ADDIS ABABA UNIVERSITY

College of Business and Economics

Department of Management

Masters of Executive Business Administration (EMBA)Program

Assessment on Factors Affecting Productivity of Employees in the Construction Industry, The Case of Building Projects in Addis Ababa; Executive's Perspective

Project Submitted in Partial Fulfillment of the Requirements for the Executive Masters of Business Administration (EMBA) degree

By: Mesganaw Ayalew

Advisor: Dr.Mohammed Seid

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Assessment on factors affecting productivity of employees in the construction industry, the case of building projects in Addis Ababa; Executive's Perspective

Mesganaw Ayalew has done the study on the topic of:

"Assessment on Factors affecting productivity of employees in the construction industry, the case of building projects in Addis Ababa; Executive's Perspective"

Advisor: **Mohammed Seid (PhD)**

Signature_____

_____	_____	_____
Advisor	**Signature Date**	
_____	_____	_____

DECLARATION/CONFIRMITION

I, Mesganaw Ayalew hereby declare that this research project is my original work and has not been presented for award of degree in any other university and that all sources of materials used for the project have been appropriately acknowledged.

Mesganaw Ayalew

Signature_____

Date_____

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SCHOOL OF GRADUATE STUDIES

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Approval by Board of Examiners

_____	_____	_____
External Examiner	**Signature**	**Date**
_____	_____	_____
Internal Examiner	**Signature**	**Date**
_____	_____	_____
Chair of Department	**Signature**	**Date**

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I dedicate this work to My lovely daughter, Maya Mesganaw ,MAMA

Abstract

This study aimed to examine factors affecting productivity of employees in the construction industry from the point of views of construction company's executives. Factors such as proper management and supervision, innovation, supply chain management of construction inputs, demotivating factors, motivational schemes, competence skill of employees and similar factors contribute to the efficiency and productivity of the construction sector are evaluated.

The construction industry in Ethiopia, worth billions of dollars every year and of that enormous sum, significant portion of it is lost as wastage that reduces much the effectiveness and productivity of the sector. The wastage is a combination of many factors out of which problem related to human resources constitute the major share that needs to be addressed in managing construction projects.

The sample size for the study is 288 comprising of executives leading and administering Grade 1,2 and 3 construction company's involving in building constructions in Addis Ababa. The sample population was distributed between contracting companies: 146 executives' of grade 1 contractors, 60 executives of grade 2 contractors and 82 executives of grade 3 contractors companies. In the study, quantitative research methods were used. Primary data was obtained using questionnaires and literature sources ware also collected from books, journals, past research works, official documents and the internet. Purposive and random sampling ware used to select proportional number of samples from the study area. Data were analyzed using percentages, and correlation.
The study has also focused on examining the extent of awareness of construction company's executives about factors affecting productivity. The results obtained from the study indicated that majority of the respondent executives do not give much attention to factors hindering productivity of employees.

Some of the major factors that are given little or no attention includes: compliant management systems, orientation at entry when employees join the company, implementation of effective construction waste management, timely monitoring and evaluation, capacity building schemes, and transparent communication, are some of the major factors neglected in construction companies employees management systems.

This paper suggests that there should be continuous effort to identify and raise awareness of construction company executives, core staffs, other employees and actors in the sector to improve the factors affecting productivity of employees in the construction sector with special emphasis to building projects.

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List of Acronyms

BC	Building contractor
CAE	Consultancy Architects and Engineers
GC	General Contractor
HC	Human Capital
HRM	Human resource management
MUDCO	Ministry of Urban Development housing and construction
M&E	Monitoring and Evaluation
ORG	Organization
RC	Road contractor

Chapter One

1.1. General Introduction

Now a day's construction industries are booming in Ethiopia due to implementing major infrastructure projects together with many public buildings, commercial buildings, housing development programs etc. As moavenzdadeh1996 states, construction contributes to the basic objectives of development including output generation, employment creation and income generation and re distribution. Construction industry in Ethiopia, is a vital element of the economy and has a significant effect on the efficiency and productivity of other industry sectors. The sector also creates huge employment opportunities there by sustaining a very large portion of the entire work force (Alemayehu 20012).Labor costs are major components on any construction project with value ranging from 30-50% of the total construction costs depending on the type of construction (Narimah, 2013).

In spite of the economic contribution and huge employment opportunities of the construction industry, survey of related literatures and analysis made by researchers in the field indicates that the Ethiopian construction labor productivity is rated as low to medium (Fekadu, 2003).

A large number of young professional, skilled and semiskilled labor force is introduced to the sector every year. However, in spite of remarkable efforts of training in large numbers in different higher educations, vocational and technical institutions, the labor force in the construction sector is given little thought to follow up supervision and motivation, which may ultimately lead to the failure of quality output and productivity. Motivation of employees is low which has ultimately a negative impact on the performance of individual workers, enterprises and the construction system as a whole. Stakeholder may

also exert influence over the project, its deliverables, and the project team in order to achieve asset of outcomes that satisfy strategic business objectives or other needs (PMBOK Gide,2013).

In construction projects in general and in the Ethiopian context in particular, the major stack holders are; the employer, the engineer acting as the employer's representative maintains efficient progress on project and in change of contract administration. The contractor, Provides service, skills, and knowledge towards achieving construction project.

One cannot think of widespread investment in manufacturing, agriculture, or service sectors unless the construction results of infrastructure facilities are in place. In some of the developing countries, the growth rate of construction activity out strips that of population and GDP (chitkara,2004). Construction in Ethiopia, accounts the major /significant portion of the economy. An inefficient and ineffective construction industry will, therefore, adversely affect all other sectors of the economy.

Construction projects have specific objectives such as deliverables of physical facilities and constraints like planned budget, quality output and required time which must be achieved for economical and successful completion has long been applied in the construction industry and results have been achieved(PMBOK Guide,2013). The achievement reflects the considerable ability of managing and controlling of employees. A project is considered to be success full, if it is completed on time, on budget, as per the specified quality.

The proper handling of employee swill lead to successful construction projects. Because, even if projects have been planned organized and controlled perfectly, it could still fail unless the employees aspect is well handled (RitZ, 1984). According to Harrison (2004), the four critical elements that determine the success or faller of a project are; the structures of the project organization, the methodology used for planning and control, the effectiveness of integration and

management of human relation problems and conflict resolution mechanisms. Resources of finance, equipment and machinery) in the construction industry are transformed in to productive use by the employees.

The global construction industry, worth trillions of dollars every year and of that enormous sum, 40% is lost as wastage. The wastage is a combination of many factors out of which people problem constitute the major share (O'sullivian.2003). This implies, the contribution of employees has a major role and indispensible share that needs to be addressed in managing construction projects. As management is about obtaining results through people, the sector needs implementing modern human resource management that incorporates; acquiring, training, motivation, effective leadership, integration of the employees with the organization's strategic plane, reducing wastage, avoiding risks, practicing safety mechanisms and other facilitations to ultimately improve productivity.

The high number of work divisions and items in building projects is accompanied by collection and interpretation of massive volume of information regarding employees, lack of efficient utilization of skilled, semi-skilled and unskilled labor forces which results in excessive spending, delayed completion, wastage, unsafe construction practices of human resources, which results in low productivity. This in turn demands the employment of efficient and effective employees management system. Similar to the case with other developing countries, the Ethiopian construction industry shares many of the problems and challenges the industry is facing in other developing countries, perhaps with greater severity (EEA, 2008).

1.2. Statement of the problem

Despite the booming trend of the construction industry in Ethiopian in recent years:

- The construction industry is full of projects that are completed with significant time and cost overruns (Amha et al.,2010).

- Survey of related literatures made by researchers in the field indicates productivity of labor is rated from low to medium (Fekadu, 2003).

Given the critical role the construction industry plays in Ethiopia, and the poor level of performance of the industry, improving the productivity of the industry ought to be a priority action. Among the problems, improving Productivity of employees in the construction sector particularly in building projects is the important factor which increases the performance of overall organization.

The sector needs implementing productivity improvement factors ,techniques and modern human resource management that incorporates; acquiring industrial engineering techniques, the human behavioral approach and integration of employees with the organization's strategic plane and other facilitations.

Hence, as the problem of Productive human resource has a significant impact on the success of construction projects, and ultimately the national economy. The problem needs deeper investigation to identify the problem areas and propose solutions. The researcher has tried to assess the factors affecting productivity of employees and how each factor is viewed, rated and prioritized by construction firm's executives.

1.3. Research Questions of the study

The researcher investigated and tried to find more of empirical answers to the following issues that are related to the main subject matter under study.

1. What are the major factors that can improve productivity of employees working on building projects in Addis Ababa?
2. What is the status of employee's productivity in building construction

Projects in Addis Ababa?

3 How do construction firm's executives rate the factors that affect productivity of employees in building construction projects in Addis Ababa?

1.4 Objective of the study

1.4.1 General objective of the study

The main objective of the study is to assess the factors affecting productivity of employee sin building construction projects in Addis Ababa from construction company executive's perspective.

1.4.2 Specific Objectives of the study

Based on the above main objective of this study and the problem statement, the study will have the following specific objectives:

1. To make assessment son the major factors that can improve productivity of employees working on building projects in Addis Ababa.
2. To evaluate the status of employee's productivity in building construction Projects in Addis Ababa?

3. To identify the priorities of construction firm's executives among the factors that affect productivity of employees in building construction projects in Addis Ababa

1.5 Scope of the research

The scope of the research is limited to evaluating the views of construction firm's executives about factors affecting productivity of employee sin building construction projects in Ethiopia with special emphasis to building construction projects in Addis Ababa. The need for limiting the research arises mainly due to the following major reasons:

- The first reason, to limit the scope and focus on evaluating only executives views about factors affecting employees productivity on building projects is, the motive that executives are the one who knows most about the rate of productivity of employee's in the sector.
- The work experience of the researcher on building projects is the other reason.
- The third reason is associated with the number of activities, work divisions and human intensive involvements in building projects, which is much higher than those in road or other projects.

1.6 Limitation of the study

The subject of productivity of human resource in general, the case of employee sin particular, in the Ethiopian construction industry has not been adequately researched; hence, It may take time to collect all the data necessary about all stakeholders for the research. Moreover, defining and measurement of variables may not be perfectly representing the conceptual and theoretical basis if all concerning parties are included in this study, as a result, this research is limited to evaluating productivity of employees from the perspective of executives.

1.7 Significance of the study

The prospective beneficiaries of this study will be:

1. Construction parties (clients, consultants and contractors) and general public.

2. Educational institutions, which use the information for academic purposes.

3. Private/governmental organizations or construction firms

4. Academic and research institutions conducting future studies in construction labor productivity and related topics.

1.8. Organization of the research

This research project contains the following chapters;

Chapter one is an introductory part containing discussions on background, research problems, objective of the research, significance of the research, scope and limitation of the research and organization of the research.

Chapter two presents literature review with general descriptions by different researchers on construction, human resource and productivity.

Chapter three will be about research design and methodology

Chapter Four will present data analysis and interpretation. And the last chapter will present conclusion and recommendations.

