    | x     |
| 8.9        | Consequences of Suspension               | x(c) | x     |
| 10.2       | Taking Over of Part of Works             | x    |       |
| 10.3       | Interference with Tests on Completion    | x    | x     |
| 11.8       | Contractor to Search                      | x    | x     |
| 12.4       | Omissions (by Variation)                 | x(c) | –     |
| 13.2       | Value Engineering                        | x    | –     |
| 13.7       | Changes in Legislation                   | x(c) | x     |
| 14.8       | Delayed Payment                          | x(c) | –     |
| 16.1       | Contractor’s Entitlement to Suspend       | x    | x     |
| 16.4       | Payment on Termination                   | x    | –     |
| 17.1       | Indemnities (by Employer)                | x(c) | –     |
| 17.4       | Consequences of Employer’s Risks         | x    | x     |
| 18.1       | General Requirement for Insurances       | x(c) | –     |
|            | (if supplied by Employer)                |      |       |
| 19.4       | Consequences of Force Majeure            | x    | x     |
| 19.6       | Optional Payment Termination             | x    | –     |
| 20.1       | Contractor’s Claims (procedural)         | x    | x     |

(c) = Contractor claim limited to Cost only

(An Employer’s and Engineer’s Guide to the FIDIC Conditions of Contract, First Edition. Michael D. Robinson, 2013)

Key causes suffering construction projects performance in Pakistan

All these common factors prevail through project life cycle, design phase; Contract Phase and Construction Phase and briefly described below:

**Design phase**

There is only hand full number of national level projects that were or are being designed and implemented wholly by the Pakistani design houses. Design and specification oversight, errors or omissions resulting from uncoordinated civil, structural, architectural, mechanical and electrical designs can result in unexpected change orders, wholesale scope changes, and project delays. A similar dispute may occur when an owner’s (Client) design vision of a project is not communicated effectively to the design team. Perhaps due to an owner’s inexperience, the owner’s failure to contract with the architect for construction administration/ construction
services can lead to poor coordination of the project, especially in cases involving absentee or inexperienced owners [IX].

**Contract phase**
The consultants (Engineer) who are directly managed by Client may add an arbitrary clause violating the rights of the contractor to make claim as guaranteed by FIDIC for the failure of the employer to fulfill any of his obligations under the contract. The contractor is usually ignorant to his rights provided to him under FIDIC. Generally, the factors during this phase are falling into one of the following main groups:
(i). Changed Conditions   (ii). Additional Work    (iii). Delays     (iv). Contract Time

**Construction Phase**
Many studies were carried out by the authors such as Fenn (1997), Jeffery M.Hall (2002), David G. Carmicheal (2002) and etc have showed and identified the causes of construction disputes contributed by the various parties in construction project:

I. **Causes of Disputes by Clients**
i. Failure to respond in timely manner, taking time to decide on the change order and not obtaining permits from the needed authorities.
ii. Inadequate tracing mechanisms for RFI (Request for information).
iii. Reluctant to check for constructability, clarity and completeness.
iv. Discrepancies / ambiguities in contract documents.
v. Poor communications between and among the parties involved in the project.
vi. Failure to appoint an overall project manager (consultant).
vii. Lowest price mentality in engagement of contractors and designers. The absence of “team spirit” among the participants.
viii. Deficient management, supervision and coordination efforts on the part of the project.

II. **Causes of Disputes by Contractors**
i. Inadequate contractor management, supervision and coordination.
ii. Lack of understanding and agreement in contract procurement.
iii. Failure to understand and correctly bid or price the works.
iv. Reluctance to seek clarification.
v. Failure to plan and execute the changes of works.
vi. Inadequate CPM Scheduling and update requirements.

Consultants cause claims to arise (Al-Mohsin, 2012) are:

III. **Causes of Disputes by consultants**
i. Lack of expertise in quality control and quality assurance.
ii. Bad coordination between his side and that of the contractor.
iii. Not monitoring the progress of the jobs done in-site and unprofessional schedule management.
iv. Not holding job progress meetings with the Contractor and the Employer (Owner).
v. Improper record management.

**Evaluation and Selection of Consultants and Contractors**
As per PEC and Public Procurement Regulatory Authority PPRA rules 2004, it requires public organizations to award contracts to the lowest responsive bidder
through open competitive bidding. The majority of public sector construction contracts continue to be awarded solely based on the lowest bid price [V].

**Project Management**

It is often true that a good project, if combined with poor project management, will usually face serious difficulties (Nega, 2008). Generally, neither clients nor contractors and consultants deploy advanced project management software and IT tools as a practice and utilizing the advantages of IT and project management software such as Primavera or Microsoft Project.

**Political interference and terrorism**

Projects are generally identified by the political elite, with grass root stakeholders seldom involved or consulted and little or no coordination between provincial agencies. This approach has been responsible for numerous project failures. The pending projects in previous political government are not usually supported by the new government and often unattended due to this dirty democracy politics. The new government who is trying to bring reforms often suspends or completely stops the running projects as a result of implementation of new unrealistic laws and unclear policies [XI], [VIII].

Security is the main concern of the terrorist-affected areas and the main contributing factors includes: non-availability of skilled labors, plants, equipment, construction material and local repairing facility, kidnapping threat, travelling of high officials of consultants and contractors, transportation of supplies/equipment are to be monitored and moved with security elements, non-availability of personals with qualification, skills and experience [VIII].

