

ADDIS ABABA UNIVERSITY
SCHOOL OF COMMERCE
MA IN PROJECT MANAGEMENT



**Assessment of the Performance of 20/80 Condominium Housing Project
Offices: The Case of Addis Ababa Bole Sub city “Arabsa” Site**

**A project work submitted to school of commerce in Partial Fulfillment of
Requirements for the Degree of Master of Arts in Project Management**

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DECLARATION

I, Solomon Habtewold Mamo, declare that this project work entitled “Assessment of the performance of 20/80 Condominium Housing project offices: the case of Addis Ababa Bole Sub city “Arabsa” Site” is my original work, has not been presented earlier for the award of any degree to any other university and that all sources of materials used for the thesis have been duly acknowledged. I have produced it independently except for the guidance and suggestion of my research advisors.

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ABSTRACT

This study assesses the performance of the condominium house project offices in Addis Ababa Bole Sub city “Arabsa” sites. Based on the key project participants; clients, consultants, and contractor’s responses, the most important factors affecting the project performance were identified using the Relative Importance index (RII). Semi-structured questionnaire was administered to 50 of key players in the implementation process. Furthermore, interviews were used as data collection tools and secondary sources were also used as data sources. The findings indicate that all 3 groups agree that the most important factors affecting project performance are: escalation of material prices, financial problem, lack of planning and scheduling, delay in progress payments, lack of communication and coordination among the project participants, poor decision-making and shortage of qualified personnel. Based on these findings, the paper recommends that: 1) project clients should consider appropriate inflation factor during cost estimation process and advised to setup stores for required materials. Project clients must work collaboratively with contractors and facilitate regular payments in order to overcome delays, disputes and claims; 2) The owners should focus on selection of competent consultants and reliable contractors and also allow to participate competent international contractors to speed up the project. 3) The project managers and other top-level managers should have effective decision-making ability in order to accomplish the projects successfully.

Key words: Condominium housing, Project performance, RII, Ethiopia

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TABLE OF CONTENTS

| | |
|---|------|
| DECLARATION | iii |
| ABSTRACT..... | i |
| ACRONYMS AND ABBREVIATIONS | vi |
| LIST OF TABLES | vii |
| LIST OF FIGURES | viii |
| CHAPTER ONE: INTRODUCTION..... | 1 |
| 1.1. Background of the Study..... | 1 |
| 1.2. Statement of the Problem | 3 |
| 1.3. Research Questions | 5 |
| 1.4. Objective of the study | 5 |
| 1.4.1. General objective..... | 5 |
| 1.4.2. Specific objectives..... | 5 |
| 1.5. Significance of the Study | 6 |
| 1.6. Scope of the Study..... | 6 |
| 1.7. Limitation of the Study | 6 |
| 1.8. Organization of the Study | 7 |
| CHAPTER TWO: LITERATURE REVIEW | 8 |
| 2.1. Introduction: | 8 |
| 2.2. The contribution of Project Management on the effectiveness of project performance. | 8 |
| 2.3. Benefits of Measuring the Project Performance | 9 |
| 2.4. Factors Affecting Cost and Time Performance..... | 10 |
| 2.5. Assessment of the existing housing sector in Addis Ababa..... | 13 |
| 2.6. Quality Practices in Building Projects | 15 |
| 2.7. Empirical Review | 17 |

| | |
|--|----|
| 2. 8 Conceptual Framework | 18 |
| CHAPTER THREE: METHODOLOGY | 20 |
| 3.1. Introduction | 20 |
| 3.2. Research Design..... | 20 |
| 3.3. Research Approach | 20 |
| 3.4. Target Population | 21 |
| 3.5. Sampling Technique..... | 21 |
| 3.6. Sample Size | 21 |
| 3.7. Source of Data and Type | 22 |
| 3.8. Data Collection..... | 22 |
| 3.9. Methods of Data Analysis and Interpretation | 22 |
| 3.10. Validity and Reliability Tests..... | 23 |
| 3.11. Ethical Issues..... | 23 |
| CHAPTER FOUR: RESULTS AND DISCUSSIONS..... | 24 |
| 4.1. Introduction | 24 |
| 4.2. Background Information of the Respondents..... | 24 |
| 4.2.4 Place of Assignment of the Respondents | 26 |
| 4.3. The Performance of Selected Projects Offices Based on Cost and Time Factors..... | 27 |
| 4.4. Quality of Condominiums..... | 29 |
| 4.5. Factors Affecting Performance of Condominium House Construction Projects that are Underway in Bole Sub City “Arabsa” Sites..... | 29 |
| 4.5.2. Factors Influencing Time or Schedule Performance of Condominium House Construction Project Offices in Bole Sub City | 34 |
| 4.5.3 Factors Influencing the Quality of Condominium House Construction Project under Bole Sub City Project Offices of “Arabsa” Sites..... | 36 |