Chapter Two

2 Theoretical Review of Literature

4.1 Introduction

This chapter presents the findings from different reviewed literatures on the subjects of construction, productivity improvement factors and techniques of employees and evaluation of productivity from the point of views of company's executives. The project management system of any project depends on the type and methods of construction, the stage of construction, the type of contract and delivery system and project type and complexity etc. Similarly the productivity of employees also depends on factors similar to the project management system. Hence, this part of the literature review will try to highlight the issues in relation to productivity of human resource with the main focus being on productivity of employees in building construction projects and the views of executives about it.

4.2 Employees Management

a. Employees and competence

As defined by Nalbantian*et al* (2004),employees is the stock of accumulated knowledge, skills, experience, creativity and other relevant workforce attributes and employees management involves putting into place the metrics to measure the value of these attributes and using that knowledge to effectively manage the organization. Moreover, employees management is concerned with obtaining, analyzing and reporting on data that inform the direction of value-adding people management strategy. It provides the basis for evidence-based human resource management (Michael Armstrong,2008). Employees management involves the systematic analysis, measurement and evaluation of how people policies and practices create value. An organization's success is the

product of its people's competence (the Accounting for People Task Force report ,2003). For improved productivity high-performance strategy should be in place. As defined by (Appelbaum*et al* 2000), high-performance work systems are composed of practices that can facilitate employee involvement, skill enhancement and motivation. People management basics formed the foundation of high-performance working (Armitage and Keeble-Allen,2007). A high-performance work system is described by (Becker and Huselid 1998) as an 'internally consistent and coherent HRM system that is focused on solving operational problems and implementing the firm's competitive strategy'. They suggest that such a system 'is the key to the acquisition, motivation and development of the underlying intellectual assets that can be a source of sustained competitive advantage.

4.3 Employees Management and supervision issues in construction projects

4.3.1 value adding activity

The duration of construction tasks consists of process (and reprocess or rework) time, inspection time, move time, and wait time. Only process time is considered value-adding activity. The value adding activity is defined as the activity that converts material and/or information towards that which is required by the customer; non value adding activity (also called waste) as the activity that takes time, resources or space but does not add value. However, all value adding time belongs to process time, not all process time is value adding. Processes are also subject to wastes resulting from overproduction, wrong construction method, defects, and poor optimization in performance tasks (Al-Moghany, 2006)

The result of improper handling and managing of the human aspect on site during construction process will influence the productivity, total project cost,

time and quality. Leading management thinkers suggest that "it is not technology, but the art of human- and humane-management" that is the continuing challenge for executives in the 21st century (Drucker, Dyson, Handy, Saffo, & Senge, 1997). Similarly, (Smith and Kelly 1997) believe that "future economic and strategic advantage will rest with the organizations that can most effectively attract, develop and retain a diverse group of the best and the brightest human talent in the market place".

4.4 Productivity

Productivity is the efficient use of resources in the production of goods and services. Resources are labor, capital, materials, energy and information. High productivity means accomplishing more with the same amount of resources or achieving higher output in terms of volume and quality for the same input (Prokopenko,1987). The role of productivity in increasing national welfare is now universally recognized. In every country the main source of economic growth is an increase in productivity. It is only through increase in productivity that the standard of living improves (Heizer J and Render B.1999). Productivity also determines how competitive a countries product is internationally. At the enterprise level productivity ascertain high performance. In a fast changing world where competition and interdependence between economies and markets of countries worldwide is increasing, productivity is the only way to remain competitive (Lawor,2010) for a company to grow and remain healthy, there must be growth in productivity. Therefore productivity has to be measured and managed.

4.5 Historical Development of Productivity

Productivity has been a major concern for long. Since (Adam Smith's work on division of labor 1776), people have sought for methods to improve productivity by organizing human efforts, such that their outputs will be maximal (Brief A.1984).Frederick (Taylor,1911) worked on improvement of work methods to help improve productivity. His principles of scientific management revolutionized manufacturing. His contribution was the belief that management should assume more responsibility for: Matching employees to the right job, providing the proper training, providing proper work methods and tools, establishing legitimate incentive for work to be accomplished. A scientific approach to the analysis of daily work and the tools of industry frequently increased productivity by 400% (Heizer J and Render B.1999)

(Lilian and Frank Gilberth,1992) carried out motion study and sought to cut out unnecessary motion in an effort to increase labor productivity and make work simpler for manual works.

4.6 Productivity improvement Factors and Techniques /Innovation and creativity for Productivity/

4.6.1 Productivity improvement Techniques

The technical methods fall in to two groups (kopen2007).

- The technical approach-engineering techniques and economic analysis.
- The human approach-behavioral method

Industrial engineering techniques include method study and work measurement to examine people's work and to indicate the factors which affect efficiency. This includes method study and work measurement

Method study- is often called motion study, method analysis or method engineering is the systematic recording and critical examination of existing and proposed ways of doing works in order to develop and apply easier and more effective methods and reduce costs. It is used to improve processes and procedures, plant layout, design of plant and equipment, to reduce human efforts, use of materials, machines, manpower and to develop better physical and working environment. Method study is a complex technique that combines several simple tools, mostly charts, diagrams and other recording techniques such as analysis of films. Using films to analyze motions, general and specific questions to analyze and indicate purpose, place, sequence, person and means.

Work measurements- Establishes the time a qualified worker needs to carry out a specified job at a defined level of performance. Method study helps to eliminate unnecessary movement, whereas, work measurement helps in investigating, reducing, and subsequently eliminating inefficient time, during which useful work is not being performed (prokoshonko 1987). Works can be measured by different techniques: historical Experiences, time studies, predetermined time standards and work samplings are the most common and widely used work measurement techniques.

Work Simplification-This is a philosophy based on the realization that people who actually do a job are often the best placed to improve it. It is often better to train workers to think creatively about their jobs and then give them incentive to make improvements (prokopenko,1987). Work simplification uses the following six steps: select a job to improve, get all the facts, make a process chart, challenge every detail, asking all possible questions, list possibilities and improve necessary details, develop the preferred method, introduce it and check results.

Pareto analysis- is named after an Italian economist, who noted the principle, often called the 80/20 rule that 80 percent of the results come from 20 percent

of the efforts. It is a useful tool for productivity analysis since it concentrates attention on the most important few issues or problems and helps to establish priorities. The basic steps of Pareto analysis are:

1. list the items (products or processes) to be analyzed in ascending order of use, cost or occurrence,

2. Determine total use, cost or occurrence

3. Express the individual use, etc., as a percentage of the total,

4. Produce accumulative column for step 3

5. Divide the cumulative percentage column in to three groups, say 70%,20% and 10%. Pareto analysis is sometimes called "ABC" analysis. "A" being the expensive 70%,"B" the moderate 20%,and "C" the Lowe-cost 10%.

6. Repeat steps 1-4 for the items studied, the previous steps have all related to cost: we now need to relate the "ABC" aspect to the percentage of items contained in each category.

7. Compare the cumulative percentage use/cost/ occurrence column with the cumulative percentage item column.

Management through value analysis- Is an important technique for productivity improvement through waste reduction. Every product can be broken down in to its components and each component is analyzed in terms of its value to the whole. The main criteria of value in such analysis are worth, desirability, and utility (Prokopenko,1987). Value analysis aims at achieving many small savings or improvement efficiency, which will collectively be significant. Substantial cost reductions have been achieved in construction, hospital administration, and banking and in public services. Value analysis is an organized, creative approach for identifying and eliminating unnecessary costs in a product or service.

2.5.2 Productivity improvement Factors (Competence)

There are three main productivity factor groups (kopen2007): Job related, resource related, and environmental related. These factors can be either internal (controllable) or external (not controllable).

External factors include government policies, institutional mechanisms, social political and economic conditions, the business climate, availability of external finance, power, water, transport, communication and raw materials. These factors should be understood and taken in to consideration by management when planning and implementing productivity programs.

Internal factors are of two types:

Hard factor, which are not easily changed and includes product, plant equipment, technology, materials and energy consumption.

Soft factors are those that are easily changed and include people, organization, system, work methods, and management styles. People are principal resources and the central factor in productivity improvement roles to play. Each role has two aspects**:** application and effectiveness.

Effectiveness- is the extent to which the application of human effort brings the desired result in output and quality. This is a function of method, technique, personal skill, knowledge, attitude and aptitude.

The ability to do a productive job can be improved through:

- Training and development
- Job rotation and placement
- Systematic job progression (promotion)
- Career planning

The following key approach, methods and techniques can be used to improve labor productivity: Wages and salaries, training and education, social security such as pensions and health plans, rewards, incentive planes, participation and codetermination, contract negotiations, attitude to work, to supervision and to change, motivation for higher productivity, co-operation, organization development, improved communications, suggestion systems, career planning, attendance turnover and job security.

Automation for productivity

An organization also needs to be dynamically operated and led towards objectives and must be maintained, serviced and reorganized from time to time to meet new objectives. One reason for the low productivity of many organizations is their rigidity. They fail to anticipate and respond to market changes, ignore new capacities in the labor force, new development in technology and other external (environmental) factors. Rigid organizations lack good horizontal communication. This slows down decision making and inhibits delegation of authority close to the point of action resulting in inefficiency and bureaucracy. No system, however well designed, is efficient in all situations. Dynamism and flexibility should be incorporated in to the systems design in order to maximize productivity.

Improved work methods, especially in developing economies where capital is scares, technology is intermediate, and labor-intensive methods dominant, constitute the most promising area of productivity improvements. Work method techniques aim to make manual work more productive by improving: the way in which the work is done, the human movements performed, the work place laid out, the materials handled and machines employed.

Work methods are improved by: systematically analyzing present methods, eliminating unnecessary work, and performing the necessary work more effectively with less effort, time and cost.

Application - is the degree to which people apply themselves to their work. People differ not only in their ability but also in their will to work. Motivation decreases if it is either satisfied or blocked from satisfaction. In order to stimulate and maintain motivation, the following factors should be considered,(www.readingfantatic.org).

A set of values conducive to higher productivity should be developed in order to bring about changes in the attitude of managers, employees and workers. Standard of performance and motivation are the major factors of productivity.

2.5.3 Motivation- is basic to all human behavior and thus to efforts in productivity improvement:

- Material incentives/money reward/,
- Improving recognition, involvement and learning opportunities,
- Eliciting co-operation and participation from workers in goal setting,
- Incur aging workers to apply their creative talents.

Motivation of employees in the construction sector can be influenced at an individual level by various demographic and psychological factors that include age, sex, origin and education level as well as health, knowledge and attitudes.

Workers motivation can also be affected at the interpersonal level by peer pressure and the lack of recognition and appreciation by colleagues, supervisors and the community at large. A meta-analysis of 20 papers conducted by Willis-Shattuck et al. indicated that workers who received more recognition had higher motivation than those who reported that they never received recognition.

