ADAMA SCIENCE AND TECHNOLOGY UNIVERSITY
SCHOOL OF ENGINEERING
DEPARTMENT OF CIVIL ENGINEERING

(CONSTRUCTION MANAGEMENT)
Research

Factors affecting performance of contractors working on private building constructions in Addis Ababa.

A proposal submitted in partial fulfillment of the requirements for the Degree of Master's

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Abstract

The construction industry often acts as a catalyst to stimulate the growth of a nation's economy. The industry is often referred to as an engine of growth. However, numerous government reports have criticized the industry's poor performance, especially in terms of productivity, quality and quality systems. In order to improve performance, many construction companies implement the ISO 9000 series, an integrated system to ensure consistency and better performance of construction projects. The preliminary data for this research will be collected through a literature review and the use of a questionnaire survey targeted at some contractors, clients and consultants in some building construction projects. Few experts will be interviewed and their opinions will be taken to identify factors which affect contractor performance in building construction projects. The factors for contractor performance are then classified into twelve broad categories (Cost, Time, Quality, Management, Material, Worker, Health and Safety, Client Satisfaction, Environmental, Execution, Design and Documentation, Productivity) depending on their nature and mode of occurrence. An approach is suggested to carry out ranking of these contractor performance factors by Relative importance index technique. It is hoped that the findings of the paper will help the stakeholders to act on critical contractor performance factor and further try to improve performance of their projects.
Keywords: Contractor performance, Relative importance index, KPI, Contractor’s Performance Index. The possibility exists for any construction contractor to fail to filfill the contract requirements associated with a facility. Contractor failure occurs when a contractor is unable to perform his/her contractual duties, thus requiring the facility owner to invoke the contract's nonperformance clause. This paper provides aggregate contractor business failure statistics and outlines potential causes for failure. A framework to identify and quantify the associated costs is also introduced. Several case studies are presented to examine the cause and cost of failure and the means by which the facilities were completed. Alternatives available for project completion when contractor failure occurs are discussed. Recommendations to identify and monitor contractors at high risk for failure are outlined as well. This paper provides facility owners with a greater awareness of the possibility of contractor failure, how to quantify costs of contractor failure, and avoidance techniques.

Chapter one

1. Introduction

1.1. Background of study

It is quite obvious that the Construction industry is one of the most important industries in the world. It is Because of construction, we all live in homes, apartments, condominiums, and other living places. We drive on roads, move by trains, fly on planes, get power, drink water, that were created by construction. Most jobs are in buildings, which were also created by construction. The pace of the economic growth of any nation can be measured by the development of the physical infrastructure such as buildings, roads and bridges (Takin and Akintoye, 2002). Construction industry is complex in nature because it contains large number of project parties as clients, consultants, contractors, stakeholders, shareholders and regulators. To give you a general idea of why the Construction industry is so important as a market, the annual construction spending internationally is estimated to be $2.3 trillion (Russell, Seasonality in construction 2013). Ethiopian government spends around 70% of the annual capital budget on infrastructure. Contractors should be there to genuinely and ethically do the job. Nowadays it is not only about ethics but if one bypasses his/her professional ethics there is also a legal liability that awaits them. Accountability actually has to be shared among all the human elements I mentioned before, of course with varying degree of responsibility.

Evaluation and follow-up too, have to be done ethically and consistently. The practice is so gross you might well come across a case where once a licence is issued there is no follow-up. The owners end up building a G+8 building using a G+4 building permit. This is real in Addis. , Successful building construction projects are those projects finished on time, within budget, in accordance with specifications and to stakeholders' satisfaction (Chua *et al.,* 1999; Puspasari, 2005, Ogunsemi, 2006; Yaman, 2007; Cheng *et al.,* 2009; Cheng *et al.,* 2011). Studies were conducted to examine factors impacting on contractor's performance in developing countries like Ethiopia and identified that, Shortage of skills of manpower, poor supervision, poor site management, unsuitable leadership, shortage and breakdown of equipment among others contribute to poor performance of contractors.

Because of the mentioned problems above, this study is set out to identify the factors affecting the performance of contractors on building construction projects within Ethiopia particularly in Addis Ababa. This will assist clients in the choice of the right contractors to select for realizing their projects, and will help contractors to evaluate and reorganise their companies' structure and performance at different stages of the project cycle. And the government who spend 70% of the capital budget for this particular sector will have input to develop construction policies and to regularly evaluate the performance of construction companies.