| | |
|--|----|
| 4.5.4. Management Related factors influencing the performance of 20/80 condominium house construction projects under Bole Sub city project offices in “Arabsa” sites | 40 |
| 4.6 Others Factors Affecting the Performance of Condominium Houses Construction Projects in Bole Sub City “Arabsa” Sites | 43 |
| CHAPTER FIVE: CONCLUSIONS AND RECOMMENDATIONS | 45 |
| 5.1. Conclusion..... | 45 |
| 5.2. Recommendations | 46 |
| 5.2.1 Actions to be taken by Contractors..... | 46 |
| 5.2.2 Actions to Be Taken by Consultant/Supervisor | 47 |
| 5.2.3. Actions to Be Taken by Client | 47 |
| REFERENCE..... | 49 |

ACRONYMS AND ABBREVIATIONS

| | |
|-----------|---|
| AA | Addis Ababa |
| AAHCPO | Addis Ababa Housing Construction Project Office |
| AAHDPO | Addis Ababa Housing Development Project Office |
| CBE | Commercial Bank of Ethiopia |
| CSA | Central Statistical Agency |
| EC | Ethiopian Calendar |
| GDP | Gross Domestic Product |
| GTP | Growth and Transformation Plan |
| IHDP | Integrated Housing Development Program |
| MoFED | Ministry of Finance and Economic Development |
| MoUDHC | Ministry of Urban Development, Housing and Construction |
| MSEs | Micro and Small Enterprises |
| MDG | Millennium Development Goal |
| MWUD | Ministry of Work and Urban Development |
| PMBOK | Project Management Body of Knowledge |
| PMI | Project Management Institute |
| PMO | Project Management Office |
| NUPI | National Urban planning institute |
| UNHABITAT | United Nations Human Settlement Program |
| UDHR | Universal Declaration of Human rights |

LIST OF TABLES

| | |
|--|----|
| Table 1: Number of house registered people in Addis Ababa | 14 |
| Table 2: Rounds of distribution condo House up to the year 2017 | 15 |
| Table 3: Respondents by their Age | 24 |
| Table 4 Respondents by their sex | 25 |
| Table 5: Work Experience of Respondents | 26 |
| Table 6 Place of Job Assignment of the Respondents | 26 |
| Table 7 Cost variance and Rate of cost overrun of Projects | 27 |
| Table 8 Schedule Variance and Rate of Time overrun of the Projects | 28 |
| Table 9 Factors affecting cost performance of condominium house construction projects | 31 |
| Table 10 Factors affecting time performance of condominium house construction projects. | 34 |
| Table 11 Factors affecting quality performance of condominium house construction projects | 37 |
| Table 12 Leadership factors affecting the performance of condominium house construction projects | 41 |

LIST OF FIGURES

| | |
|--|----|
| Figure 1: Conceptual Frame Work | 19 |
| Figure 2: Bole Arabsa1 Project Site..... | 51 |
| Figure 3: Bole Arabas 2 project site | 51 |

CHAPTER ONE: INTRODUCTION

1.1. Background of the Study

Housing is one of the most essential asset needs of humankind. Yet the need for housing is not balanced with its supply. In all developed countries of the world, governments attempt to reduce or eliminate the imbalance either by intervening in parts of the housing market for the first time or by remedying the weaknesses of existing policies or both.