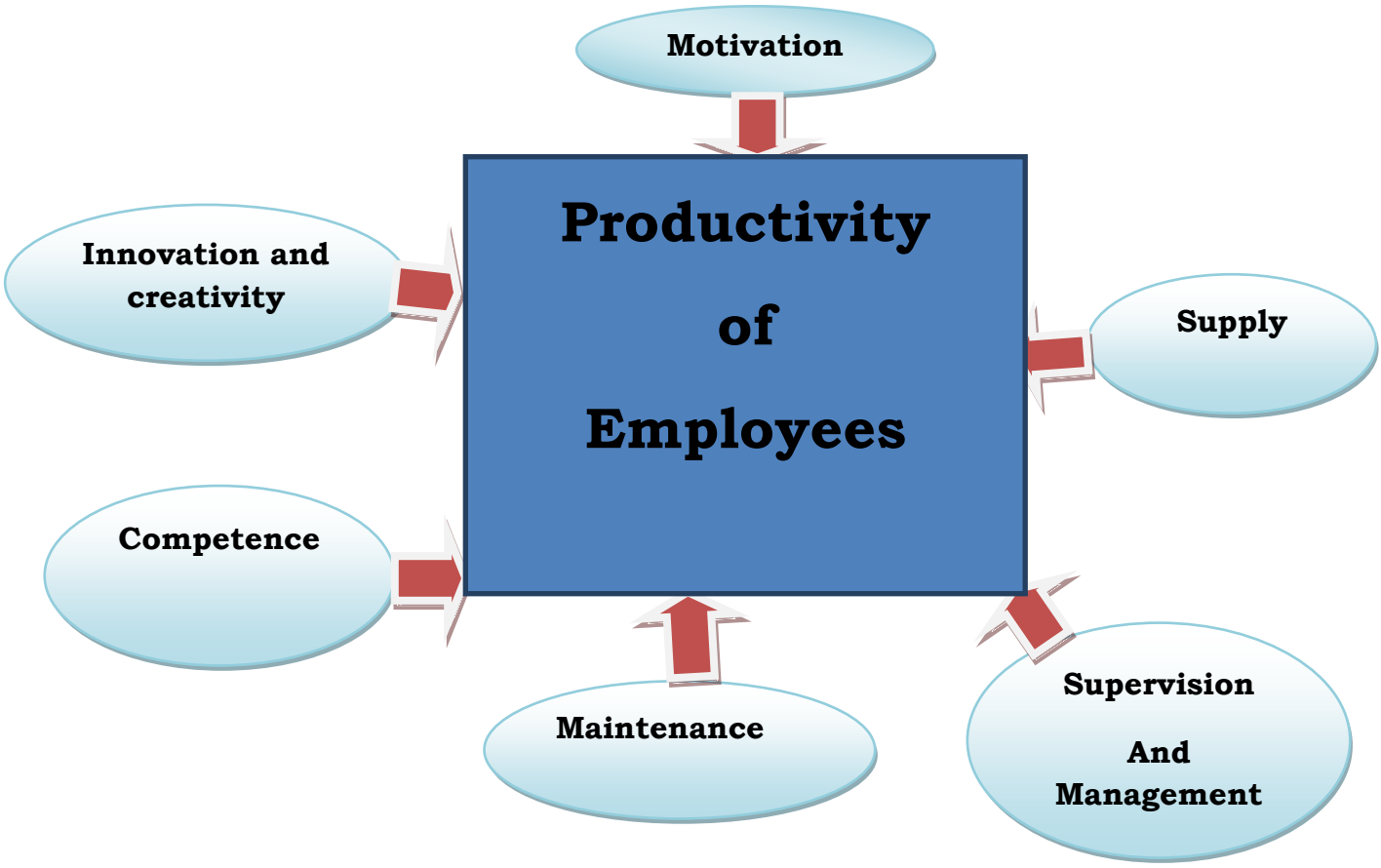
4.7 Construction in Ethiopia

The construction industry is among the leading industries in producing employment and contributes to the national development of the country (Abraham A., 2007 and Kassim S, 2008). A large number of young professional, skilled and semiskilled labor force graduates join the sector every year. However, in spite of remarkable efforts of training in large numbers in different higher educations ,vocational and technical institutions, the labor force in the construction sector is given little thought to follow up supervision and motivation, which may ultimately lead to the failure of quality output and productivity. Low motivation of employees has a negative impact on the performance of individual workers, enterprises and the construction system as a whole.

The construction industry has feature that are not usually encountered in other industries. Some of the unique features includes; its difficulty to use mass production techniques due to the variability of the construction site not custom oriented,(Hillson D2009), have specific project characteristics, and circumstances can influence it, involvement of different stakeholder who may have competing expectations that might create conflicts within the project. (Copare1990), stated that, the number of business failures in the construction industry is high and the high failure rate is not because contractors do not know the techniques of construction but rather they have not developed their management skills. Among such skills, management to improve productivity of employees is one of the key elements.

4.8 Conceptual framework

To address the research questions, and to disclose the relationship between factors affecting employees variables and construction projects inefficiencies an initial research model is build and the constructs are discussed briefly as below in the figure.



Research model

Source: Developed based on the literatures:

Chapter Three

5 Research approach, Methodology and Design

5.1 Research Approach

Research is a process of collecting, analyzing and interpreting information to provide solutions to questions or problems, (Kumar, 1999). In inductive research, the goal of a researcher is to infer theoretical concepts and patterns from observed data. In deductive research, the goal of the researcher is to test concepts and patterns known from theory using new empirical data**, (**Anol Bahattacherjee,2012). For the purpose of this study, research is defined as a practical investigation to find out new facts or assemble old facts by scientific ways for the purpose of developing existing theory or its application for real problems. Accordingly, this research has explanatory approach.

Research Methodology

Based on the conceptual frame work /proposed research model, the research is primarily based on **quantitative** approach to comply with its objective.

5.2 Research design

This research is a practical problem developed from the observation of Construction Company's executive's views about productivity problems of employees practices in construction projects. The research questions are oriented to investigate factors that cause inefficiencies of labor output in construction projects. This research can be categorized as applied and descriptive type. It is applied because the research is initiated from practical problems and investigate factors affecting productivity of the labor force. It is also descriptive because it tries to describe the actual rate of the problem based on the factors.

5.2.1 Study Sites

This study was carried out between November 2015 and May 2016 on building construction projects in Addis Ababa. Since the construction practice in other parts of Ethiopia is similar, special emphasis were made onprojects in Addis Ababa to represent the cases in Ethiopia. All national construction firms whose grades are from 1 up to 3,and renewed their license up to April 2016 are included in the study.

5.2.2 Target population

Construction firms in Ethiopia must be registered and licensed by the Ministry of Urban Development housing and construction (MUDCO) in order to undertake any construction work in Ethiopia. The Ministry has placed the basic human and equipment requirements to attain different licenses with different grades and only when these conditions are fulfilled the qualified firms /people or companies\ be allowed to participate in the industry. Construction firms are classified based on trend of work as follows: General Contractors,(GC), Building Contractors,(BC), and Road Contractors,(RC). Each category is classified into ten grades according to size, expertise and financial capability requirements set by (MUDCO). Accordingly there are 146Grade one, 60Grade two, 82 Grade three, Contractors renewed their license for the current budget year at the federal level.

The population of the study comprises executive bodies of contractors who are involving in the building construction process in Addis Ababa. Since the construction practice in other parts of Ethiopia is similar, observations were made in building construction projects in Addis Ababa to represent the cases in Ethiopia. The executives are considered as one of the key players in the industry and are the one who knows most about the industry. Questionnaire were distributed for either managers, deputy managers or any one represented as executive of the construction company, working on building construction projects in Addis Ababa.

		Construction Cost (Birr)		
Categories	**Grade**	**BC**	**RC**	**GC**
(GC,BC,RC)	1	Above 210,000,000	Above 300,000,000	Above 350,000,000
(GC,BC,RC)	2	Up to 210,000,000	Up to 300,000,000	Up to 350,000,00
(GC,BC,RC)	3	Up to 160,000,000	Up to 225,000,000	Up to 270,000,000
(GC,BC,RC)	4	Up to 110,000,000	Up to 154,000,000	Up to 185,000,000
(GC,BC,RC)	5	Up to 54,000,000	Up to 76,000,000	Up to 100,000,000
(GC,BC,RC)	6	Up to 27,000,000	Up to 38,000,000	Up to 45,000,000
(GC,BC,RC)	7	Up to 11,000,000	Up to 15,000,000	Up to 18,000,000
(GC,BC,RC)	8	Up to 5,400,000	Up to 7,500,000	Up to 9,000,000
(GC,BC,RC)	9	Up to 3,000,000	Up to 4,200,000	Up to 5,000,000
(GC,BC,RC)	10	Up to 1,000,000	Up to 1, 500,000	Up to 1,800,000

Table: - 3.1 Construction cost limits for grades of BC, RC and GC [source (MUDCO, 2015)

5.3 Sample Size Determination

In order to evaluate and assess the current productivity level of employees in construction on selected building projects in Addis Ababa, a wide range of Construction parties were targeted.

In this research, the population includes executives of first, second and third category Contractors. The firms included in this study are those that have valid registration for the current budget year by MUDCO in Addis Ababa. The main reason for purposively selecting only those categories of companies and their executives are; most of them have more than hundreds of employees, their sufficient experience in building construction compared to the remaining firms, their relatively better managerial capability and having more than one hundred million Birr contracting amount capacity.

Total number of 288 executives leading and administering Grade 1,2 and 3 contractor companies executive's involving in building constructions in Addis Ababa are considered as study population.

The sample population was distributed between contracting companies based on correction for finite sample equation. The following equation is used to determine the sample size of each category contractor (Al-Moghany, 2006).

$$\text{Ss} = \frac{Z^2 * P * (1-P)}{C^2} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\text{Equation (1)}$$

Where SS = Sample size
Z = Z value (e.g. 1.96 for 95% confidence level)

P = percentage picking a choice, expressed as a decimal (0.50 used for sample size needed).
C = margin of error (9%)

$$\text{Ss} = \frac{(1.96)^2 * P = 0.5 * (1 - 0.5)}{0.09^2} = 119$$

Correction for Finite Sample:-

$$\textbf{Ss}\ \text{new} = \frac{Ss}{1+(SS-1)/pop} \quad \text{---------- (Equation 2)}$$

Where: Total sampled construction executives = 288, pop= study population

$$\textbf{Ss}\ \text{new} = \frac{119}{1+(119-1)/288} = 82 \text{ total sample size}$$

To ensure good representation of each stratum, the following was done:

Ss new Executives of Grade 1 contractors =(82*146)/288 =42

Ss new Executives of Grade 2 contractors =(82*60)/288 =17

Ss new Executives of Grade 3 contractors =(82*82)/288 =23

Based on the sampling method and criteria cited above, the researcher selected **eighty two (82)** construction company's executives.

5.4 Sampling method and sample size

Purposive and random sampling techniques are used to select the respondent executives' of the specified contractors' firms. According to (Walliman,2005), purposive sampling is a useful sampling method which allows a researcher to get information from a sample of the population that one thinks knows most about the subject matter.Sampling for this study was conducted for executives of contractor firms. The sampling for the study was selected at two levels.