1.2. Statement of problem

In building construction poor contractor's performance is one of the greatest reasons for collapse of structure, poor quality, delayed completion of projects and cost overrun which results to customer dissatisfaction and consequently has a negative impact on the growth of the national economy.

It used to be a joke, referring to a building that never exists but millions have been spent on. We used to laugh about that thinking we were immune. I strongly feel that it is becoming a reality here and now. It started somewhere in some region. We had health centre, elementary schools built – money spent but there's no building. In some universities it was heard a block went missing. The collapse of a five-storey building in Addis Ababa around cmc is not new. It just got so much attention. I know about similar incidents in Gonder – a three-storey building, and another three –storey building in Hawassa, a four-storey building in Wolayta collapses in the past couple of years and so on. I am sure this will not be the last in the capital. (Abebe Dinku Prof. Fortune may 11, 2016)

Present construction policies lack enough rules and regulations to control performance of construction companies. It should not be only the number of trucks you have or the mixers you have that give you a license, but also the performance of contractors must be properly and honestly evaluated every year by the respective ministry to renew license. Poor performers must be punished, and good performers must be encouraged, because it means a lot for the development of our country.

1.3. Objective of the study

1.3.1. General objective

The objective of this study focuses on the factors affecting performance of contractors in building construction projects.

1.3.2. Specific objective

This study specifically focuses on the following specific objectives. These are:

i. To identify factors affecting performance of contractors.

ii. To make recommendations to improve performance of contractors in building construction.

1.4. Significance of the study

After the study is successfully accomplished, it would obtain valuable significance for construction industries. Some anticipated benefits are listed as

1- To assist clients in the choice of the right contractors to select for realizing their projects,
2- To help contractors to evaluate and reorganise their companies' structure and performance at different stages of the project cycle.
3- To help the regulatory body (the government who spend 70% of the capital budget for this particular sector) develop construction policies and to regularly evaluate the performance of construction companies.
4- It helps to provide knowledge of building construction-related factors that affect the project's success.

1.5. Scope/delimitation of the study

Scope of the study are limited within building construction contractors. The study is also focused on for those contractors who working around Addis Ababa city involved in private commercial

building construction projects. It is because of A lot of contractors are easily obtained for data gathering during research work.

1.6. Limitation of the study

The study would be expected to phase some problems regarding with the confidentiality of performance related data's of the construction companies

Chapter Two

2. Literature review

2.1. Review of factors affecting contractor's performance from Previous Study

To measure contractors performance on construction project the suitable yardsticks are the quality of the work, delivery of project on time, the rate at which the contractor performs the work, Project completion to budget and Degree/Level of Clients Satisfaction. The most significant factors affecting contractor performance under project characteristics are site conditions, complexity of project and duration of project. It can be inferred that the conditions of a site, whether swampy, water-logged, having a steep terrain would affect the performance of the contractor. Also, the technical complexities to be encountered during the construction process and the estimated time for project completion would also have significant effect on contractor's performance. The three most significant of the client-related factors affecting contractors' performance are the financial capability of client, delay in approvals and delay of progress payment to contractors. Where interim certificates are not paid on time or the financial capability of the client is not consistent or where the client delays approvals of materials and other items, these could adversely affect contractor's performance. The three most significant subcontractor related factors affecting contractor performance are sub-contractors commitment to meet cost, time and quality targets, sub-contractors experience and literacy of subcontractors' work men. Where the contractor exhibits a lackadaisical attitude towards the work in terms of completing the work within the estimated budget, time and to the required quality, this adversely affects contractor's performance as he may militate against the overall progress of the project. The three most significant project management related factors are collaboration of project participants, quality, health and safety program and technical skill of the project manager. An effective quality, health and safety program, excellent collaboration of project participants and adequate technical skill of the project manager all would ensure good contractor performance on any 15construction project. Significant contractor related factors are management skill of site managers, contractors experience and size of labour force. An optimum site labour force is required where the labor is adequate to carry out a particular work on site. The experience of the contractor also takes its toll on his performance. Well-experienced contractors would have acquired information about the do's and don'ts of the construction process and this would therefore reflect in their performance. The major effects of performance of the contractor on construction projects are improved quality of work, minimal construction errors and mistakes, reduction in waste and reduced construction cost. The major causes of contractor's poor performance are inadequate or poor planning, mismanagement of funds, delay in making decisions and approvals by owner and affection for the use of low quality materials.