**Unethical Practices**

Unethical practices lead to corruption, financial misappropriation, embezzlement and fraudulent cases and directly deteriorate the overall performance of the projects. Construction Management Association of America (CMAA), in their survey in year 2004 indicated that bid shopping, change order game, payment games and claim game are the most critical ethical issues (Management Consulting, CMAA (2004). The companies which lack the capacity to execute the works offer and win their bids due to lowest bid; resultantly engage into practices to earn profit by compromising on quality, specifications and safety and hazard issues. (Khumalo, et al (2008)-Aliza A, et al (2010)) [XI].

In Pakistan unwritten procedures and fixed financial charges for procedures such as; obtaining successful pre-qualification or enlisting with client organizations; for facilitation in winning a contract; for having an audit objection cleared or expedited; for obtaining timely approvals of work and release of payments etc are common. Most of the time the Engineer becomes a party to his employer for all aspects of contracts administration and keeping in view the limited available business opportunities, becomes “stooges” and “compliant consulting firms” disregarding the FIDIC rules and regulations in administering the contract in particular the contractor’s rights to claim. (Engr. Pervaiz Gani, MSc. Engg-UK)

**CASE STUDY**

The case study being discussed in detail consists of construction of Earth core rock
filled Dam in tribal area of Pakistan, aimed mainly for irrigation purpose with a water supply scheme. It is hoped that different lessons will be learnt from the case study.

An Earth Filled Irrigation Dam project

Project Area and security

The project is situated in war-ridden tribal belt of Pakistani border area with Afghanistan, affected by the activities of a militant local-foreign group TTP which started in 1997 and flushed out with the military operations by Pakistan Armed forces. These militants now deploying at border areas in Afghanistan are a big threat to the government officials and staff working in the tribal areas.

Sponsoring Status

Administrative approval of the project was given in March 2014 and was being sponsored by Secretariat for Tribal areas under the concerned Ministry of federal government.

Feasibility and detailed design (PC-1)

Feasibility study for the scheme was carried out by an experienced local Consultancy firm in association with two other local firms and submitted PC-1 in Sep, 2014 prepared on the basis of guidelines provided by the Planning Commission and was checked by officials of the executing agency (The Client) and had been based on CSR 2013 plus 8% area factor for tribal agency, whereas cost of non schedule items had been based on market rates. PC-1 submitted to the Planning Commission, stated that:

- Dam would cost Rs. 590.636 million.
- Tentative start date was January, 2015
- Completion date: December, 2016.
- The implementation of the project was planned for 24 months.

Procurement method, selection of contractor and consultants

Single Stage – One Envelope Procedure of Open-Competitive Bidding Methods of Procurement (the technical and financial offer are combined and presented in a single envelope) was adopted by client and in response to notice inviting tenders in June, 2015 for the scheme only two contractors applied for the tender and submitted their bids. The reasons behind limited No of contractors were:

i. Hard and remote area factor: The contractors realized that there would be problems in hiring machinery, skilled labor and staff, local repairing facility of plant /equipment and machinery, transportation of plants, equipment and construction material to project site, kidnapping threat, Risk of attack from terrorists, High Overheads and royalties to militant groups and security arrangement making the progress slow.

ii. Unavailability of finance for 2% Bid security (PKR 10.88 million) and 10% Performance security PKR 54.43 million at the time of contract Agreement.

So contractors were not willing to invest 65 million PKR right at the start of the project. Whereas the security at site and during movements from and to the site was the responsibility of the contractor. The contract was awarded to the lowest bidder at 10% below (489.882 millions) on Tender cost of 544.313 million. The contractor winning the bid had relevant experience of completing two dams with the same client. One of the two projects already completed by the contractor, situated near the project area and I came to know that even after passage of several years there are still
unresolved disputes between the main contractor and his local partners who had managed and completed the project at site.

The Public Procurement Rules 2004 (PPR-2004) were followed for the evaluation and selection of consulting firms and the procurement method used was single-stage two-envelope of Quality and Cost based Selection Method (QCBS) consideration the following factors:

(i) Qualification (ii) General experience (iii) Specific experience (iv) past performance.

The technical and financial proposals were evaluated where a weight of 80% was given to Technical Score (Q) and weight of 20% to Cost Score (C). The bid found to be the lowest evaluated bid was accepted. In order to familiarize with the project and local conditions, the consulting firms was advised to visit the project area of dam site. However the consultant awarded the contract in this case had not visited nor familiarized itself with the site conditions, rather was interested to win the job.

**Mobilization of Consultants and Contractors**

The detailed design was based on geotechnical investigation (1st) carried out at dam site during feasibility stage by joint venture of experienced consultants and PC-1 cost was based on these tender detailed drawings. The consultants during feasibility stage had hired a private boring party and a firm for geotechnical survey, testing and reporting. The PC-1 cost was $590.636 million and consisted of following:

- Preliminary items (Land Acquisitions) - Works Items (Construction costs) - General Items (supervision costs) - Others (Escalation).

- Letter of Acceptance was given to successful bidder on date: 16th October, 2015.
- Contract Agreement was signed between the parties on Date: 13th November, 2015.
- Commencement Notice was issued to the contractor on date: 20th November, 2015.
- Time of Completion was 720 calendar days from the date of receipt of this notice and it constitutes a period of two years.
- Mobilization Advance (10 % of Bid price) was paid to the contractor as a financial assistance by client in two equal installments during mobilization at the start of project. The total mobilization amount paid was PKR 73.496 millions.