First the researcher purposively selects contractors of Grade 1 to 3 firms as a sample for the study. The main reason of considering the specified grades of contractor firms is their work experiences in the sector, relatively better organizational structure, large number of employees and their financial capacity.

Secondly, having selected the construction firms, the researcher randomly selected eighty two (82) respondent executives representing the selected companies based on the above sample size determination formula.

The selection process was established after explaining to managers and company owners about: their rights to participate in the study, procedures, benefits and purpose of the study to allow for questioners.

5.5 Unit of analysis

It is the 'what', ”why”, ”how” or 'who' that was studied. In this research, ordinal scales were used. Ordinal scale is a ranking or a rating data that normally uses integers in ascending or descending order. The numbers assigned to the agreement or degree of influence (1, 2, 3, 4, 5) do not indicate that the interval between scales are equal, nor do they indicate absolute quantities. They are merely numerical labels. Based on Likert scale the researcher has the following:

Table ; Scales that represent chances of occurrence

Chances of occurrence	strongly agree	Agree	Neutral	Disagree	strongly disagree
Scale	5	4	3	2	1

5.6 Data collection method

The data are gathered in two ways :

1. **Document review**: Secondary data about building construction projects such as books, journals and internet sources, archival document, are reviewed to understand the background of productive management of employee sin the construction sector. These secondary sources provided a

general understanding of the subject area by presenting a wide range of ideas in the field which helped to supplement other specific information obtained from the primary data sources.

2. **Questionnaire**: Secondary data are used to prepare questionnaires in relation to the topic under discussion. Closed ended questionnaires were prepared and distributed for all selected respondents.

5.7 ANALYSIS OF FINDINGS

From literature review it has been discussed factors which affect productivity of the labor force in construction sites. 61 factors, from the perspective of executives that have impacts in productivity of employees in building construction sites in Addis Ababa have been selected.

The draft questionnaires ware pre-tested with purposively selected: 15 resident engineers and 15project manager level executives. The results obtained from the pilot study(pre-test) indicated that some of the questioners could not critically measure the research variables.

It also indicated the need for the addition of other questioners. Rearrangement of questioners was also made after the pilot test. Based on this the final questionnaire containing41 factors influencing productivity of employees from the perspective of firm's executives were prepared and distributed. Respondents were asked to fill the questionnaire and they have assured that the information will be confidential and only for research purpose.

The results from the document review/desk study and questionnaire were presented, interpreted and analyzed in detail by SPSS version 23 software. To summarize the collected data both descriptive (tables and figures) and inferential statistics are used.

5.8 Rating Scale

Rating scale is one of the most common formats for questioning respondents on their views or opinions of an event or attribute. In this regard, participants were asked to indicate agreement or degree of influenceof factors (research variables) by rating them on a five point scale, (1= strongly disagree,2 = disagree, 3 = nutral,4 Agree and 5 = strongly agree). This statistical technique is intended to establish the importance of the factors. Each of the factors has been assigned an importance index or degree of influence index, to help rank them according to their importance, as follows.

$$\text{Importance index} = \frac{(\Sigma_{i=0} W_i \times f_{xi}) \times 100}{3n} \quad \ldots\ldots [4.1]$$

Where Wi = weight given to Ith response; i = 1, 2, 3, 4,5

fxi = Responses frequency

n = total No of responses (67 responses)

For example the importance index of the first factor “payment is made on time” is calculated as shown in Table below.

Payment in my organization is paid in a timely manner	Weight(Wi)	Frequency (fxi)	(Wi x fxi)
strongly Disagree	1	1	1
Disagree	2	3	26
Neutral			
Agree	0	0	0
	4	38	114
Strongly agree	5	15	75
Total			
		67	216

Note : importance index = $\frac{216 \text{ X } 100}{(82 \text{ x } 3)} = 87.8\%$

The ranking format is used for analyzing question in which respondents were asked to place a set of attitudes in ranking order, indicating their importance priorities or preferences.

Chapter 4

Findings, Data analysis and interpretation

This chapter reports on the findings from 82 respondents drew from grades 1 to 3 construction firm's executives working on building construction projects in Addis Ababa. It is organised into six sections. It begins with respondent's personal demography and general information in part one. Part two is about motivation and demotivating factors, part three is about supply and maintenance, part four is about supervision and management, part five is about innovation and creativity, and the last, part six, is about competence. The ultimate goal of measuring these factors is to explore respondent executive's level of awareness and importance priorities about factors affecting productivity of the labour force in building construction projects.

Table 4.0 Response Rate

Respondents	Questionnaires distributed	Questionnaires Returned	Return Rate
From Grade 1 Contractors	42	34	81%
From Grade 2 Contractors	17	15	88%
From Grade 3 Contractors	23	18	78%
Total	**82**	**67**	82%

A total of 82 questionnaires were distributed to the selected contractor's executives working in the building construction industry in Addis Ababa. 70 responses were obtained, out of which 3 were rejected because of

incompleteness. The effective response rate was 66 or 82%. This was believed to be acceptable for the research. The information obtained from the respondents is summarized using frequency distribution by using SPSS 23.0

4.1 Demographic Characteristics

This section outlines the findings on the demographic characteristics of the sample, which includes grade/company level of the respondent, main business, gender, education level, and year of experience.

4.1.1 Level of the company, gender and main business

As shown in the following table the level of the company andmain business of the respondent executives are leading is presented with respective frequency of occurrence in the data and percentage are presented and discussed in brief.

Table 4.1. level of the company

Level of the company /Grade of your firm/?		Frequency	Percent
Valid	Grade 1	34	48.6
	Grade 2	15	21.4
	Grade 3	18	25.7
	Total	67	95.7

As presented in the table above, the summary of figures from the respondent executives indicates that 34 % of the respondents are executives of grade 1 construction companies, where as 21% of the respondent executives are leading grade 2 construction firms and 25 percent of the respondent executives are from grade 3 construction firms. This indicates that majority of the respondent executives are from grade one construction companies.

Table 4.2 what is your gender

Please indicate your gender	Frequency	Percent
Male	67	95.7
Female	0	0
Total	70	100.0

According to Table 4.2, among the randomly distributed questionnaires 67 or more than 95% of respondent were male and there were no female respondent. It is inferred that almost all of executives of grade 1-3 construction companies are males. There is substantial over representation of males among executives of the specified grade construction companies.

Table4. 3. Main business

The main business of your organization?	Frequency	Percent
Construction	67	95.7
Design and Supervision	0	0

Main business in which respondents are working on is fully construction. This indicates that all the respondent executives are from construction companies of grade 1,2 and 3.

4.4. Level of education- The educational profile of the respondent executives indicates that: respondent's having first degree and above are 48%, 28 % are technical education and vocational training diploma graduate, 17 % are high school completes, while the remaining 1.4% have completed only elementary school. This indicates that majority of grade 1-3 construction company executives are first degree and above followed by diploma level graduates but

there are also high school and elementary school educated executives leading construction companies.

Table 4.5. Level of education

level of education	Frequency	Percent
degree and above	34	48.6
Diploma	20	28.6
High school	12	17.1
Primary school	1	1.4
Total	67	95.7

4.5.Years of Experience

Table 4.5 presents the summary of years of experiences of respondent executives. The years of experiences classification shows that 37 (51%) of company executives have more than 10 years of experiences and 25(35%) of the respondents have worked at the level of executive between 6-10 years. Only 5 (7%) have experiences of less than 5 years. This indicates that leaders of grade 1-3 construction companies are relatively experienced executives

Table 4.6. years of experience as executive

How many years have you been working as an executive in the construction sector	Frequency	Percent
0-5 years	5	7.1
6-10 years	25	35.7
More than 10 years	37	52.9
Total	67	95.7

4.7 Productivity

Do you believe that your organization is more productive?	Frequency	Percent
Yes	53	75.7
No	14	20.0
Total	67	95.7
Total	70	100.0

4.7. Productivity level of organizations

The research indicated that respondents predominantly (more than 75%), believed that the company they are leading is productive, while the remaining 20% rated their company as not productive.

4.8. Do you change your job in 12 months

Do you have any intention to change your job in the coming 12 months?	Frequency	Percent
Yes	7	10.0
No	60	85.7
Total	67	95.7
Total	70	100.0

4.8. plan to change job in 12 months' time-When respondents are asked about their plan to change, more than 85% of the respondents say no and only 10% of them have planned to change their job in the coming 12 months. This reveals that executives are happy in their current status and intended to stay in the construction industry for long.

Table 4.9Timely pay and other motivations

Payment in my organization is paid in a timely manner		Frequency	Percent
Valid	strongly Disagree	1	1.4
	Disagree	13	18.6
	Agree	38	54.3
	Strongly agree	15	21.4
	Total	67	95.7

4.9.Timely pay and other motivations- When respondent executives were asked about the practice of paying on time in their organization, as presented in table 4.8 above, more than 79% of them agree that their organization pays on time and about 20% do not agree about the timely payment of their employees in their organization.

Table 4.10.Safety&Security

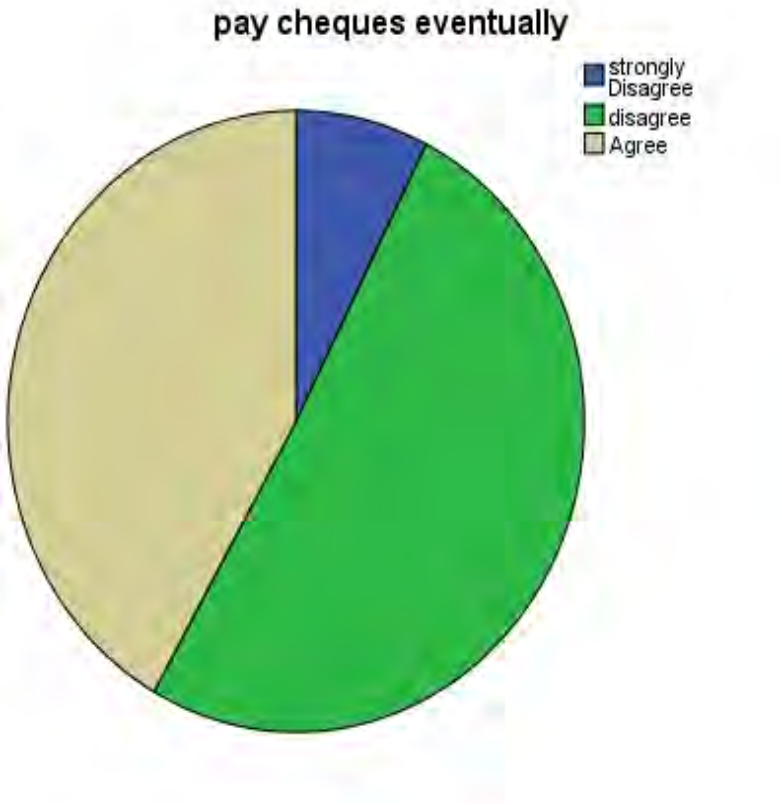
My organization is very much concerned about safety and security of its workers		Frequency	Percent
Valid	strongly Disagree	4	5.7
	Disagree	33	47.1
	Agree	27	38.6
	Strongly agree	3	4.3
	Total	67	95.7
Missing	System	3	4.3
Total		70	100.0

When respondents were asked about the concern of safety and security in their construction firm's for employees more than 55% of the respondent executives do not agree about the presence and practices of employee's safety and security

in their organizations. About 43% of the respondents agree to the existence of safety and security practices in their firm.