2.2. Key performance indicators

In this literature collected data was analyzed using an Importance Index. M. R. Lee et al. identified various contractors' key performance indicators and evaluate the performance in term of project duration, project quality and project cost, to investigate perception of client, consultant and contractor on contractor's KPI and finally to develop a framework for contractor's performance index for housing construction project. Hany Abd Elshakour M. et al. studied that statistical analysis of the collected responses regarding the degree of importance of the 47 performance indicators is provided using 10 most significant KPIs which include profitability, quality of service and work, growth, financial stability, cash flow, external customer satisfaction, safety, business efficiency, market share, and effectiveness of planning. Energy use, main water use, and impact on biodiversity are the lowest ranked indicators for measuring performance of construction companies. Hendrik J. Marx conclude that Contractors made a loss on 4% of all projects completed. Mechanical work (51%) and special work projects (52%) showed the highest percentage of projects with contractor profit of > 10%. The higher financially graded (7 - 9) contractors were less satisfied with the performance of their employers and agents. Contractors were satisfied (=80%) with the procurement / adjudication procedures followed, but the quality of the documentation / specifications received a slightly lower score. Only 42% of all contractors were paid on time, within 30 days, with the national and provincial departments being the worst performers. Contractors gave materials delivery for building projects the lowest score. Higher financially graded contractors (7 - 9) were less satisfied with the delivery capabilities of their materials suppliers. Only 42% of all contractors were paid on time.

2.3. FACTORS AFFECTING CONTRACTOR PERFORMANCE

As the outcome, total 91 factors that affect contractor performance may be encountered in a construction project were identified. The factors for contractor performance are then classified into twelve broad categories (Cost, Time, Quality, Management, Material, Worker, Health and Safety, Client Satisfaction, Environmental, Execution, Design and Documentation, Productivity) depending on their nature and mode of occurrence. List of 91 contractor performance factors in construction work are given as below.

1. Cost:

Cost is defined as the degree to which the general conditions promote the completion of a project within the estimated budget. Cost related factors are listed below:

- Cash flow of project
- Profit rate of project
- Material and equipment cost
- Project labor cost
- Project overtime cost
- Reward/Compensation cost
- Cost of rework
- Cost of variation orders
- Waste rate of materials
- Escalation of material prices

2. Time:

It is very important for construction projects to be completed on time, as the clients, users, stakeholders and the general public usually looks at project success from the macro view where their first criterion for project success appeared to be the completion time. Time related factors are listed below:

- Time Submission of Working Drawing
- Timely in Obtaining Permits, Conducting Inspections, etc.
- Site preparation time
- Planned time for construction
- Percentage of orders delivered late
- Time needed to implement variation orders
- Time needed to rectify defects
- Average delay in claim approval

 Average delay in regular payments

 Unavailability of resources

3. Quality:

In the construction industry, quality is defined as the totality of features required by a product or services to satisfy a given need, or fitness for purpose. In other words, the emphasis of quality in construction industry is on the ability to conform to established requirements. Requirements are the established characteristics of a product, process or service as specified in the contractual agreement and a characteristic is any specification or property that defines the nature of those products, processes or services, which are determined initially by the client. Quality related factors are listed below:

 Implementation of the QA/QC Plan

 Adequacy of the QA/QC Plan And Testing

 Conformance to plan and specification

 Unavailability of competent staff

 Quality of equipment and raw materials

4. Management:

Management play very crucial role in contractor performance. Poor planning and scheduling can resulting poor contractor performance. Suppose, some design related problem occurs than fast decision can take by top management improve contractor performance in construction work. Poor coordination among project participants leads poor contractor performance. A well management of resources by contractor will impact on their performance. Management related factors are listed below:

 Poor planning and scheduling

 Poor provision of information to project participants

 Poor coordination among project participants

 Slow in making decisions

 Coordination with Other Primes

 Coordination and Control of Subcontractors

 Professional Conduct

 Management of Personnel/Resources

 Provides Adequate Amount of Workforce, Materials and Equipment to Meet Schedule

 Job-Site Supervision

 Adequacy of Daily Work Log

 Review/Resolution of Subcontractor's Issues

 Practices Claim Avoidance and Minimization

 Compliance with Laws, Regulations, Permits, Inspections, Testing

5. Material:

Poor quality of material cannot meet construction specification so poor quality of material gives poor performance. Poor material handling can also leads poor contractor performance. Poor storage on construction site and inappropriate inventory mangement can not meet the specification. Waste of raw material should be minimum than it's make positive impact on contractor performance. Material related factors are listed below:

 Poor quality of materials

 Delay of material delivery to site

 Poor material handling on site

 poorly scheduled delivery of material to site

 Inappropriate/misuse of material

 Poor storage of material

 Waste of raw materials on site

 Material does not meet specification

 Loss of materials on site

 Too much material inventory on site

- Unnecessary material handling
- Damaged materials on site

6. Worker/People:

People are the most important resource in completing construction projects. The category of "people" relates to the skill of the tradesmen/laborer, its distribution on site, the effectiveness of supervisors/inspectors on site. The performance of field labor is critical to the success of any construction project. People related factors are listed below:

- Site condition problems
- Employee attitudes
- Recruitment and competence development
- Employees motivation
- belonging to work
- Lack of trades' skill
- Poor distribution of labor
- Too few supervisors/foremen

7. Health and Safety:

Health and safety are defined as the degrees to which the general conditions promote the completion of a project without major accidents or injuries. The measurement of safety is mainly focused on the construction period as most accidents occur during this stage. Throughout the world, construction industry is known as one of the most hazardous activities. Health and Safety related factors are listed below:

- Adequacy of Safety Plan
- Compliance with Worker Exposure Requirements
- Compliance with Drug/Alcohol Abuse Requirements
- Adequacy of Regulatory Compliance Documentation
- Application of health and safety factors in organization
- Project location is safe to reach

- Reportable accidents rate in project
- Assurance rate of project

8. Client's satisfaction:

Satisfaction is regarded as a function of comparison between an individual's perception of an outcome and its expectation for that outcome. In the construction industry, client's satisfaction has remained an elusive and challenging issue for some considerable time. Dissatisfaction is widely experienced by clients of the construction sector and may be caused by many aspects but is largely attributable to overrunning project costs, delayed completion, inferior quality and incompetent service providers including contractors and consultants. Client's satisfaction related factors are listed below:

- Extreme customer satisfaction
- Value of money
- Information coordination between owner and project parties
- Leadership skills for project manager
- Speed and reliability of service to owner
- Number of disputes between owner and project parties
- Number of rework incidents

9. Environment:

Climate condition is important for contractor performance. Suppose, contractor can work in monsoon season than the efficiency of the work is less. In hilly region site condition is affecting the contractor performance. Environment related factors are listed below:

- Site condition
- Wastes around the site
- Climate condition

10. Execution:

At execution time too much overtime for labor leads towards poor quality of work so, it will directly affect contractor performance. Proper construction method use on site so, it improves

contractor performance. At execution time construction equipment shortage can impact on performance of contractor. Execution related factors are listed below:

- Too much overtime for labor
- inappropriate construction methods
- Equipment shortage
- Poor equipment choice/ineffective equipment
- Outdated equipment
- Poor site layout

11. Design and Documentation:

Unclear specification, poor quality of site documentation, unclear site drawing are various factors that will leads to poor contractor performance. Design and Documentation related factors are listed below:

- Poor quality site documentation
- Unclear specifications
- Unclear site drawings supplied
- Slow drawing revision and distribution
- Design changes
- Poor Design

12. Productivity:

Numbers of project are more than less concentration of contractor over specified one project so that will be effect on contractor performance. Project complexity is high so it will require more experience people so overall cost will increase. That will directly effect on contractor performance. Productivity related factors are listed below:

- No. of Project/Year
- Project complexity

2.4. Constraints that affect performance of contractors

HABCON CONSULT has contracted with construction contractors association of Ethiopia (CCAE) and HABCON CONSULT, on March 30/2011, and conducted baseline survey on the existing constraints of the construction sector that are affecting the growth and performance of construction companies. The survey is conducted throughout all regions of the country including the two Administrative cities and on contractors registered at Federal Level; the survey has involved a sample of 244 contractors from different category and grades working in different regions of the country, the assessment have also included the view of 13 consultants and 9 major clients .The assessment was very comprehensive that last for about 8 months through involving more than 30 enumerators and different professionals from disciplines of civil engineering, construction management, economics, statistics, ethics and governance.