The hired consultant (lowest bid) also mobilized at site to supervise the execution of the project and secondly to review the PC1-based detailed design.

**Relieve of consultant**

After mobilization the consultant realized that the detailed supervision of the project along with design review was a tough job due to the following reasons:

(i) Security situation of the area affected by terrorism and restricted movement of technical staff.

(ii) Ambiguities in design and PC-1 that would lead to major changes in the scope of work.

(iii) During the feasibility and detailed design stages the geotechnical investigation (1st) conducted in May, 2013 was full of data gaps and flaws,
the survey points were missing and the original ground elevation differed from the levels shown on design sheets. The consultant finally concluded that the geotechnical investigation, the topographic survey and hence the entire design might need to be revised. Upon the verbal request of Client, the contractor at his own expense started the geotechnical investigation (2nd) in March 2016 which was being supervised by the consultant’s geologist. Drilling was abandoned in Nullah bed due to flooding during those days. But unfortunately in April 2016 when the geotechnical investigation was in progress, a team of contractor and Client’s officials got kidnapped by militants while moving to another Dam project in the same region. The staff was held in custody for two months and later released for which the contractor had to pay huge amount. The investigation was left uncompleted. The total cost incurred by the contractor was 3.5 million PKR. After this incident the consultant totally lost his interest and finally ended up with the cancellation of the contract in June 2016.

The contractor in the meanwhile after mobilization on 25th Nov, 2015 with certain necessary machinery remained at site for five months with no work. Later on the machinery was shifted to another Dam project which was also being executed by the same contractor in this region. The contractor claimed that he had faced a loss of 4.0 million PKR/month during this period.

**Appointment of new consultant**

In July 2016 a new consultant was appointed and I performed as a Resident Engineer on this project. I visited the site in July 2016 and submitted the visit report stating that the previously done topographic survey and investigation boring were full of ambiguities and errors and that the Dam must be redesigned after fresh topographic survey and geotechnical investigation. This would result in complete revision of design and PC-1, changes in scope and cost of the project. The Client was agreed and we started the survey and geotechnical boring (3rd) at dam site finishing it by Nov, 2016. During this period I came to know that the drilling party for geotechnical boring during feasibility and detailed design stage was hired upon the will of one of the official of Client for which he had been benefited in the form of commission for this service. The party could not perform professionally and tried to save cost and complete the job early while working in hard area. Our firm hired a designer for the job but he could not provide the design after wasting three months. Probably the designer was not happy while dealing with the firm. Another designer was hired and a detailed design was undertaken. Several design proposals were taken into consideration but the firm had to adopt the design proposal which better suited the Client’s wish of keeping the project cost below 900 millions avoiding the scope of the works. The consultant was being paid by the Client for investigation surveys and redesign.

**Start of construction activities**

The design was not final when the contractor was directed by the Client to move the machinery to site and start activities. The consultants had to provide provisional drawings to start the excavation work. The contractor started the work in Feb, 2017. The main contractor with inadequate financial resources had been in a partnership with three local businessmen for these two dam projects. The main contractor was not able to visit the site due to some business disputes in the past with the locals so the project was being run by these non-conversant partners with no
management capabilities, lack of understanding, poor performance and coordination and was not able to even submit the work schedule.

The designer hired by our firm, due to multiple jobs, was slow at design work but fortunately the poor performance of contractor became a hide for the firm otherwise there would be serious issues regarding late provision of construction drawings suffering the progress of the project.

**Submittal of Construction drawings and Revised PC-I**

In Aug 2017, the revised PC-1 was submitted for approval with revised cost of Rs 900.80 million; 52% over the original PC-1 cost of 590.636 million. The scope of the project drastically changed, which increased the cost accordingly. The designer was able to submit the detailed design and PC-1 after spending 9 months since the investigation and Topo survey were completed in November; 2016.

**Project Management by the Contractor**

Lack of technical person, financial incapability, ineffective management and technique, lack of awareness about management system, communication gap among project participants and disputes among the partners contributed to poor project performance. The average progress per month was 1% up to Nov, 2017. In Nov, 2017 the project was undertaken by the main contractor after the decision of tribal jirga formed for the resolution of disputes among the partners. From Feb, 2017 to Dec, 2017 the contractor could submit only one payment certificate amounting 35 million PKR which was paid after preparing Technical sanction on PC-1. Contractor could not installed aggregate crush plant and batching plant nor start concrete works even after assistance of PKR 73.496 million by the client in the form of mobilization advance which was used by the contractor in paying the debt arranged by him to cover the charges of bid security and the performance guarantee during tendering stage.

The client could not judge the financial capabilities of the contractor and awarded two projects costing 1.90 billion PKR to a single contractor who even did not have enough finance to pay bid securities. The consultant strongly realized that the main contractor had to sublet the works on unit rate system to skilled and experienced subcontractors. The contractor could submit the first work schedule in Mar, 2018. The average monthly progress of the contractor from Nov, 2017 to Mar, 2018 remained 0.35% which was lower than the progress achieved by the inexperienced partners.