4.11. Motivate workers, giving bonus when doing major construction works

When respondents were asked about other motivational schemes for employees such as bonus for major work performances, more than 60% of the respondents on average do not agree about the implementation of such motivational factors.



This indicates that even though motivation sis basic to all human behavior and thus to efforts in productivity improvement, it does not get significant attention in construction companies.

Table 4.12. Demonization factors

Demotivation factors such as demolish& rework,		Frequency	Percent
Valid	strongly Disagree	4	5.7
	Disagree	25	35.7
	Neutral	1	1.4
	Agree	23	32.9
	Strongly agree	14	20.0
	Total	67	95.7
Missing	System	3	4.3
Total		70	100.0

4.12. Demonization factors

As mentioned in the table 4.9,when respondents are asked if employees most of the time, get de-motivated when work done is demolished and need to be reworked due to sub-standard, slightly more than half ,52% of them agrees about the situation and the remaining 41% of the respondents do not agree about it. This indicates that demolishing and rework of substandard works affect employee's motivation to work negatively.

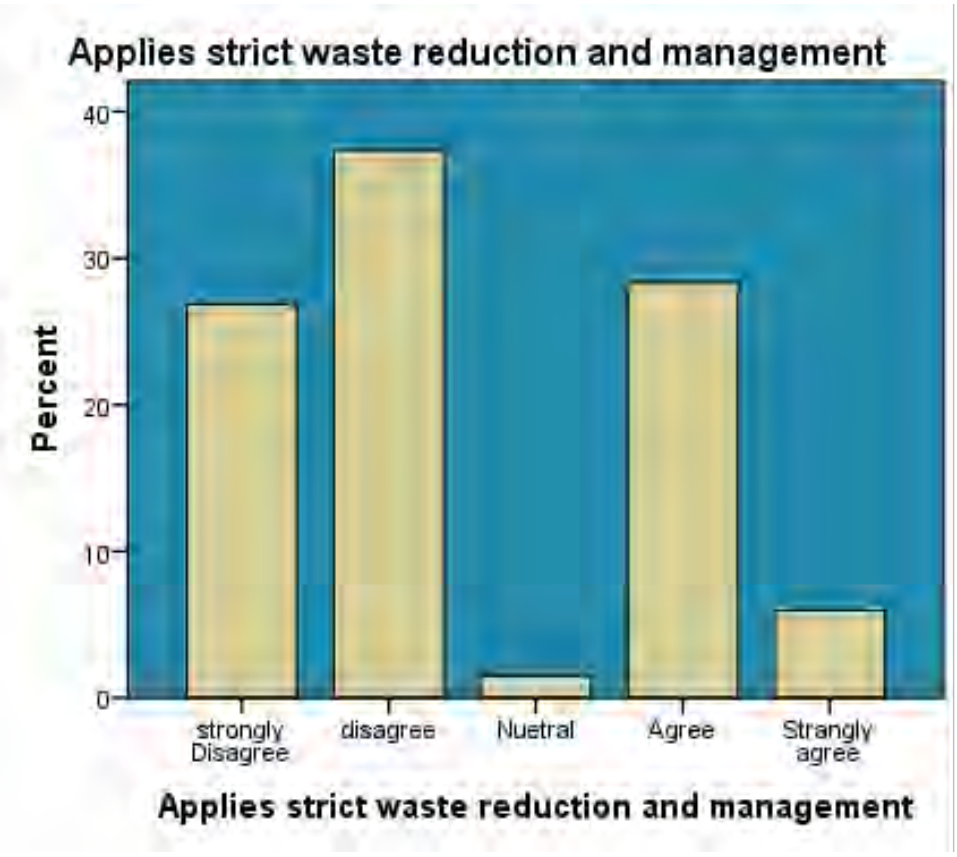
Table 4.13. Timely Monitoring &Evaluation plan

There is timely Monitoring & Evaluation plan in my org.		Frequency	Percent
Valid	strongly Disagree	8	11.4
	disagree	41	58.6
	Agree	10	14.3
	Strongly agree	8	11.4
	Total	67	95.7
Missing	System	3	4.3
Total		70	100.0

4.13. Timely Monitoring &Evaluation plan-

The table above presented the existence of timely monitoring and evaluation in individual organizations under this study. About 70% of the respondents said there is no proper and timely monitoring and evaluation plan in their organizations while the remaining 30% said there is timely monitoring and evaluation plan in their respective organizations. The result indicated, most of the target construction companies do not have a timely monitoring and evaluation plan which help them properly track their achievements and key indicator for their productivity.

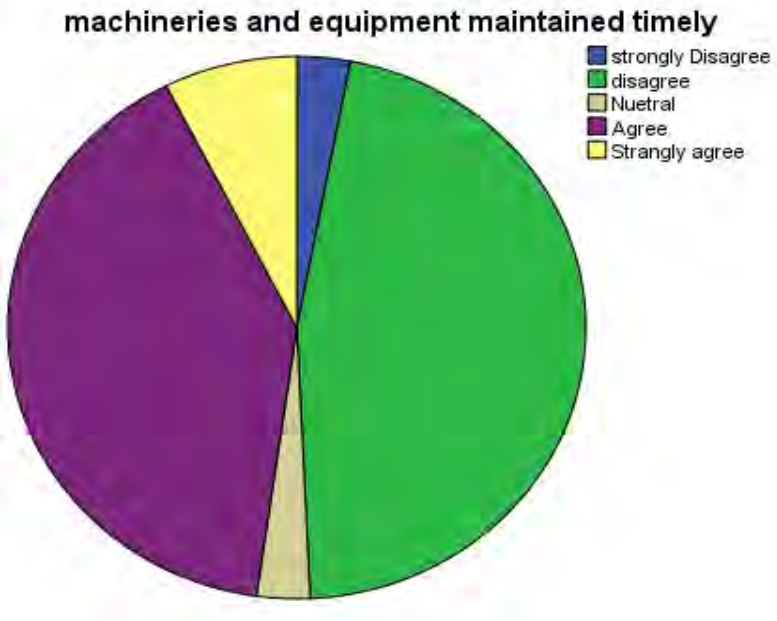
4.14. Waste reduction and management



4.14. Waste reduction and management of construction materials

As shown in the bar graph below most of the respondents believe that their organization do not have strict way to properly manage their construction materials and reduce wastage. As wastage one major factor to reduce productivity of construction outputs, construction companies need to improve their management towards reduction of construction materials as well time wasted as a result of improper handling and management of human resource.

4.15 Machineries and other equipment are timely maintained



With regard to supply, and maintenance of machineries and other important equipment's, most respondents said such facilities and services are not available in their respective organizations. As indicated below only few of the respondents believe that there is timely and proper supply and maintenance of construction machineries in their organizations. This implies that most local construction companies have problem of supplying and maintaining

construction equipment's on time and this might definitely have negative impact on the productivity of labor.

4.15. Encouraging people with exceptional technical skill

As indicated below respondents majority of them encourage competent workers with good technical skills and retain them in their company. Such tendency of executives help the organization to remain productive and competitive in the labor market.

4.16. Company encourages people with exceptional technical skill

Our company encourages people with exceptional technical skill		Frequency	Percent
Valid	strongly Disagree	1	1.4
	disagree	9	12.9
	Neutral	4	5.7
	Agree	43	61.4
	Strongly agree	9	12.9
	Total	66	94.3
Total		70	100.0

4.2 Mean rank and importance index of major groups of factors

4.2.1. Mean rank and importance index of Motivational Factors

Motivation related factors	Mean	Importance index	Rank
Payment in my organization is paid in a timely manner	3.7910	87.8	1
My organization motivates workers by giving pay cheques (bonus) when they do major construction works	2.7612	63.96	7
Communication in my organization regarding measurement, promotion, etc.. is transparent	2.5672	59.47	8
My organization is very much concerned about safety and security of its workers	2.8806	66.73	6
There is a work load in my organization and compensation is made accordingly	3.4627	80.21	2
Everybody in my organization is treated equally and fairly	3.2090	74.34	3
Regardless of the payment, employees in my organization are always happy to do their job.	2.9701	68.8	5
There is non-monitory incentive mechanism such as annual leave, health insurance, etc.. in my org.	3.1791	73.64	4
There are various capacity building schemes such as on job training, mentorship, etc.. in our organization to be more productive	2.3731	54.97	9

The table above indicates mean rank and importance index regarding motivational factors affecting productivity of employee's performance. The survey finding revealed that company executives rate the highest 87.7% for on

time payment to 54.7% for the availability of capacity building schemes such as on job training, mentorship etc. in their organizations. Other motivational factors like transparency of measurement to measure employees, equal and fear treatments have got medium attention.

Motivation of employees such as material incentives, money reward, recognition, involvement and learning opportunities, eliciting co-operation and participation from workers in goal setting, incur aging workers to apply their creative talents can improve productivity of the construction sector, but the result from respondent executives indicate that motivation is not commonly practiced in the industry compared to the importance index of other factors.

Table 4.2.2 Mean Rank of Supervision and management related factors

Supervision and Management related factors	Mean	Importance index
We know where the direction of our org. in five years is	3.8955	90.24
There is a standard for volume and quality of work measured in time to be accomplished by employees	3.6269	84.02
Our company have daily, weekly, monthly work plan	3.2836	76.06
Effective design standard is put in place	3.1045	71.92
I feel that most of the workers are honest	2.7761	64.31
Workers usually feel responsibility for success and Failure of the org.	2.6515	61.42
There is timely M&E plan in my org.	2.5373	58.78
There is orientation at entry for employees	2.2836	52.9
Whenever there is compliant there is management mechanisms	2.2537	52.21

Respondents rated company goal setting, 90.24% as the highest important factor for in efficient productivity. Second to this the existence of standard for volume and quality of work measured in time to be accomplished by employees with importance index of 84.02%. Having daily, weekly, monthly work plan comes in the third place. Among supervision and management related factors affecting productivity of employees, compliant management system is rated as the least in the rank. Providing orientation for new employees at entry and the implementation of timely monitoring and evaluation are rated 52.9% and 58.78% respectively. The result revealed that construction companies lack the proper practice of supervision and management as a result cannot track their achievements and key indicator for their productivity.