Over 100 million people around the world are homeless and over one billion are inadequately housed. Half of the population of the world particularly in the cities of developing countries live in informal settlement, Dejene (2007). Already half of the world's population lives in urban centers and one third of them in slums. This figure is expected to increase by one billion in a decade and slums will grow at an accelerated pace unless 35 million housing units are made available annually, Yewoineshet (2007). However, in developing countries quantitative and qualitative growth and rural-urban migration on an enormous scale-resulting in overcrowding, squalor and life-threatening in sanitary condition that staggers the imagination. Estimates by the World Bank indicate that for every unit of permanent housing built in low-income developing countries, nine new households are formed, Paul, et al., (2000).

Ethiopia's urban centers are characterized by a poorly developed economic base, high levels of unemployment and incidence of poverty and slum habitation. Urban unemployment is estimated to be 16.7% and up to 28.6%, IHDP (2008, p.2) in Addis Ababa. IHDP indicate that nearly 40% of the nation's urban dwellers live below the poverty line. An indicator of the magnitude of urban poverty is the proportion of the urban population that lives in slums – about 70%, IHDP (2008, p.2) of the urban population is estimated to live in slum areas. It should be noted however that Ethiopian cities are not characterized by segregated settlement pattern and slums form an integral part of the city. Achieving Millennium Development Goal 7, Target 11 – improving the quality of lives of slum dwellers is a major challenge in Ethiopia. Studies made in the last five years concluded that currently a housing shortage of between 900,000- 1,000,000, IHDP (2008, p.2) centers exists.

Many of the existing houses are below quality standard and lack sufficient space, Housing for expatriates in Ethiopia (Anon., 2007). The amount of provision for water supply, electricity, and drainage is very minimal. The lives and health of people living in housing of such poor quality and with such insufficient provision for water, sanitation, and drainage are under continuous threat. Nevertheless, in the developing world in general and in least developed countries like Ethiopia in particular the number of people living in such conditions is rising every year. Almost 85%, Housing for expatriates in Ethiopia (Anon., 2007) of the houses in Ethiopia are made of mud and stick or thatch walls, which can fall down easily. Homes are often cramped, with dirty floors, leaking roofs and no windows, leaving their residents vulnerable to adverse weather conditions, insects and rodents; Housing for expatriates in Ethiopia (Anon., 2007) Substandard housing not only has an unfavorable effect on health but also on education, job performance and overall quality of life.

Addis Ababa, experiences poor living standard, high level of unemployment (40%), housing deficit of about 850,000, about 70 % of the population lives in slums with inhuman and unhygienic conditions, 35 % of the solid waste generated by the city is not collected, only about 9 % of the built up has connected with a sewer system, about 71% of households do not have adequate sanitation (UN-Habitat, 2014).

The condominium housing program is currently being used in Ethiopia as a way to reduce the housing problem of urban low-income people, among others. This method increases the access of the poor households to better quality housing at an affordable price. The program targets only middle and lower income households (MWUD, 2007). It allows low-and-middle income households, who typically live in 'precarious' housing situations to access improved housing (UN-HABITAT, 2010). Through the construction of durable, fully-serviced housing units the program greatly improves their living conditions and their access to basic services.

As it is stated above, there is significant housing demand in Addis Ababa. To meet the demand, the government launched the housing program. Accordingly, in the 20/80 project scheme, multi-million birr is currently deposited by the registered city dwellers hoping to be house owners in the intended period of time. However, the project is delayed due to different factors. This research identifies the major causes to the delay in the construction of 20/80 scheme project so that the

contractual parties take action to minimize the causes to ensure the timely delivery of the houses to users and sustainability of the housing program.

Project performance can be measured and evaluated using a large number of performance indicators that could be related to various dimensions (groups) such as time cost, quality, client satisfaction, client changes, business performance, health and safety (Cheung et al. 2004; Deter 2000). Time, cost and quality are, however, the 3 predominant performance evaluation dimensions. All projects are expected to have specific objectives; that is, an end result, which costs so much and should be completed within a certain time-frame. Therefore, projects which achieve cost, schedule and quality objectives are successful. Those that do not are failures. The paper reports on the findings of a survey targeting project owners, contractors and consultants, in an attempt to shed some light on how each project party perceives the relative importance of the performance factors. Finally, the paper formulates a number of recommendations in order to bridge the gap between the different perceptions thus improving the level of project performance

1.2. Statement of the Problem

Housing problem is one of the most challenging aspects of urbanization process in the developing world. In general, lack of proper institutions, appropriate financial system, legal and technical frameworks, political commitment among others, can be cited as the causes for not addressing the urban housing problem. The housing development program puts all these instruments in place, there is also a need for additional tool to build a cost-efficient house with a better quality and quantity, (Lealem ,2007).