The contractor was paid second payment certificate based on T.S (PC-1) in Apr, 2018 amounting to 37.5 million PKR and included some advance payment in order to assist the contractor financially and to make him able to boost the progress. Although it was illegal yet there was no other solution. The progress reports were being submitted to Client by consultants every month describing the project status and copies of notices/letters were being forwarded but no serious action taken by the Client. Even after payment of the running bill the contractor could not manage to improve upon the status of the project. The averaged monthly progress remained under 1% up to August, 2018.

**Approval of Revised PC-I**

The revised PC-1 submitted in Aug, 2017 was got approved from Central Development Working Party, CDWP department of Planning commission in June, 2018 after elapse of ten months.
The following were decided:

- Approved cost of the project was Rs. 876.80 million (a variation of 48.45% over PC-1).
- Tentative start date was Feb, 2017
- Completion date: December, 2019. (Project period was kept 34 months).

The project cost estimated by the designer after careful calculations and considering the client’s wish to keep the cost below 900 million, was Rs 900.80 million against my proposal of keeping the cost up to 998 million to cover any undue change in scope of the work. The cost approved by designer was not fulfilling the scope of the project as he had not considered a major earthwork item costing to Rs: 50 million. I had to struggle a lot in convincing the designer to incorporate it in the revised estimate and it was a serious negligence by the designer avoiding such necessary item that would be a cause of major dispute as the contractor has to do a work of 50 million without being paid by the client and for which no provision had been given in Revised PC-1. I highlighted this matter before CEO of our firm and then Client’s personnel was contacted to confirm if there was provision for revision of the cost under approved revised PC-1. But there was no such provisions as per agency rules and the project would be finished within this cost. A meeting was then called in our main office attended by the designer. The designer suggested that the surplus quantity 350000.0 cum to be cut for construction of dam body, which was not incorporated in the revised PC-1 estimation, would be declared as a borrow for construction of dam body and the contractor would use the cut material in the construction of dam embankment. This would be mentioned in detailed construction drawings during submittal and the technical sanction on Revised PC-1. The consultant was struggling to provide a hide for this mistake and put the burden over contractor’s shoulder protecting their interest over looking contractor’s rights given by FIDIC, disregarding the FIDIC rules and regulations ,General Conditions of Contract clause 2.4 : “Engineer to act impartially” in administering the contract in particular the contractor’s rights to claim. But the contractor was demanding for being paid for this huge cut which was beyond his scope of work. I better knew that this was going to be a cause of claim by the contractor.

Another big mistake done by the planning commission, which gives approval of public sector projects was to cut the cost of protection works of hilly road, being constructed at dam site, without raising any technical reason instead was happy to reduce the road cost in the revised PC-1 by 24 million, for which the consultant had to remove the necessary items in BOQ under road structure (base course and blacktopping) and protection works (retaining walls, culverts, slope protection etc). Due to this reduction the revised PC-1 cost was set to Rs. 876.80 million against the submitted cost of Rs 900.80 million. One can imagine what will be the serviceability of a hilly road, without blacktopping and road protection works in an area where frequent rainfall occurs, and which runs along dam reservoir impounded with water.

Un-Ethical Practices & Professionalism

Although the Client was good enough not to interfere in the construction supervision of consultant at site yet its power-drunk officials, nonqualified and incompetent in project management methods, always showed superiority and misconduct/unfair conduct with contractor’s and Consultant’s personnel and always prepared to shift unfairly the burden of responsibility on the shoulders of consultants and contractors.
when it should actually be the client that should be responsible. The main interest of the Client was focused on certification of contractor’s payment bills and it was a norm in the agency to pay financial charges (commission) up to 5%-6% to officials by contractors for release of payments under contractor’s payment certificates. For this purpose officials were trying to pressurize the Resident Engineers for advance payments and were succeeded only where the Resident Engineers had personal dealings with contractor to get constant percentage of 1%-2% per payable amount under each running bill for this illegal favor. I was aware of one such situation in a project where the contractor was paid an advance amount of 140 million PKR in nine running bills by the supervisory consultant that was in party with the Client who was already willing to pay advance to the contractor and they did it for their personal gains and interests. The contractor with no financial resources has not yet completed the works for which he has been paid 140 million amounts.

The designer in case of my project had mistaken a deficit of amount of 70 million while estimating revised PC-1 cost mainly due to non professional and non technical behavior of Client who was forcing the designer to keep the revised PC-1 cost below 900 million for unknown reasons. On the other hand the client could not defend the cost of village road in the submitted revised PC1 which was reduced by planning commission, as stated earlier.

My firm consciously underestimated the revised budget of the project fulfilling Client’s desire and now was persuading the contractor to provide a cover for this mistake at the cost of 50 million.

These consultant firms getting the supervisory contracts at lowest rates were forcing the site supervisory staff to get benefited from the contractor to fulfill the running, furnishing and maintenance expenditures at site for which they were being paid by the Client. This ugly practice by the C.E.Os of consultants just for the sake of earning money was creating a disrespectful and painful working environment where the contractor was happy to use this weakness of consultancy for his own purposes, getting favor for advance payments.

A consultancy firm was hiring non-technical and fresh staff at lowest salaries on key posts, which was proving detriment not only for the consultant itself but the client also showed dissatisfaction over the poor performance of site supervisory staff. The Client being aware of this matter did not take any action as was also being benefited by the consultant during tendering and selection processes. I became aware of a project for which the consultancy firm was selected by the Client’s officials after getting benefited by the firm in the form of 4-5 million PKR service charges, and the firm was not scoring the required points, technically and financially, necessary for selection.