Table 4.2.3 Mean Rank of Demotivating Factors

Demotivating factors	Mean	Importance index
I usually get discouraged by equipment breakage and out of order machines	4.1538	96.22
Bad weather hampers construction works	3.6418	84.36
I get demotivated because of demolition and rework of substandard work	3.2687	75.72

The survey results indicated that, respondents allocate high importance to, demotivating factors compared to other factors. This indicates that majority of respondents believe that demolition of works due to faulty designs, design changes, misinterpretation of designs, poor quality of construction material, poor workmanship and other problems are significant demotivating factors for their workers. Equipment breakage and out of order machineries are the main de-motivating factors for of the respondents above all the factors in this

category. Majority of the respondents also believe that bad weather negatively affects their productivity.

Table 4.2.4 Mean rank of innovation and creativity related factors

Innovation and creativity	Mean	Importance index
The organization strives to achieve and apply automation mechanisms to enhance performance of the work process	3.0896	71.54
The organization applies strict waste reduction and management of construction materials	2.4925	57.74

Factors related to innovation and creativity, as indicated in the table above are rated as least priorities by respondents. When they were asked if their organization strives to achieve and supply automation mechanisms to enhance performance of the work process, their importance index is 71.54%. In comparison to other factors, this indicates lower preference of respondents towards it. The other factor, application of strict waste management reduction and management of construction materials has got even more less priorities by respondents. The overall implication of loss of interest to focus much on creativity and innovation related factors will hamper the productivity of labor.

Table 4.2.5 Mean rank of competence related factors

The mean and importance index of encouraging employees to communicate each other to improve productivity and the believe of respondents in experienced professional to boost construction works productivity have higher priorities by respondents compared to other factors.

competence related factors	Mean	Importance index
workers encouraged to communicate to improve productivity	4.2537	98.54
Experience of professional boosts productivity	4.0149	93.01
Company encourages people with exceptional technical skill	3.7576	87.04

Encouraging people with exceptional technical skill has also relatively higher preferences by the surveyed respondents. From these it is possible to deduce that competence related factors have got higher concerns among the surveyed construction company executives.

Table 4.2.6 Mean rank of supply and maintenance related factors

Construction materials supply and maintenance	Mean	Importance index
Construction input materials (eg cement , aggregate, re-bar, electrical, sanitary, finishing, etc…) are available on site up on need	3.2985	76.41
The necessary labor force for each work item is sufficiently available on our construction sites	3.2537	75.37
Machineries and other equipment are timely maintained at work sites	3.0299	70.19
The company provides with all the appropriate tools and equipment to facilitate construction works	2.8209	65.35

Regarding contractors' performance with respect to supply and maintenance, the survey finding revealed that attitudes of respondents preference can be

categorized as medium in general compared to other factors. Supplying of construction materials is the higher priority among this group of factors followed by the availability of necessary labor force for work items on construction sites. Timely maintenance of machineries and equipment's has also closer priority to the first two factors. But The availability of appropriate tools and equipment's to facilitate construction works is among the least preferred factors as rated by the respondents. The mean rank and priority index of this group of factors indicate that even though proper management of supply and maintenance are critical for construction firms productivity, construction company's consider them as les important and gives laser priorities.

Table 4.2.7. Over all Mean Rank of Factors affecting Productivity of employees

The overall mean rank and importance index of factors affecting productivity of employees in the construction sector are summarized as below in table 4.2.7. The responses from questionnaire analyzed in detail by SPSS version 23 software. The mean rank and index data are the results of analysis of the data collected through the research questionnaire. To arrive at the mean rank and priority index summarized table, descriptive statistics analysis methods are used.

Priority index is used for analyzing question in which respondents were asked to place a set of attitudes in ranking order, indicating their importance priorities or preferences. Accordingly, the factor, Workers encouraged to communicate to improve productivity has got the highest priority index(98.54%) and to the other extreme, the other factor, whenever there is compliant there are management mechanisms has the least(52.2%) priority index as pointed out in the table below. The other factors that affect productivity of the labor for in the construction sector particularly on building construction projects are ranked in descending orders based on their mean and priority index results.

Mean rank and importance index of major Factors affecting productivity of employees in construction	Mean	Importance index
Workers encouraged to communicate to improve productivity	4.2537	98.54
I usually get discouraged by equipment breakage and out of order machine	4.1538	96.22
Experience of professional boosts productivity	4.0149	93.01
We know the direction of our company in five years	3.8955	90.24
Payment is paid timely	3.7910	87.82
Company encourages people with exceptional technical skill	3.7576	87.04
Bad weather hampers construction works	3.6418	84.36
There is a standard for volume and quality of work in time	3.6269	84.02
There is work load in my organization	3.4627	80.21
Construction inputs are available up on need	3.2985	76.41
Our company have daily, weekly, monthly, work plans	3.2836	76.06
I get demotivated because of demolition and rework of substandard work	3.2687	75.72
Sufficiency of human resource on site on demand	3.2537	75.37
Everybody treated fairly in my org	3.2090	74.34
There is incentives such as leave health insurance in my org	3.1791	73.64
Effective design standard are put in place in my org.	3.1045	71.91
Use of digital technology	3.0896	71.57
Is your salary sufficient	3.0299	70.19
Machineries and equipment maintained timely	3.0299	70.19
Happy in my job regardless of payment	2.9701	68.80
Safety and security is a concern	2.8806	66.73
Tools and equipment's available for my work	2.8209	65.34
I feel that most of the workers are honest	2.7761	64.31
pay cheques (bonus) eventually for major performances	2.7612	63.96
Employees feel responsibility for success and Failure of the org	2.6515	61.42
Managers are keen to coach and mentor workers	2.6119	60.50
Communication is transparent in my org	2.5672	59.47
There is timely M&E plan	2.5373	58.77
The company applies strict waste reduction and management	2.4925	57.74
Capacity building scheme are available in my org.	2.3731	54.97
There is orientation at entry for employees	2.2836	52.90
Whenever there is compliant there is management mechanisms	2.2537	52.20

Table 4.2.8. Over all Mean Rank of Factors affecting Productivity of employees

CHAPTER FIVE

Conclusion and Recommendation

5.1 Conclusion

The study found out major results concerning importance and priorities given to factors affecting productivity of employees in building construction projects from the point of views of construction companies' executives. Some of the major results include:

Factors such as encouraging workers to communicate each other to share ideas and skills, demotivating factors such as equipment breakage and rework of substandard works, employing experienced and skilled workers have got higher priorities.

Motivation of employees such as material incentives, money reward, recognition, involvement and learning opportunities, eliciting co-operation and participation from workers in goal setting, incur aging workers to apply their creative talents do not commonly practiced in building construction projects compared to the importance of other factors.

Construction Company's give little attentions to proper supervision and management practices that include timely monitoring and evaluation, clear and achievable mission and vision statements, proper daily, weekly, monthly and annual plans, orientation mechanisms for new entrants, coaching and mentoring of employees at different levels.

Implementation of innovation and creativity practices such as application of strict waste management and automation mechanisms to enhance performance of the work force is below 40 % according to the results of this study. The overall implication is loss of interest to focus much on creativity and

innovation related factors consequently hampers the productivity of labor output.

Proper and timely Supply of construction input materials, maintenance and availability of construction machineries are given relatively medium priorities.

This study provides new insights into understanding of the factors that affect performance, and productivity of employees in construction projects. The level of understanding and priorities given by construction company's executives to these factors is also evaluated. The research has important implications to construction, design, consulting and supervision companies. Policy makers can also use it as input in the planning and developing of activities that raise productivity of the labor force in the construction sector to positively enhance productivity. Besides, this research also stressed the importance of enhancing knowledge of company executives, core staffs, and employees and, other actors to realize and make use of factors contributing to labor productivity.

5.2. Recommendations

Lack of efficient and modern management system that incorporates the employee's management system is one of the major factors, which undermine contractors' overall capacity. The consequence of this hampers construction companies from fulfilling predetermined performance criterions. The poor and inefficient performances are manifested in terms of over budgeted cost, overrun of completion time, compromised quality and stakeholders' dissatisfaction.

Proper management of factors affecting productivity of employees help them to reverse the problems and assume better financial position, and firm value. Which in turn enable them achieve company's goals and projects objectives.

The recommendations forwarded by this research are from the point of view of executive's internal environment. The process from the view of the external environment which primarily encompasses the various stakeholders is not included in the study.

Implementing efficient and modern employee's management system or enhancing efficiency of the prevailing practice is one of the very, relevant instruments to promote productivity of the construction sector. This will ultimately bring economic growth for the nation.For this to happen, more to be done on factors affecting productivity of employees in the industry. Among some of the recommendations the following are the major ones:

- National contractors, apart from the technical capacity enhancements, and focusing on equipment and machinery capacity building, should also consider critically the human resource management and productivity aspect.
- Employee's management is important as a very relevant instrument to accomplish construction projects successfully. This ultimately contributes for growth of the nation's economies. Hence more need to be done on factors affecting productivity of the labor force by policy makers and other stack

holders to infuse dynamism in the economic activity of the construction sector.

- As revealed by the results of this survey, contractors should give especial emphasis to identify, analyze and implement those factors affecting productivity of the human aspect.

5.3 Future Research

This research has explored factors of national contractors' practice, with regard to factors affecting productivity of employees from the points of views of their executives. The research has also forwarded recommendations to improve the practice and obtain improved result. However, the issues covered by the research are so vast that it became difficult to present all relevant interventions in a comprehensive and exhaustive manner. On top of that the research was conducted from the perspectives of executives. Therefore, the following points are recommended to be assessed in detail, as they can be focal points for further research, to improve productivity:

- The application of monitory and non-monitory motivational schemes from the employees perspective
- It would be interesting to explore the factor variables further to learn more about employees productivity applying the factors more exhaustively.
- It would also be interesting to explore the factor variables from the perspectives of employees and clients of construction projects.

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ANNEX

1 Questionnaire for Primary Data Collection

Questionnaire on Factors affecting productivity of employees in the construction industry, the case of building projects in Addis Ababa; Executive's Perspective

Dear Respondents,

This questionnaire is designed for the partial fulfillment of the requirements for Executive Masters of Business Administration (EMBA) Degree at Addis Ababa University. The purpose of the questionnaire is to investigating factors affecting the productivity level of the labor force in the construction sector particularly on building construction projects in Addis Ababa from the viewpoints of executives. By filling out this questionnaire you participate in a study for my EMBA final research project.

Hence, I request you to give the required information since your genuine Contribution is very important for the success of my study. Your responses will be used for this research purpose only and kept confidential. You are not required to write your name.

For further information please don't hesitate to contact me by Cell phone: **0930099577** or E-mail- **abmmesgana@gmail.com**

Thank you in advance for your willingness!!!