Housing in Ethiopia is not considered as a shelter only but as an asset, means of social security and indicator of social status. There were no housing policies as such except simple laws. The current slums and housing problems are the results of accumulated deficits of policies and practices for several years, Yewoineshet (2007).

The development of housing project which is suitable to the majority of residents has significant role in urban development by rectifying housing problem, creating job opportunity, enhancing saving culture and overcoming the problem of dilapidation and urban suffocation. Hence, special attention should be given to housing projects in urban development activities. As a result, the Addis

Ababa city administration launched grand low-cost condominium housing projects through integrated housing development program (IHDP) in 2004 to minimize housing backlog, slums and to provide decent shelter to middle and low-income groups. As of June 2015, 175,898 houses have already been completed and transferred to beneficiaries (AA HDPO, 2015, cited in Getachew, 2016). However, in the situation of highly urbanized world, the experience shows that the demand for housing service is becoming a challenge for nations as well as local governments. The provision of housing service is not matching with the ever-increasing population growth.

In 2013 around a million residents of Addis Ababa registered for the 10/90, 20/80 and 40/60 condominium housing schemes and began to deposit in the state-owned Commercial Bank of Ethiopia (CBE) the minimum saving required under each scheme. The 140,000 units handed over thus far were built under the 10/90 and 20/80 schemes only. Although tens of thousands have deposited the entire estimated value of the condominiums being constructed under the 40/60 scheme or are making the obligatory saving on time, they are regretting the decision to trust the government with their hard-earned money given it has been unable to implement a project it ought not to have started in the first place. With this strategy, the Ministry of Urban Development and Housing targeted to build some 750,000 condominiums during the second Growth and Transformation Plan, which comes to an end in 2020. However, the condominium project is going on under different obstacles, implementation problems (Reporter 24 June ,2017).

A number of studies have been conducted to examine factors impacting on project performance in developing countries. Faridi and El-Sayegh (2006) reported that shortage of skills of manpower, poor supervision and poor site management, unsuitable leadership, shortage and breakdown of equipment, among others, contribute to construction delays in the United Arab Emirates. Hanson et al. (2003) examined causes of client dissatisfaction in the South African building industry and found that conflict, poor workmanship and incompetence of contractors to be among the factors which would negatively impact on project performance. Mbachu and Nkando (2007) established that quality and attitude to service is one of the key factors constraining successful project delivery in South Africa. The performance of contractors in Zambia is apparently below expectation; it is not uncommon to learn of local projects that have not been completed or significantly delayed. This poor performance of many local contractors has huge implications in terms of their competitiveness (Zulu and Chileshe 2008).

Many researchers have been undertaken to assess and evaluate the implementation of the AAIHDP, mainly focused on its contribution towards employment opportunity, on addressing housing shortages and slum reduction, but enough researches are not conducted to assess the condominium housing construction performance specifically 20/80 condominium housing projects, in which majority of the people registered and waiting for the chance. Based on the above fact this study attempted to assess the performances of the 20/80 condominium housing projects in Bole Sub -city “Arabsa” project sites and identify factors affecting the performance of the project in order to assist owners, consultants and contractors to overcome cost, time, quality and leadership performance problems and to improve performance of their construction projects.

1.3. Research Questions

- i. What is the current level of the performance of 20/80 condominium house project offices in Bole sub city “ Arabsa” sites ?
- ii. What are the critical factor that affects the performance of 20/80condominium house construction projects in Addis Ababa Bole sub “Arabsa” sites?

1.4. Objective of the study

1.4.1. General objective

The general objective of this research was to assess the performances of 20/80 condominium housing projects in Bole Sub city “Arabsa” sites.