**New political government and its Reforms**

In Aug, 2018 the new government in a wish to bring reforms in FATA, announced the integration of FATA into KPK province. The client working under federal government was notified by federal ministry for the merger of Client’s officials with the provisional departments, as the government blamed the agency, which was meant for executing development projects in tribal areas, for lack of will, mismanagement and lack of cooperation between tribal Secretariat and the agency, not achieving its desired objectives. So a decision was being made to close down the agency. This
decision had adverse effect on all the projects being executed by the agency in tribal belt which included 7 dams and 15 Irrigation schemes. The funds were ceased and payment certificates were not being paid and the officials were fighting with the federal government for their survival. Another notification was issued to extend the responsibilities of the agency up to June, 2019 and that after June, 2019 the agency would be merged in provincial development sector agencies. In Jan, 2019 insufficient funds were released to the agency for the payment of running bills. The contractor was paid the 3rd payment certificate in March 2019 which was submitted in July, 2018.

The consultant invoices were also pending and the site supervisory staff was advised by the concerned consultancy firms to search for another job as due to unclear situation the salaries might be lost. Most of the staff left the projects while the remaining is looking for good times. Due to new government policies the construction industry as a whole came to stop and unemployment created across the country. The average monthly progress from Aug, 2018 to March 2019 remained 0.1% against the required monthly progress of 5.5% as per submitted schedule by the contractor. The overall progress of the project was 16% against the target progress of 75.95% in the revised schedule. The Client, contractors and the consultants in agreements with the agency did not have any idea about criteria of transferring the projects to provisional project executing agencies and are waiting for June, 2019.

**Lesson learnt from the case study**

The case study clearly demonstrates the presence of deep rooted systematic problems related to:

- **Client** is ineffective in playing his official role in coordination with the political administration and law enforcing agencies to secure the project from terrorist and local tribes who are hostile towards NGOs and government organizations.
- **Client** has inadequate capacity to plan, procure, program, administer and manage projects mismatched project funding needs and actual availability of funds.
- Flawed procurement procedure, pre-qualification and lowest bidder award criteria suffer project performance.
- **Client** has no in-house technical capability to review the submitted technical reports and construction drawings at project initiation stage and detailed design stage.
- There is no solid and effective scrutiny procedure to verify the contractor during selection process against the financial capabilities, technicality, resources and past performance.
- No proper project monitoring methodology exists with the **Client** which will help clients well informed and aware of site matters through their technical personals.
- There is a big question regarding impartiality of the “Engineer” as per FIDIC clauses, which is appointed by the **Client** and mostly plays his technical role to safeguard the needs of **Client**.
- **The contractor** has to pay huge amount in the form of bid security and performance guarantee at early stage of project and the **Client** retains additional 10% amount from every running bill during execution.
Pakistan contracting companies lack in efficient project management methods, tools and latest techniques, organization break down structure, unaware of their rights under FIDIC and mostly rely on consultants and Clients for their growth.

- Corruption and bribery among consultants and clients are the key causes which hinder proper project implementation under FIDIC, PEC by-laws.
- Political instability and change in country laws and legislation badly suffer project performance.
- Illegal dark unwritten procedures and related fixed charges are accepted as the ‘norm’ by the contractor because of inadequacies present in the “business system,” documentation and contract administration.

IV. Conclusions, Discussions and Recommendations

The conclusions are given along with discussions and recommendations to have better understanding of the problems and the suggested solutions.

I. In Pakistan, the most common procurement method in PEC and PPRA regulations for public sector projects is the lowest bidder system in which contracts are awarded to a responsive contractor who offers the least price. In last twenty to thirty years, the prequalification criteria and bidding processes have not seen much advancement and are still in their old form, outdated, defective and non transparent which has inherent flaws of high competition and minimum performance regarding cost, time, quality and other parameters. Researcher in their studies showed that:

- Almost 83% of all the public projects are awarded to responsive bidders with the least price offers.
- More than 50% of the construction projects awarded on low-bid criteria overrun the budget and end up with a higher cost.
- More than half of the lowest bidders are normally reluctant to accept change orders, unless it is more profitable.
- More than 90% of the construction professionals suggest that Construction projects should not be always given to the lowest bidder and the quality of the finished project will be improved if performed by the non lowest bidder and project can be completed before stipulated time.
- Collusion/Bid shopping is a malpractice and studies shows that this practice prevails in 62 % of the cases in Pakistan construction industry.
- The idea of new methods for bidding was highly appreciated by the construction professionals to get ultimate results.

Recommendation:

Following contract award method is recommended as Alternative Methods of Procurement:

- Multi-Parameter Bidding Method
This is a model based competitive bidding which not only on caters for cost but also considers other parameters as proposed by Herbsman and Ellis; they named it the multi-parameter bidding procedure (Herbsman et al., 1992). In Multi-Parameter Bidding Method, time and quality parameters are assigned a maximum number of attainable points. In this method a “total combined cost “will come up
after applying all these factors. Researchers showed that Multi parameter bidding contain as many parameters as desired by the client and may have edge on the traditional lowest bidding method.