Part one:-

Background information

Level of the company you are leading /Grade _____

The main business of your organization?
1. Design and supervision
2. Construction

Your level of education please?
1. First degree and above
2. Diploma (level I-V)

4. Primary school

Please indicate your gender
1 Male 2Female

How many years have you been working as an executive in the construction sector
1. 5-10 years2. 10-15 years 3. more than 15 years

Do you believe that your organization is more productive
1. Yes 2.no

Do you have any intention to change your job in the coming 12 months?
1. Yes 2. No

Part two :- main interview questions

	Questions	Strongly Agree	Agree	Neutral	Disagree	Strongly disagree
1	**Motivating factors** Payment in my organization is paid in a timely manner					
2	My organization motivates workers by giving pay cheques (bonus) when they do major construction works					
3	I believe that the salary the organization pay for employees is adequate					
4	Communication in my organization regarding measurement, promotion, etc.. is transparent					
5	My organization is very much concerned about safety and security of its workers					
6	There is a work load in my organization and compensation is made accordingly					
7	Everybody in my organization is treated equally and fairly					
8	Regardless of the payment, employees in my organization are always happy to do their job.					
9	There is non monitory incentive					

	health insurance, etc.. in my organization					
10	There are various capacity building schemes such as on job training, mentorship, etc.. in our organization to be more productive					
11	**Demotivating factors** Employees most of the time, get de-motivated when work done is demolished and need to be re worked due to sub standard					
12	Workers on construction sites usually discouraged by equipment breakage and out of order machineries					
13	Bad weather sometimes hampers our construction work that negatively affects labor productivity)					
14	**Supervision and management** I know that there is a standard for volume and quality of work to be accomplished within a certain time period by professional and ordinary workers					
15	We know where our company Is heading the next five years					
16	I Know that my company has proper daily, weekly, monthly and annual plans.					
17	There is a timely monitoring and evaluation of our work to measure process and outcome performance					
18	Whenever employees have complaints with regard to work, there are compliant delivery and management mechanisms					
19	Whenever new workers are coming to our company there is orientation mechanism about their duties and responsibilities					
20	Management of my company is keen to coach and mentor workers at all levels during supervision					
21	I believe that many workers feel					

	responsible for the success and failure of the company's work					
22	I feel that most of the workers are honest in their work					
23	The organization follows effective design standards prior to construction					
24	**Innovation &creativity** The organization applies strict waste reduction and management of construction materials					
25	The organization strives to achieve and apply automation mechanisms to enhance performance of the work process					
26	**Competence** The company identifies and retain people who have the personal technical skill to improve productivity					
27	Staff served the organization much longer helps to improve productivity than new staff					
28	Workers shall be encouraged to communicate widely to improve productivity					
29	**Supply and Maintenance** Construction input materials (eg cement , aggregate, re-bar, electrical, sanitary, finishing, etc…) are available on site up on need productivity					
31	The necessary labor force for each work item is sufficiently available on our construction sites					
32	Machineries and other equipment are timely maintained at work sites					
33	The company provides with all the appropriate tools and equipment to facilitate construction works					

Do you have any thing that you want to add?

Thank you for your time

MINISTRY OF CONSTRUCTION

CONSTRUCTION INDUSTRY DEVELOPMENT AND REGULATORY BUREAU

LIST OF REGISTRED CONTRACTOR'S FOR 2008 BUDGET YEAR

Registration from Hamle 2007 e.c. Megabit 2008 e.c

Ser. No.	Organization	ID No.	Reg. No. Con/_	Category	Remark
A	B	C	D	E	
1	Radar Construction	---	2636	BC-1	
2	Yirgalem Construction P.L.C.	09296	0871	GC-1	
3	CRBC Addis Engineering PLC	---	1846	GC-1	
4	TikuBerhane Building Contractor	---	3025	BC-1	
5	C.G.C. OVERSEAS CONSTRUCTION ETHIOPIA LIMITED	13276	4146	GC-1	
6	Amahara Road Works Enterprise	--	5039	GC-1	
7	Yeshi PLC	13303	5310	BC-1	
8	KassahunAbeje Building Contractor	13325	2648	BC-1	
9	Roel Construction	13333	3574	BC-1	
10	Samket Engineering & Construction PLC	07695	4865	BC-1	
11	Cobalt Construction PLC	13387	4968	BC-1	
12	BelayenehTesfaye	13474	0869	BC-1	
13	Orrix Construction PLC	----	9428	BC-1	
14	Dugda Construction PLC	08581	5717	BC-1	
15	SA Construction P.L.C.	01095	2108	BC-1	
16	GutemaFirisa Building Contractor	13633	10228	BC-1	
17	Geom Luigi Varnero P.L.C (Alber to Varnero)	11353	746	GC-1	
18	Yotek Construction PLC	--	0799	GC-1	
19	SA Construction P.L.C.	----	2108	BC-1	
20	MEDCON Engineering and Construction PLC	---	3986	RC-1	
21	Jafar Construction & Real State	13759	2914	BC-1	
22	EL General Business PLC	13788	4345	BC-1	
23	TilahunAbebe General Contractor	10970	4569	GC-1	

24	AbebeGirmaye Building Contractor	--	7761	BC-1	
25	Megelta Construction PLC	--	4415	BC-1	
26	Zamra Construction PLC	--	0620	BC-1	
27	Yirgalem Construction PLC	---	0871	GC-1	
28	TamratTemesgen Building Contractor	13904	0668	BC-1	
29	AhmetAydeniz Construction	---	5580	GC-1	
30	Anchor Foundation Specialist PLC	10526	8220	SC-1	
31	Mohammed Abas	13985	3391	BC-1	
32	Amhara Water Works Enterprise Construction	--	5617	GC-1	
33	ATS Engineering PLC	--	2821	BC-1	
34	Capstone Engineering	11144	2027	BC-1	
35	YemaneGirmayBisrat General Contractor	--	3393	GC-1	
36	Melcon Construction PLC	--	4991	GC-1	
37	BereketEndashaw Building Contractor	--	3749	BC-1	
38	Magercon P.L.C.	---	0605	BC-1	
39	Justice Building Contractor P.L.C.	10301	3100	BC-1	
40	Mohammed YesufeEshete	---	3288	BC-1	
41	YaredTekelemedhinMengistu	14144	5201	GC-1	
42	Afro Tsion Construction P.L.C. (SisayDesta G/Yesus)	---	0380	GC-1	
43	GemshuBeyeneBotte	11542	2758	GC-1	
44	Samson G/Yohannes Building Contractor	06050	0984	BC-1	
45	BerhanTobiawMareye	---	0009	BC-1	
46	AberaLisanu Building Contractor	---	3077	BC-1	
47	Mela Engineering & Construction P.L.C.	---	1427	BC-1	
48	Bermog Construction PLC	14236	10566	GC-1	
49	Rama Construction PLC	---	0915	GC-1	
50	HawaAdemMusse	----	4421	GC-1	
51	Giga Con.P.L.C. (G/HiwotGirmay)	----	0659	GC-1	
52	Data Construction PLC	----	0041	BC-1	
53	Sur Construction PLC	---	0876	GC-1	
54	BekeleSorsa Building Contractor	---	2974	BC-1	
55	Lucy Engineering P.L.C.	---	2869	BC-1	
56	Equator Engineering Construction PLC	---	0938	BC-1	
57	Koracon Construction	---	0645	BC-1	
58	Alas Construction PLC	----	3383	BC-1	
59	Universal Construction P.L.C.	--	0028	BC-1	
60	SATCON Construction	14451	0774	GC-1	
61	Defence Construction & Engineering Enterprise	14481	4076	GC-1	

62	EmneteEndeshaw General Contractor	--	1073	GC-1	
63	Beaeka General Business PLC	09976	6034	GC-1	
64	Bamacon Engineering P.L.C.	---	2604	BC-1	
65	Genale Construction PLC	--	0049	BC-1	
66	Africawit Construction PLC	--	0083	BC-1	
67	Kulubi Construction	--	0263	BC-1	
68	United Construction P.L.C.	--	3294	BC-1	
69	TNT Construction	--	2972	GC-1	
70	Adam Construction (Samuel Bogale)	--	1124	BC-1	
71	Mepo Contracting and Management Services PLC	10033	7535	BC-1	
72	K.K.G. Building Contractor	--	4352	BC-1	
73	Etete Construction	14648	4056	BC-1	
74	Orbit Engineering & Construction P.L.C.	--	0166	BC-1	
75	Kassa& Sons Construction P.L.C.	--	0295	BC-1	
76	Elmiolindo Construction P.L.C.	--	1150	BC-1	
77	Lorat Construction	---	3540	BC-1	
78	Yerer Construction P.L.C.	--	2621	BC-1	
79	Samuel S/Mariam Endale	--	0311	BC-1	
80	GebrehiwotEqubemariam General Contractor	--	5857	GC-1	
81	Aser Construction PLC	--	6090	GC-1	
82	Yohannes Haile Building Contractor	--	3675	BC-1	
83	Amhara Building Works Construction Enterprise	14708	10866	BC-1	
84	GAD Construction PLC	--	0993	BC-1	
85	Fal General Contractor	14233	2784	GC-1	
86	Bright Construction PLC	--	0599	BC-1	
87	Santa Maria Construction P.L.C.	14725	0283	BC-1	
88	Sina Construction P.L.C.	---	4745	BC-1	
89	Crafts Construction PLC	---	2230	BC-1	
90	Atem Building Contractor	--	1650	BC-1	
91	DesalegnAsradeKassa	--	0064	BC-1	
92	Sunshine Construction	--	0135	GC-1	
93	TIKS Construction	--	5320	BC-1	
94	Dini Construction	12947	4741	BC-1	

95	Bereka Construction	14911	0821	BC-1	
96	3M Engineering & Construction PLC	14910	0086	BC-1	
97	Rediete-Dagem Engineering & Construction P.L.C.	05421	0265	BC-1	
98	TeklehaimanotAsgedom Building Contractor	09517	0515	BC-1	
99	Ziquala Building Contractor	10120	1172	BC-1	
100	Orchid Bussiness Group P.L.C.	10111	2267	GC-1	
101	Kibco Service & Investment PLC	14830	6774	BC-1	
102	Ethio Canadian Business Group	14832	2772	GC-1	
103	Daniel Tsegaye G/Yohannes	14911	1313	BC-1	
104	XUEKAI YU	14973	6535	GC-1	
105	Ethio General Contractor	------	2485	GC-1	
106	Flintstone Engineering	07636	0627	BC-1	
107	N.K.H. Construction P.L.C.	09735	0996	GC-1	
108	Nasew Construction P.L.C.	14943	0031	BC-1	
109	Keangnum Enterprises Limited	---	1943	GC-1	
110	FE Construction PLC	----	3183	BC-1	
111	Yencomad Construction PLC (YemiruNega)	---	1202	GC-1	
112	YosefKassaye Building Contractor	14976	0534	BC-1	
113	BehaConsturction (BehailuTeferaSeifu)	----	3944	BC-1	
114	Midroc Foundation Specialist (Bauer Midroc)	----	1542	PF-1	
115	DiribaDefershaAmosha	----	0417	GC-1	
116	Homa Construction (AdugneEjigu)	----	0760	GC-1	
117	SaliniCostruttori S.P.A Ethiopian Branch	----	2521	GC-1	
118	Kif Construction	-----	5090	GC-1	
119	ALTABE PLC	----	2619	BC-1	
120	GetachewAtsbehaKidanu	----------	0635	BC-1	
121	DawitGirmay Building Contractor	15658	1508	BC-1	
122	Trust Construction	--------	0853	BC-1	
123	Kasma Engineering P.L.C.	--------	3496	BC-1	
124	Oromia Roads Const. Entrerprise	--------	5565	GC-1	
125	Cross-Land Construction (YaregalYifredewMengistu)	--------	3308	GC-1	
126	TewodrosAbera General Contractor	-------	7778	GC-1	
127	Ethiopian Road Construction Corporation	----	7877	GC-1	