The following explanation is given in order to show how, the identified main constraints that affect growth and performance of construction companies at different stages of the project cycle.

a) CONSTRAINTS AFFECTING SUCCESSFUL PARTICIPATION OF CONTRACTORS IN THE BID PROCESS

Constraints affecting successful participation of contractors in the bid process are identified through assessment of risks in the pre-tendering phase and at the tendering phase. The major constraints identified include Non compliance of the bid process with the public procurement requirements, Non transparent and corrupt practice in setting qualification Requirements which favour specific bidder, Unattainable or unfair legal requirements, Unattainable, unfair and non practical license requirements, Inadequate capacity of local contractors to meet the bid requirement, Poor Specifications and lack of clarity in the bid documents which lead to fixing unpredictable price, The evaluation and award process that are not objective, transparent and do not base solely on the criteria published in the bid documents and External factors & market characteristics. The survey has also identified and assessed the influence of contributing factors which caused the constraints.

b) CONSTRAINTS THAT AFFECT THE AWARD PROCESS

Participants of the survey are asked the question for existence of constraints in terms of refusing award of a project after meeting the evaluation requirements stated in the bid document. The major constraints identified under this stage include practice of rebidding the project due to unavailability of budget, Setting improper evaluation criteria and procedure which leads to rebid, New requirement set by the client after the bid evaluation such as clients' assessment on the performance of the contractors' previous project , issue of capacity for handling the project, etc, Resistance of clients to award more than one project at similar time while this was not mentioned as requirement in the bid document, Refuse for award by the client because of very low and unpractical contract price for executing the project effectively and failure of the client/consultant to disclose evaluation result of the technical proposal which in turn limit or deprive the contractor to file any complain.

c) CONSTRAINTS THAT LEAD TO FAILURE OF CONTRACTORS TO SIGN CONTRACT AFTER BEING AWARDED

The survey has assessed the specific constraints that lead to failure of contractors to sign contract after being awarded. Accordingly the major constraints identified under this stage include quoting very low and unpractical contract price that cause difficulty for executing the project effectively, Unable to meet the high requirement of performance bond, Unable to meet the high requirement of advance payment/ collateral & cost of premium/, Late awareness about the complexity of the project, inaccessibility of the site, unavailability of labor, material or equipment etc., Unexpected financial crisis faced by your company, Rise of price on construction materials, labor, equipment and other inputs after submission of bid, which will not be entertained for price adjustment due to absence of provision in the bid document and Fear of adverse working relationship with the client/consultant.

d) CONSTRAINTS THAT AFFECT PERFORMANCE OF CONTRACTORS FOR COMPLETING PROJECTS WITHIN CONTRACTUALLY AGREED TIME

The survey has assessed the specific constraints that affect performance of contractors for completing projects within contractually agreed time including the reason for not meeting these performance requirements and the true cause for these constraints. Accordingly the main constraints are identified in the following three groups:-

i. CONSULTANT RELATED CONSTRAINTS

- Delay caused by variation works
- Delayed response for clarification of request'
- Delay in responding for price adjustment requests and insufficient compensation
- Failure to clearly specify what products or materials are required and prolonged dispute or delay in the approval process
- Poor contract administration practice

ii. CLIENT RELATED CONSTRAINTS

- Poor contract management of the client
- Change in requirement of the client
- Poor project financing(in terms of budget, payment)

iii. CONTRACTORS RELATED CONSTRAINTS

- poor contract & project management of the contractor
- Failure for timely supply of material
- Failure for timely supply of equipment
- lack of adequate finance to run the project

e) CONSTRAINTS AFFECTING PERFORMANCE OF CONTRACTORS FOR QUALITY DELIVERY OF PROJECTS

The survey has assessed specific constraints that contribute to the failure of contractors for completing Projects with the required Quality including factors that contribute to the prevalence of the constraints. Accordingly the following factors are identified under two major groups of constraints:-

i. DESIGNER AND REGULATORY BODY RELATED CONSTRAINTS

- Lack of clarity in specifying quality requirements, lack constructability and standardization of the elements specified by designers.
- Unavailability & high cost of products faced due to design requirements that specify "tailor made" elements