- **Around 70% of the respondents appreciated and supported the idea of multi parameter bidding.**

- **Management Contracting**
  In this method of procurement the "Management Contractor' takes the responsibility of co-ordination of the whole project from the beginning to completion with no direct involvement in design and construction to meet the requirements of the client and to complete the project on time, at the appropriate cost and to achieve high quality standards.

  *This system is being used by Turkey for major infrastructure and complex housing projects on joint venture basis with the involvement of foreign companies with management contracting expertise and this procurement method has gained popularity in Turkey. Malaysia is also using this method with HR from private sector.*

  The management contractor performs following duties:
  - Operates under a specific charter granting it responsibility for all aspects of the project, engages firms or a consortium of firms comprising financiers (could be public/GoP), consultants and construction contractors and has a limited life span – contract base.
  - responsible to the client for all project procurement and execution, and may even include detailed design-responsible for on-time delivery and within budgetary constraints,
  - may also be made responsible for operation and maintenance of a project for a limited time or even on a Build Operate and Transfer (BOT) projects.
  - To train Local personnel in specialized skills.

- **New procurement methods**
  New procurement methods should be imported from the Malaysia, Singapore, Turkey and West, building comprehensive model to test the appropriateness/effectiveness of these methods with necessary adaptation as per country situation to support their suitability.

II. A **weak regulatory system** exists in the construction industry of Pakistan. PEC has weak institutional capacity on part of the government to select, monitor and regulate consulting and contracting services. The regulations of two statutory federal government bodies, namely PPRA and PEC are enforceable at its own domain with contradiction. In the absence of an effective regulatory body the client plays the role of a regulator to a great extent through flawed and one sided contract documents that are generally in use of most departments, except for a few like the Water and Power Development Authority (WAPDA), the National Highways Authority (NHA), and Oil and Gas Development Corporation (OGDC), who have worked with international agencies.
Recommendation:
- PPRA and PEC should be restructured and adequately funded and staffed so that they are able to competently regulate and develop the construction sector.
- PEC should decrease the cost of doing business by reducing overlapping and redundant legislative requirements across all levels of government; federal, provincial, local and district.
- PEC should create a legislative environment for balancing the industry risk through balanced contracts, providing for adequate and full compensation for escalation in prices, and efficient dispute resolution mechanisms, establishing efficient prequalification procedures including the evaluation criteria, which eliminate incompetent contractors, reward competency and provide opportunities for fair competition.
- PEC through establishing high level liaison between government and construction industry provide strong government support, and strengthen and promote trade associations.
- Set targets, select relevant performance indicators for the construction industry and monitor and evaluate change on a continuous basis, ensure strict and fair accountability procedures.
- Improve charge rates and set minimum salaries rates for professional services and professional jobs (at present, professionals are paid 1/6th to 1/12th compared to the remuneration paid in regional countries) and review and update CSR/construction rates in the industry as per revisions of prices in the country.

III. There is weak human resource facility for engineers in the bureaucratic structure of the federal government at higher management (Grade 21-22) despite the fact that about 5 divisions of the federal government – housing, water resources, power, communications and railways – carry out purely engineering related business and another eight divisions involve a substantial amount of engineering work and except for the Railways Division, there is no engineer serving at grade-22 in the entire bureaucratic structure of the federal government, while only one engineer is working in grade-21. Due to presence of non-technical policy makers, there is lack of government commitment/will; absence of long-term vision and planning for bringing reforms in the construction industry [X].

Recommendation:
- GoP needs (i) appointment of qualified engineers as secretaries of those five divisions the bulk of whose business is professional engineering work; (ii) appointment of qualified engineers in senior management positions (BS-20, 21 or 22) in those eight divisions whose business includes a substantial amount of professional engineering work; (iii) appointment of qualified engineers against all such posts in the service of the federal government which require substantial engagement in professional engineering work.
- Developments of construction industry in Singapore, Malaysia and China over the past two to four decades provide a good example to GOP.

Singapore recognizing the importance of construction industry has continuously developed and changed the business/culture environment with comprehensive
long-term approach through a strategy addressing HR, materials, technology, corporate development, improved documentation procedures, procurement, contracts, operating environments, payment chains, trade associations and institution building.

IV. Traditional pre-qualification processes continue to rely on information directly required for submission by the applicant and assessed by the client who in most of the cases satisfies himself on the theoretical stated past performance of bid submitter in relation to completion of projects similar to current project.

Recommendation: Clients should have a mechanism of external information in coordination with PEC which authenticates the applicant’s information relating to involvement in current projects, and defines his current status, actual resources to carry out the project, latest performance of the applicant. Employers should regularly verify information submitted for prequalification.

V. There is Lack of strategies and legal framework for implementing construction projects effectively in insecure tribal/remote regions of Pakistan and to address the political instability in the country. Due to instability and insecurity, foreign investors lose confidence; drain out there capital from Pakistan. Like all other developing countries, Pakistan also depends upon the foreign direct investment. Donor Agencies avoid financing any development projects and large contracting firms are reluctant to bid projects in these areas. The change in political government and hence its new policies generally becomes the reason for suspended or closed projects for which the contractors has to suffer heavy loss.