1.4.2. Specific objectives

The specific objectives of this thesis were:

- ✓ To assess the current level of the performance of 20/80 condominium house project offices in Addis Ababa Bole sub city “Arabsa” sites.
- ✓ To describe the critical factors affecting the performance of 20/80 condominium house construction projects in Addis Ababa Bole sub city “Arabsa” sites

1.5. Significance of the Study

- i. It helps to identify range of critical factors that influence the performance of condominium projects that will help policy makers, administrators, designers, and programs evaluators
- ii. The project work helps to compare the level of achievements of the projects in order to take corrective action
- iii. The result of this Project work will help for interested researchers to perform future research in depth of similar title.
- iv. The research work recommendations can help for the project stakeholders for the better achievements & improvements in their future works.

1.6. Scope of the Study

The applicability of the outcome of this study is on Bole sub city 20 /80 condominium housing project offices. Even though the construction of condominium housing projects is underway in all sub-cities of Addis Ababa, it is not feasible to undertake this study by taking in to account all condominium housing project offices under Addis Ababa in terms of time and cost. This sub city site is purposively selected because all the selected five project offices are found in a nearby distance among themselves. This would help the researcher to conduct the research within the given time and available resources by collecting the required data to achieve better outcome of the study than any other sites of the city which are located in Addis Ababa in highly dispersed manner.

1.7. Limitation of the Study

Some respondents did not give value to the questionnaire and became reluctant to fill properly which gave the researcher a hard time in coding the data. Secondly, few of the housing project staffs and residents of condominium houses have given their own personal feelings or interests that they have towards the performance of the projects infilling the questionnaires and giving responses to interviews; however, it has got insignificant impact on the desired outcome of the study.

1.8. Organization of the Study

The paper will be organized in to five chapters. The first chapter is an introduction of the overall study, consisting of background of the study, statement of the problem, objectives of the study, significance and scope of the study. The second chapter focuses on review of related literature in which earlier studies on the area are highlighted and presented. Theoretical Review of the Literature and empirical evidences of factors affecting project success of construction projects are discussed in detail. The third chapter presents the design of the research and the methodologies used. In this chapter source of data, sampling technique, instrument of data collection, methods of data analysis and ethical research considerations are accessible. The fourth chapter is devoted to data presentation, analysis and interpretation in which the collected primary and secondary data will be analyzed and organized in a manner that meets the objectives of the study. The last chapter deals with summary of the research findings, the conclusion as well as recommendations of the research based on the findings.

CHAPTER TWO: LITERATURE REVIEW

2.1. Introduction:

The construction industry is complex in its nature because it comprises large numbers of parties as owners (clients), contractors, consultants, stakeholders, and regulators. Despite this complexity, the industry plays a major role in the development and achievement of society's goals.

The Success or failure of a Project can be evaluated in terms of, how is the quality of the project? Is the project completed with agreed time? Is the project completed within approved budget? In each of Quality, time and budget there are different points and issues that affect the success or failure of it. Moreover, to be successful at overall project management there should balance between managing cost, time and quality (PMI, 1999)

2.2. The contribution of Project Management on the effectiveness of project performance.

Project management can be defined from management concept, resource utilization point and as a system. According to Kerzner (2009), project management is the planning, organizing, directing, and controlling of company resources for a relatively short-term objective that has been established to complete specific goals and objectives. Furthermore, project management utilizes the systems approach to management by having functional personnel (the vertical hierarchy) assigned to a specific project (the horizontal hierarchy) (Kerzner, 2009). Project management is an organized common-sense approach that utilizes the appropriate client involvement in order to meet sponsor needs and deliver expected incremental business value (Wysocki, 2014). Project management is about people and the systems, processes, tools, and methodologies they use. In order to manage any kind of project there should be some kind of system with group of people who can run the established system. There are also different tools and methodologies that help to manage a project. Project management is concerned with several objectives at once.

The objectives typically fall under the headings of time, cost and quality (Roberts and Wallace, 2004). There are constraints when managing a project. These constraints are time, cost and quality. The benefits and advantages of project management are identification of functional responsibilities

to ensure that all activities are accounted for, regardless of personnel turnover, minimizing the need for continuous reporting, identification of time limits for scheduling, identification of a methodology for trade-off analysis, measurement of accomplishment against plans, early identification of problems so that corrective action may follow, improved estimating capability for future planning, knowing when objectives cannot be met or will be exceeded (Kerzner, 2009).