- Lack of specialized knowledge on product specification by the designers
- Use of obsolete technical specification which doesn't address quality requirements of all works and materials included in the contract
- Lack of clients' participation in the design process to select quality of products which meets their need
- High and unattainable quality requirement specified by the consultant
- Absence or limited number of testing agencies/laboratories in the country to ascertain required conformances

ii. CONTRACTORS RELATED CONSTRAINTS

- Unavailability of competent professionals and skilled labor which resulted in poor workmanship
- Using poor quality of equipment and inferior quality products to minimize cost
- Poor quality assessment system in organization
- Low investment on quality training
- Low level of management commitment
- Attitude of the management and professionals that meeting the required quality will result in an Increase of production processes costs and reduction of productivity
- Lack of uniform material quality from the stock of suppliers
- Laboratory test results are manipulated by the contractor and do not represent the actual quality of the material

f) CONSTRAINTS AFFECTING PERFORMANCE OF CONTRACTORS IN MEETING HEALTH AND SAFETY REQUIREMENTS

The survey has assessed specific constraints that contribute for failure of contractors to comply with health and safety requirements including factors that contribute to the prevalence of the constraints. Accordingly the following factors are identified under two major groups of constraints:-

i. DESIGNER AND REGULATORY BODY RELATED CONSTRAINTS

- Unavailability of enforcement practice for health and safety of workers will affect competitiveness of the contractor in investing for prevention and control of accidents
- Insurance policies are not effective in covering risks of accident and health hazard
- inadequate supervision of the consultant or inspection of regulatory bodies which contribute to the occurrence of accidents on construction sites
- Lack of strong health and safety provisions to prevent any possibility of occurrence of accidents on construction sites
- Lack of approval/certification requirements for compliance with loading, ground movement and disproportionate collapse

ii. CONTRACTORS RELATED CONSTRAINTS

- High cost of Providing personal protection equipment to workers exposed to hazard and other staff, Provision of drinkable water and proper sanitary facilities according to legal and contractual requirements is not considered in pricing your bid
- There is no organized system in contractors' organizations for preventing causes of health and safety problems in workers such as conducting safety meeting, recording and reporting encountered accidents
- Lack of knowledge and awareness on the issue of safety by the contractor
- Resistance and low awareness level of workers' to use accident protective equipments
- Unavailability of professionals (safety officers) in the area of health and safety to enforce requirements of the regulation.
- The use of inappropriate construction techniques in relation to safety on site
- The use of poor quality materials lead to the occurrence of accidents

g) CONSTRAINTS RELATED TO THE CURRENT PAYMENT PROCEDURE

The survey has assessed constraints related to the current payment procedure and their influence on performance and growth of contractors. Accordingly the following constraints are identified in relation to the current payment procedure:-

- The existing 30-days of provision to effect payment by the client is too long
- Indefinite delay of the consultant to process and approve payments for executed work & materials supplied to site

- Delay of the client to effect approved payments beyond 30 days
- Resistance of the consultant to approve equivalent value of the executed work and resistance to pay for materials supplied to site

Chapter Three

3. Research design and methodology

3.1. Source of data

The study will use available primary and secondary source of data as an input. As a primary source of data; direct observation of performance of contractors, questionnaires, interviews and qualitative and quantitative data are utilized. Data already collected and analyzed by someone else, journals, thesis and document from others organization is use as secondary source of data.

According to the Ethiopian Ministry of Urban Development and Construction (construction proxy web-site)

Federal registered Contractors in Ethiopia working as

GC (General Contractors),

BC (Building Contractors) and

RC (Road Contractors) registered in Ethiopian government listed below from grade 1up to grade 6.

grade 1	133
grade 2	53
grade 3	77
grade 4	539
grade 5	1249
grade 6	1071
Total	**3122**

Out of 3122 GC,BC & RC contractors 35% or 1,093 contractors are Building contractors and according to Adiss Ababa city administration municipality construction office 895 contractors are currently participating on construction of different story private commercial buildings.