Recommendation:
Client has to play his major role in executing development projects in insecure, problematic, war affected and hard tribal areas of KP and Balochistan as well, with the following suggestions:
- Invest more resources/ efforts in order to draft a standard contract based on FIDIC to determine the potential risks, ownerships of the risks associated with obstacles by locals, non-availability of materials, roads closure, lack of raw material, safety, security, risk area, funding, security, and views of the local natives, corresponding with political, civil, and military representatives to find the appropriate actions well before the occurrences of unwanted events. The Client should include risk premium in cost & time estimation in the tenders particularly the Resettlement Action Plan (RAP) should be attributed to a good understanding of local-social structures and ability to work with local leaders.

- GoP strategic security plan for CPEC Corridor included dispatch of 2000 police officers from Sindh province, 5000 police officers from Punjab, and deployment of 12,000 troops from Pakistani Army to safeguard the CPEC route. China planed to transfer 4 ships to the Maritime Security Agency with two ships. For territorial security, Pakistan has formed the Special Security Division and plans to train 12,000 security personnel to protect Chinese workers on the corridor. As of August 2015, 8,000 Pakistani security officials were deployed for the protection of over 8,100 Chinese workers in Pakistan.

- Prequalification of regional contractors of the area should be carried out to shortlist the best contractors for work on the basis of assessed financial capacity of Contractors in enlistment category. The performance security 10% should be
submitted @ 5% at bid time and the remaining 5% should be deducted from each running bill @ 5% replacing the retention money which is usually deducted from each running bill. The contractors executing projects in these areas should be exempted from income tax. Mobilization advance should be paid in two equal installments 10% each with total Mob. Adv of 20% for these areas. This will encourage and attract experienced contractors.

Another option is negotiated contract with the construction organization directly run by Armed forces which is very successful in performing projects in tribal/insecure areas as the organization has self protection procedures/SOPs with good command and control system but there is one drawback that is lack of technicality, skills and inadequate construction knowledge of top mangers (army officials), military protocols verses civil administrative nature, lack of cooperation, coordination, respect which in most of the cases suffers the project performance regarding the quality aspect. The high ranked think tankers of the organization has to reshape the way of doing business with non-army stakeholders, train and educate the top managers/command to perform best in managing the construction projects which is their main task as army officials of a construction organization owned by the army.

VI. There is shortage of competent, professional, honest and adequately skilled personnel and managers in the construction industry of Pakistan amongst clients, contractors and consultants in the form of contract management, time management, financial management, risk management, Schedule management, HR management, Resource management, Quality control management, Procurement and for field operations with the existence of ugly environment of Corruption and bribery, Unfair Conduct and unethical behavior giving birth to illegal claims, advanced payments to contractors, bid shopping, conflicts of interests, cover pricing and compensation of tendering costs, illegal variations etc.

Recommendation:
- The GoP should develop long-term vision and policy for the industry supported by a coherent strategy that focuses on enhancing public-private partnerships; bringing regulatory reforms; improving upon reforms in governance structure, removing corruption and focusing on developing the required pool of skilled HR, changing mindsets and improving culture of government agencies.
- The GoP (Federal/Provisional) should change/enhance managerial and professional capacity of top managers heading the Project executing agencies in order to better identify and appraise project needs, determine scope and content of services required, as well as qualifications of firms to be engaged and the appropriate criteria for selection, developing realistic budgets (without undue emphasis on cost saving at the expense of quality of outputs) and improved contract administration and in tackling the competent and qualified human resource problem. The managers should be trained in relevant areas with international best practices. GoP through PEC should focus on:
  • Promote continued learning and promotion to a higher level must be conditioned with learning of further management skills, specialized training, technical continuing education and relevant certificate courses. Salary incentives such as rewards and bonuses should be introduced to motivate the managers to learn and improve on their work.
Countries like Belgium, France, Germany and Italy require employers to pay part or full remuneration to workers who take leave for further training.

Malaysia has set up The Human Resource Development Fund (HRDF), being emulated widely, to facilitate and encourage employers in the private sector to systematically retain and upgrade the skills of the workforce in line with their business plans and national development. The trust fund is exclusively for training purposes of private sector employees. 100% expenses are paid in most cases. Training needs are identified by the private sector themselves and provided through approved private sector training firms, the firms themselves (on the job and/or off the job), can be local or overseas. The trust fund is managed by the private sector.

PEC as the regulator of engineering education and profession should revise/change/update curriculum in universities and technical institutes keeping in view the construction industry needs at all levels bringing new generation education syllabus and methods equipped with latest technology. Construction engineering should be introduced as a subject.

Promote technical training for allied professionals and institutionalize linkages between academia and the industry to ensure relevance of curriculum covering technical subjects that are important to the national economy.

The participation of foreign companies which have a well defined training component for local firms should be encouraged in the country for transfer of skills, knowledge, methodology and technology to local professional bodies and provide support through grants for training and education of all stakeholders.

A good example is of Korean contractors, who worked mostly as sub-contractors for large American companies after the Korean War, and were thus eventually able to transfer technology.

Guy F. Atkinson Company, a large contractor working on the Mangla Dam project in Pakistan, was very successful in training 20,000 workers The strategy included selection of workers with potential, enrolling them as trainees, giving initial briefings on the project and the goals of the company, imparting instructions using small scale models, giving field training with instructors, and finally allowing production under normal supervision. The same company on the Guri Dam project in Venezuela again used this successful model.

The Building and Construction Authority (BCA) Singapore, as intuitional support, provides opportunities for practitioners at all levels to upgrade their skills. It administers the Construction Industry Training Institute (CITI) which offers trades-level training and certification.