2.3. Benefits of Measuring the Project Performance

It is important to measure project performance in the agreed areas, at the agreed intervals, and to give feedback to the project team (CIB 1997). Performance should be measured on a regular basis throughout the project, which helps the team to review progress and identify opportunities for further improvement (Thomas & Thomas 2005). Benchmarking allows a project team to learn from best practice by comparing its own performance with others (Kelly et al. 2002). Without clear measurement of performance against benchmarks, it is difficult for any teams to determine how well they have done and what improvement they need to make (Cain 2004).

Measuring quality enable managers to know how close they are to their target and how to make the right decisions for improving work process (Oztas et al. 2005). Continual measuring of project performance for further improvement also helps in meeting customer expectation on the project outcome. Deming (1986) also affirms that the customer's perspective of quality levels is critically important. Hence it is important for the project team to understand what customer satisfaction means.

Successful companies need to meet their customer expectations through superior implementation of their quality policies; however, currently many customers are still not satisfied with the quality of constructed projects (Seaver 2001). Customer satisfaction model (Cook et al 2000) consists of five satisfaction quality dimensions: safety, project management (ability to plan schedules, manage and execute), contractor/customer relationship, cost, and prepared/skilled workforce. Clients have a substantial role to play in setting demanding and insisting upon improvements. Ultimately, they have the most to gain from ensuring the implementation of the best practice, (Latham 1994).

2.4. Factors Affecting Cost and Time Performance

Chan and Kumaraswamy (2002) remarked that studies in various countries appear to have contributed significantly to the body of knowledge relating to time performance in construction projects. Iyer and Jha (2005) remarked that project performance in term of cost is studied since 1960s. These studies range from theoretical work based on experience of researcher on one end to structured research work on the other end. Moreover, Pheng and Chuan (2006) stated that there have been many past studies on project performance according to cost and time factors. Chan and Kumaraswamy (1996) stated that a number of unexpected problems and changes from original design arise during the construction phase, leading to problems in cost and time performance. It is found that poor site management, unforeseen ground conditions and low speed of decision making involving all project teams are the three most significant factors causing delays and problems of time performance in local building works. Okuwoga (1998) stated that cost and time performance has been identified as general problems in the construction industry worldwide. Dissanayake and Kumaraswamy (1999) remarked that project complexity, client type, experience of team and communication are highly correlated with the time performance; whilst project complexity, client characteristics and contractor characteristics are highly correlated with the cost performance. Reichelt and Lyneis (1999) obtained that project schedule and budget performance are controlled by the dynamic feedback process.

Iyer and Jha (2005) remarked that the factors affecting cost performance are: project manager's competence; top management support; project manager's coordinating and leadership skill; monitoring and feedback by the participants; decision making; coordination among project participants; owners' competence; social condition, economical condition and climatic condition. Coordination among project participants was as the most significant of all the factors having maximum influence on cost performance of projects. Love et al (2005) examined project time-cost performance relationships by using project scope factors for 161 construction projects that were completed in various Australian States. It is noticed that gross floor area and the number of floors in a building are key determinants of time performance in projects.

2.4.1. Cost Factors

Curt (2005) argued that the cost management system tracks current spending and commitments and predicts ultimate cost outcome. Yafiah (2013) indicate that procurement selection criteria of cost, time, quality, project characteristics and external environmental factors have effects on project performance. Fetene (2008) found that the most common effects of cost overrun were delay, supplementary agreement, adversarial relations among stakeholders, and budget shortfall of project owners which guides efforts to improve the performance of the construction industry in the future. Aftab, Rahman, Abdullah and Azis (2010) stated that fluctuation in price of material, cash flow and financial difficulties faced by contractors, shortage of site workers, lack of communication between parties, incorrect planning and scheduling by contractors are most severe factors while frequent design changes and owner interference are least affecting factors on construction cost performance. Amusan (2011) discovered from the analysis that factors such as contractor's in experience, inadequate planning, inflation, incessant variation order, and change in project design were critical to causing cost overrun, while project complexity, shortening of project period and fraudulent practices are also responsible. Baloyi and Bekker (2011) discovered that the increase in material cost is the single largest contributor to cost overruns for both global and local projects.