3.2. Sampling procedure

Sampling techniques and participants

The study will collect the data by using both stratified random sampling and snowball sampling techniques from some project of grade four & five building construction contractors and stakeholders such as the construction project agencies, project managers, contractors, clients, and consultants.

Procedure

Questionnaire

In collecting all the necessary data from the sample, I will use the following procedure:

1. Classify the population and stakeholders by their profession

2. Take sample population (grade four and five building construction contractors) randomly from different location of Addis Ababa.

3. A questionnaire will distribute among the sample population (grade four and five building construction contractors).

4. Collect the questionnaire.

Interview

Personal interview: To collect data through personal interview, it will straight forward the first two procedures under questionnaire and then held the questionnaire as well.

Telephone interview: here the steps will be:

1. Take sample population (building construction project) randomly

2. Classify the population (building construction project and their stakeholders)

3. Interview the selected participant and asks him/her to identify other participants within their strata to become members of the sample.

3.3. Tools of data collection

Among the different tools used to collect data, study will use Direct observation of performance of contractors, questionnaire and both personal and telephone interview in collecting all the relevant data used to assess the performance of building construction projects.

3.4. Method of data analysis

Data analysis and interpretation

The collected data will then represented, grouped and coded to make it ready for analysis. After these, the study will use both descriptive and inferential statistics in analyzing the data. The software SPSS analyze the data and then interpret the analyzed data by using data tables, charts and graphs. Based on the collected data and care full analysis of the data factors affecting performance of contractors will be identified.

Chapter Four

4. Work plan

Scheduling of proper time and budget is important in any research activity to complete the study effectively as much as possible therefore the time schedule and cost budget for this research paper is presented as follow

4.1. Time schedule

Regular utilization of time is needed for review of related literature; for interview and distribution and collection of question paper. The time required for this study is estimated to be wide because the case conducted around Addis Ababa area. Therefore by into consideration the situational factors to accomplish the study of research work on the anticipated time it takes 16 weeks; starting from begining of june, 2016 to ,end of september , 2016.

The detail presented in the table as follow

Table 4.1Time schedule

No.	Activities	Duration															
		june				july				augest				september			
		W1	W2	W3	W4	W1	W2	W3	W4	W1	W2	W3	W4	W1	W2	W3	W4
1	Proposal writing	♥	♥														
2	Proposal defense			♥													
3	Review literature part				♥	♥	♥										
4	Development of data gathering process							♥									
5	Training of workers						♥	♥	♥								
5	Data collection								♥	♥	♥						
6	Data organization,processing and analysis											♥	♥				
7	Writing draft project report												♥	♥			
8	Submission of draft report to advisor														♥		
9	Editing final project paper															♥	
10	Submission																♥

4.2. Cost break down

The detail of grand Total Money required for each budget items of research work has briefly describe in table 4.2 as follow.

No	Items	Unit	Quantity	Unit Price in ETB	Total Cost in ETB
	A- STATIONERY				
1	Printing Paper	Pkt.	4	125	500
2	Note Book	No.	5	3	15
3	Pen	Pkt.	4	3	12
4	Staples	Pkt.	3	5	15
5	Stapler	No.	1	27	27
6	Re- Writable CD disk	No.	3	25	75
7	Tape Recorder	No.	1	800	800
8	Flash Disk(8GB)	No.	1	400	400
	Sub Total				**1844**
	B) Cost for data collectors				
1	Researcher	No. Days	45	200	**9000**
	C) Transport Expense				
1	Researcher	Adama	Addis ababa		5000
2	Researcher aid	Travel within addis ababa	Lump Sum		5000
	Sub Total				**10000**
	D) Photocopy, Printing and binding services				
1	Copying questionnaires & secretarial Services	Lump Sum	**150**	1	150
2	Draft and final report production	Lump Sum	250	2	500
	Sub Total				**650**
	E-Training of workers				
1	Training expense	Lump Sum			**10000**
	Sub Total				**10000**

Summary of cost breakdown

S/N	Cost Description	Sub Total Cost
A	Stationary	1844
B	Cost for data collectors	9000
C	Transport expense	10000
D	Photocopying, printing and binding services	650
E	Training Expense	10000
5	Total Budget	31494
6	Contingency(10% of total budget)	3149.4
	Grand Total Budget	34643.4

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