128	AyenalemeGashaweAriga	----	3253	BC-1	
129	TewodrosAbera General Contractor	----	0778	GC-1	
130	Unity Engineering P.L.C (AssefaDemssie)	--	1031	BC-1	
131	Samson Chernet Road Contractor	11889	4490	GC-1	
132	Senan Construction P.L.C.	01208	3152	RC-1	
133	Demera Engineering Construction	----	0026	BC-1	
134	Shade General Contractor P.L.C.	15835	4027	GC-1	
135	MurezaLeja Building Contractor	---	0806	BC-1	
136	Loza Construction P.L.C.	15869	4603	BC-1	
137	Aster Mengistu G/Michael	--	0934	GC-1	
138	MesayOli Building Contractor	10223	0415	BC-1	
139	Michael Abreha Building Contractor	15904	4743	BC-1	
140	TayeAsfawMekonnen	11427	0643	BC-1	
141	TekleberhanAmbaye Construction P.L.C.	10157	0981	GC-1	
142	FufaLegissa Building Contractor	--	0646	BC-1	
143	Habcon Construction	08015	4483	BC-1	
144	DMC Construction PLC	--	0864	GC-1	
145	Terra Construction	15987	1185	RC-1	
146					
1	MebrhitTeame Building Contractor	13083	4543	BC-2	
2	Bethel ConstructionConstruction PLC	13305	0679	BC-2	
3	YaredSeyoumKahsay	--	3131	BC-2	
4	Mohammed Abas Contractor	--	3391	BC-2	
5	Samuel Lemma Building Contractor	---	0952	BC-2	
6	Ashito Engineering PLC	---	3832	BC-2	
7	NigussieWorke Building Contractor	11146	2434	BC-2	
8	Yetwins Construction PLC	--	6232	BC-2	
9	BantiwalaTessemaYitna	11147	3824	BC-2	
10	T.D.T PLC	---	6057	BC-2	
11	SeyfeWondie Building Contractor	----	2890	BC-2	
12	Zeta Construction PLC	---	1666	GC-2	
13	SeyfeWondieAdnew	14180	2890	BC-2	
14	Biyanko Building Construction PLC	14209	4326	BC-2	
15	BerhaneAdane G/Egziabhre		6164	BC-2	
16	AberaMamo Building Contractor	14332	5256	BC-2	
17	AyalnehTsegayeMengistu	10539	4243	BC-2	

18	Jerry Maraki Engineering P.L.C.	--	4298	BC-2	
19	TekesteTesfayeWoldu	14523	0491	BC-2	
20	MuluHadguDebesie	---	2009	BC-2	
21	Qaga General Business PLC	14564	9039	GC-2	
22	Narucon Construction PLC	14596	5770	RC-2	
23	TewodrosSimenehAlemayehu	--	5264	GC-2	
24	AlemayehuTefera	--	1679	BC-2	
25	AklileAssefa General Contractor	---	1363	GC-2	
26	Powercon P.L.C.	--	2268	RC-2	
27	Mikada Engineering & Trading PLC	--	6145	GC-2	
28	Solomon Tilahun Building Contractor	14768	3925	BC-2	
29	TesfayeLegesse Construction	--	6729	GC-2	
30	GashawMelese Building Contractor	14779	0327	BC-2	
31	Select Construction PLC	--	4787	BC-2	
32	Haverim Construction	--	4384	BC-2	
33	Fidel Con Engineering P.L.C.	--	4300	BC-2	
34	WorknehMekonnen General Contractor	14860	4747	BC-2	
35	MetaferiaKifle Building Contractor	10122	1134	BC-2	
36	AfeworkGideyBerhe	10685	2584	GC-2	
37	Tariku Tadess H/mariam	14953	10980	GC-2	
38	Blulayen Building Contructor	14958	10954	BC-2	
39	JB Construction PLC	08781	7199	GC-2	
40	TOWER P.L.C.	14981	1538	BC-2	
41	BirhanuAbebe G/Mairiam	----	1840	BC-2	
42	Desalegn Addis Belete	----	6252	BC-2	
43	LilayWoldu Water Works and General Contractor	----	6584	BC-2	
44	Issayas&Herouy Construction PLC	----	1529	BC-2	
45	YosephWondimu Building Contractor	----	3269	BC-2	
46	Mat General Cont. (TamiratNegash)	----	1157	GC-2	
47	Rocket Constrauction	15682	3587	GC-2	
48	MerideDechasaGaredew	---	1422	BC-2	
49	Rocket Constrauction	---	3587	GC-2	
50	Katekse Engineering and Trading P.L.C.	----	1824	BC-2	

51	PaulosZelekeGizaw	09858	6612	BC-2	
52	Tefera Michael Wajebo	15771	3940	BC-2	
53	Daniel Berhe G/Medhin	12521	0416	BC-2	
54	CherenetChaneYimer	--	1106	GC-2	
55	Mod Con Engineering P.L.C.	15823	4734	BC-2	
56	EneyewAlemu Building Contractor	--	1816	BC-2	
57	TewoldeGidey Construction	09898	7824	BC-2	
58	Safer Construction	15926	2040	GC-2	
59	ZelekeRediBelachew	10302	7696	BC-2	
60	Tedat Construction P.L.C.	10394	3653	BC-2	
1	Belachew Solomon Gezahegn	13077	0584	BC-3	
2	TadeleGari Building Contractor	13063	0602	BC-3	
3	Dynamic Construction	---	0609	BC-3	
4	Kazol Construction PLC	13110	9874	BC-3	
5	GizachewAbrhaTafere	13157	9916	BC-3	
6	HD Construction PLC	---	1078	BC-3	
7	A.B.M Construction PLC	--	3046	BC-3	
8	Addis Ababa General Construction PLC	13216	2876	BC-3	
8	AsmamawAlene	---	4248	BC-3	
9	Heber Construction	13294	0878	BC-3	
10	AW-HARIM Construction	---	1372	BC-3	
11	MengistuShewarega General Contractor	10941	0088	BC-3	
12	Samson Girmay Building Contractor	13352	9462	BC-3	
13	Kemal Aman Building Contractor	13369	3260	BC-3	
14	BGM Construction	--	4873	BC-3	
15	GebremedhinTsegayeBerhe	08706	4862	BC-3	
16	LibuKifleBurdamo Building Contractor	13428	0225	BC-3	
17	BerhanuYigezuBeyene	13436	5730	BC-3	
18	Hamracon Construction and Engineering Enterprise	13472	6109	BC-3	
19	NegashAkaleWorku	--	2106	BC-3	
20	GT Darago PLC	10317	6438	BC-3	
21	Line Construction	13570	2056	BC-3	
22	Assefa Kara Building Contractor	--	2530	BC-3	
23	MeishoYibrah Building Contractor	13675	10173	BC-3	

24	Samson WoldaySahulu	---	6532	BC-3	
25	Bencon Construction	11340	5437	BC-3	
26	Hoha Engineering PLC	--	5872	BC-3	
27	Ronali Construction PLC	07756	6511	BC-3	
28	BekeleBeyore Building Contractor	13927	2338	BC-3	
29	EyayuEshete Building Contractor	----	0464	BC-3	
30	HailegiorgisTamerat Building Contractor	10628	0094	BC-3	
31	TesfayeAbebe Building Contractor	10139	0446	BC-3	
32	AynalemGashaw Building Contractor	---	3253	BC-3	
33	Kek Construction & Trading PLC	13990	10499	BC-3	
34	Skill PLC	11514	3400	BC-3	
35	TesfayeTsegaye	--	4111	BC-3	
36	Abaya Building Contractor	---	1011	BC-3	
37	KassahunZerihun Building Contractor	14004	3805	BC-3	
38	BayrayTadesse Building Contractor	---	0706	BC-3	
39	Solomon AbiyeDagne	--	3305	BC-3	
40	Serja Construction And General Trading PLC	14100	5805	BC-3	
41	Nayom Construction PLC	14096	6712	BC-3	
42	Alroy construction PLC	09756	5672	BC-3	
43	DawitEmiru Building Contractor	-----	1967	BC-3	
44	AyalewAddisu	14199	10525	BC-3	
45	YemanTekele Building Contractor	--	7160	BC-3	
46	DawitAleneDesta	11155	8637	BC-3	
47	GetachewAssefaMekonnen	---	2680	BC-3	
48	Nued Construction	14263	8362	BC-3	
49	MeyramMahe General Contructor	14257	6002	BC-3	
50	AbebeAlemu Building Contractor		0216	BC-3	
51	TesfayeKumsa Building Contractor	----	0733	BC-3	
52	Sabeh General Construction PLC		8048	BC-3	
53	GetenetTesfayeWube	14306	3107	BC-3	
54	Tekrom Construction	14339	1553	BC-3	
55	Nisir Construction PLC	7186	7186	BC-3	
56	PaulosZelekeGizaw	---	6612	BC-3	
57	Akwos Building Contractor	12879	9694	BC-3	
58	DebebeKinfe Building Contractor	---	3641	BC-3	
59	Dehayeb Engineering	14419	10679	BC-3	
60	Huikab Construction Materials Rental PLC	11837	8956	BC-3	
61	Mekbet Engineering PLC	11464	5532	BC-3	
62	HenokTamiruMentile Construction	--	6123	BC-3	
63	Berhane Haile Building Contractor	14498	0527	BC-3	

64	AlemayehuBayraDaba	---	1911	BC-3	
65	AnjeloArsheDiddo	--	0629	BC-3	
66	Ahmed WodmatasNuro	14546	6886	BC-3	
67	Berecha Feta Tufa	--	2645	BC-3	
68	BirukTesfayeTeklewold	07060	1885	BC-3	
69	AB Construction P.L.C.	--	0268	BC-3	
70	Van Construction	--	0903	BC-3	
71	AKA Construction PLC	---	0675	BC-3	
72	MekashaAmbaw Building Contractor	14697	3628	BC-3	
73	Radar Business PLC	--	6831	BC-3	
74	Addis GelawBuilidng Contractor	--	0524	BC-3	
75	Hiya General Contractor	--	1517	BC-3	
76	GYG General Contractor	11776	6696	BC-3	
77	Kaleb Construction P.L.C.	--	3579	BC-3	
78	Yonatan Abiye General Contractor	--	8763	RC-3	
79	TewodrosMesfin Building Contractor	15800	11209	BC-3	
80	Eyaya International Business PLC	--	11174	GC-3	
81	Nahiet Business PLC	15865	5738	BC-3	
82	FikaduBogaleWorku	06254	5871	GC-3	