2.4.2. Time Factors

Time is money to owners, builders, and users of the constructed facility. From the owner's perspective there is lost revenue by not receiving return on investment, cash flow crunch, potential alienation and loss of clients/tenants, extended interest payments, and negative marketing impacts. From the users' perspective, there are financial implications similar to owners (Bob & Muir, 2005). Aje, Odusami and Ogunsemi (2009) showed that contractors' management capability has significant impact on cost and time performance of building projects. Wiguna and Scott (2005) showed the critical risks affecting both project time and cost perceived by the building contractors were similar. They were: high inflation/increased material price, design change by owner, defective design, weather conditions, delayed payments on contracts and defective construction work. With respect to time delays the most significant contributing factor for global projects was late delay in payments while for the stadia projects design-related factors caused the most delays

(Baloyi& Bakker, 2011, Iyagba , 2010) identified the factors that contribute substantial detrimental effect to project performance, thus affecting the integrity of the construction industry.

2.4.3. Quality Factors

Curt, (2005) stated that the quality management system monitors and analyzes quality of the constructed project and predicts quality problems and issues. Typical quality measures include:

(i) Quality control tests: number performed, frequency and percentage passed/failed, number of non-conformance issues, number of change requests and root causes, cost of rework, number of exceptions at turnover and cost of quality (ii) Quality Assurance Cost (cost of resources): quality assurance cost as a percentage of construction cost, cost of quality and Cost of quality as percentage of construction cost. Lepartobiko(2012) stated that quality can be assured by identifying and eliminating the factors that cause poor project performance. Jha &Jha (2006) found that the project manager's competence and top management support are found to contribute significantly in enhancing the quality performance of a construction project. Lack of contractor experienced topped the quality related cause of project failure. Ling and Bui (2010) discovered that major enablers that lead to project success are foreign experts' involvement in the project, government officials inspecting the project and very close supervision when new construction techniques are employed. A factor which leads to poor performance is the lack of accurate data on soil, weather, and traffic conditions.

2.4.4. Leadership Factors

There was significant relationship between the project leader's professional qualification, his leadership style, team composition and overall project performance (Odusami, Iyagba&Omirin, 2003). Leadership must be raised from among the Hispanic workers to aid in effectively coordinating work activities by providing the communication link between management and work crews. This provides the opportunity for upward mobility and gives motivated individuals the chance to advance professionally (Bob &Muir, 2005). Lack of appropriate project organization structures, poor management systems and leadership are the major causes of poor project performance (Nyangilo, 2012). Nyangilo argued that the project leaders are endowed with technical skill but lack the other basic project management skills of dealing with the human, culture and environmental sides of the project. Various statistical configurations have also been identified,

indicating possible weaknesses within the team dynamic that may be addressed in an effort to achieve improved project performance (Langford & Tennant, 2005). Kamalesh, Rizwan and Syed (2002) collected data through selected project managers and construction professionals working in managerial capacity in South Florida, it was found that the leadership style exhibited is both high task and high employee relationship; which is the selling type. They found that there is no significant difference in the leadership orientation of well experienced managers and less experienced managers. Gbadura and Oke (2010) recommend democratic and transformational leadership styles for Nigerian quantity surveyors in discharging their duties as construction projects managers.

2.5. Assessment of the existing housing sector in Addis Ababa

Rapid urbanization, one of the greatest socio-economic changes during the last five decades or so, has caused the growth of squatter and informal housing all around the rapidly expanding cities of the developing world (UN-Habitat, 2010). Despite having one of the lowest proportions of urban population in the world at only 16.7 per cent, Ethiopia is rapidly urbanizing at a high annual growth rate of 3.5 per cent. Addis Ababa, the capital city, dominates the urban hierarchy with a population Assessment of Affordability of Private Residential Developments in Addis Ababa of 3,739,551 holding 23 per cent of the total urban population in the country (CSA, 2012).