The Tanzania CRB (Contractors Registration Board) Holistic approach combines registration, regulation, and promotion of contractors along with provision of training at all levels, education in construction business management and skills up gradation.

GoP has planned a strategy of institutional support and training to local manpower by foreign firms during the CPEC project. In the strategy a number of private and non-profit organizations engaged in quality vocational and technical training, mainly in Karachi and Punjab, should be invited to set up similar facilities in other parts of the country where CPEC projects are being executed. In addition to this formal training, internships and attachments with Chinese
companies working on the projects should be made an integral part of the curriculum to produce skilled and trained technical manpower with different levels of expertise.

- Client should develop a strategy for on-site training program and make it compulsory for the construction companies to enroll fresh graduates and diploma holders and employ as junior engineers, trainee engineer, survey assistants etc with their firms at construction projects. The strategy should be made part of the contract documents where the contractors are abide by the contract agreement to provide training, messing, boarding and other facilities along with minimum acceptable remuneration based on their grades to this pool of human resource being trained. The staff performing satisfactorily can be employed in the construction firm after gaining adequate experience.

- Client should set attractive salaries and facilities in their contract with supervisory consultants firm for hiring staff on key and critical positions like Resident Engineers, Structure Engineers, Highway engineers, Material engineers, Surveyors, Senior Laboratory Technicians and make sure that the agreed salaries and facilities are being provided.

✓ At current, the consultants are paying only 40%-50% from contract salary package to their engineers and other staff. Most of the small consultants, being selected as the lowest-offer, in a wish to save money with least salary offer put the burden on site staff to fulfill their supervisory expenditures from contractor’s pocket and this practice promotes a culture of bribery and illegal dealings between the contractor and site staff affecting the project performance.

VII. The professionals, technical personnel amongst clients, contractors and consultants are uncomfortable with the English as a business language. There is lack of understanding the FIDIC Clauses, Specifications, work standards, ACI, AASHTO, and British codes, Contract documents, agreements etc.

Recommendation:

- PEC in consultation with industry stakeholders should develop the “Urdu” version of these documents incorporating English language also. This will bring awareness, learning and confident in the project staff. The contractor will be able to understand clearly the subjects of contract documents and aware of his rights and obligations under the contract. The supervision of works will be improved with clear and understandable formats of Specifications, codes and testing procedures in native language.

✓ Many countries like Germany, Finland, Israel, Norway, Russia, Switzerland, Taiwan, Afghanistan etc has official languages other than English and they prefer dealing in their native language.

VIII. Most of the constructing firms in Pakistan have weak organization breakdown structure and lack of technical and professional HR, have short term business plans with approach of just drawing money and become rich from the contracting business (for which the owners do not mind entering into illegal/unethical games with the stakeholders), rather than future growth and developing of the firms to serve the nation by producing state of the art outputs/facilities and play their role in the development of the country. Most of the contracting firms except a few ones could
not develop after being in the industry for two to three decades. The domestic construction firms with these inefficiencies have encouraged Chinese, South Korean, and European companies to grab large profitable contracts in Pakistan. The large contractors have a tendency to sublet 25% of work load to other firms. The smaller contractors (C2 and C3) with over half of the work done by them are as sub-contractors, and they in turn sublet almost 50 percent of their work to even smaller contractors.

Recommendation:
- The GoP should establish new separate organization for developing the industry as per best international practice or at least strengthen existing bodies to regulate the industry.
- GoP through reforms in registration Regulations, tax laws and related policies, legislation as in the banking and insurance sector, duties and taxes on spare parts, plant and equipment should promote growth of the industry and lower the cost of doing business.

✔ The government of Singapore recognizing the importance of construction industry has established industry development agencies which developed a long term strategic plan and vision for the industry to change it from the three D’s to the 3 P’s (i.e., from “dirty, dangerous and demanding” to one which is “professional, productive and progressive”). Decades of concerted and focused approach has now formed – a world class construction industry with exports risen from about S$118 million in 1984 to S$2.5 billion in 2004 to over 35 countries. Such industry development agencies are established in several developing countries such as India, Iran, China, South Africa, Malaysia, Tanzania, and Korea.
- PEC and PPRA should developed simple, transparent and efficient prequalification procedures based on technical and managerial capability instead of “works in hand” or “projects completed” criteria, which eliminate incompetent contractors. There is an almost non-existent practice of black-listing and eradication of poor performing contractors/consultants from the list.
- Client, to provide financial liquidity and assistance to contractors, should reshape rules regarding bid security, performance security, mobilization advance, income tax and retention money. As these high deductions restrict cash flows and impede project progress. There should be an ad hoc payment while the interim payment certificates are being processed to cover the cash flow problems of contractors as interruptions in funding, delays in running payments are recognized as key causes for poor performance of contractors. Identifying ways and factors of improving contractor’s performance in project delivery, the client will benefit most as contractors will deliver projects without a risk being placed on the client who is saddled with the ownership and occupation risks.
- Contractors should develop capacity building and business expansion attitude on long term basis with a mission of serving the nation and should form an efficient organization structure headed by skilled, qualified and empowered managers. The investment made in the form of attractive remuneration and facilities to the team will be returned in the form of efficient project management in the terms of planning, scheduling, budget monitoring, procurement, effective communication, technicality,
resource management, documentation etc which are key parameters for contractor performance and growing of firms and business development

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