Addis Ababa is the capital city of Ethiopia which occupies an area of 522 square kilometers has estimated more than 3 million inhabitants. The city is sub-divided into ten sub cities, each of which has an average population of around 300,000 people.

The three largest sub-cities by population are Kolfe Keranio (with 463,417 inhabitants), Yeka (374,583) and Nefas Silk Lafto (341,743). In terms of land area, the largest sub-cities are Akaki Kality, Bole, and Yeka each of which covers an area exceeding 80 square kilometers. Population densities vary considerably among the sub-cities, with Addis Ketema and Arada showing the most densely populated neighborhoods while Bolej and Akaki Kality are the least densely populated sections of the city.

One of the continuing challenges posed by unprecedented urbanization in the developing countries is the provision of adequate housing. Although population growth shows the demand for housing, the rate of increase in households is believed to provide a direct measure of potential housing

demand. The 2007 census showed that the total number of urban households in Addis Ababa exceeded the total number of housing units by approximately 26,134, or about 4 per cent of the total urban households in the city. Given this increase, the city’s housing demand is increasing. Accommodating this increased demand will require additional housing development and construction in the city.

According to estimates by the Ministry of Works and Urban Development (MWUD) (2008), the housing deficit in Addis Ababa alone is about 300,000 units. The housing deficit in Addis Ababa is not just measured by the large number of units that are required today; it is also observable in the quality of the housing stock and the extremely small sizes of most available dwelling units. What is even more worrying in this regard is that the problem has worsened between the two recent census surveys. For instance, the proportion of single-room dwelling units in Addis Ababa has risen from 33 per cent in 1994 to 39.4 per cent in 2007 (CSA, 2007: CSA, 1994). This is a serious cause for concern, according to CSA (2007) the average household size is 4.1 individuals, as the poor, who make the bulk of the population, typically tend to have large families. This will be the second time that re-registration is taking place after the first repeat in 2013 when new people were registered along with the old ones who first registered in 2005.

Table 1: Number of house registered people in Addis Ababa

| No. | Programs | Male | Female | Total |
|-----|----------------------|---------|---------|---------|
| 1 | 10/90 | 9,647 | 1,2677 | 2,2324 |
| 2 | 20/80 | 87,197 | 44,974 | 132151 |
| 3 | 20/80 New registered | 355,394 | 270,603 | 625,998 |
| 4 | 40/60 | 95,429 | 69,258 | 164,687 |
| 5 | Associations | | | 2,216 |
| | Total | 547,667 | 397,512 | 947,376 |

Source: official web page of Ministry of urban development & housing (March31- 2017)

According to the of Ministry of urban development & housing official report all 182,000 people that have so far been given condominium houses and the 835,000 people that have registered for the 10/90 and 20/80 housing schemes in Addis Ababa are to be re-registered yet again, in what the city claims is an effort to clear those who are not eligible for different reasons.

Table 2: Rounds of distribution condo House up to the year 2017

| Round year | Studio | 1Bedroom | 2Bedroom | 3Bedroom | Sum |
|------------------------|--------|----------|----------|----------|--------|
| 1 st | 4118 | 5677 | 6548 | 2645 | 18988 |
| 2 nd | 2592 | 5070 | 6263 | 1106 | 15031 |
| 3 rd | 2695 | 3679 | 3626 | 735 | 10735 |
| 4 th | 2797 | 6755 | 4108 | 1372 | 15032 |
| 5 th | 3088 | 4719 | 2028 | 934 | 10769 |
| 6 th | 1255 | 4467 | 2747 | 1531 | 10000 |
| 7 th | 2952 | 3594 | 433 | 321 | 7300 |
| 8 th | 1326 | 4665 | 2952 | 1155 | 10098 |
| 9 th | 2570 | 4423 | 2330 | 934 | 10257 |
| 10 th | 6734 | 15670 | 7309 | 4327 | 34040 |
| 11 th 20/80 | 1600 | 3800 | 5600 | 5750 | 16750 |
| 11 th 10/90 | 23000 | - | - | - | 23000 |
| Total | 54727 | 62519 | 43944 | 20810 | 182000 |

Source: Official web page of Ministry of urban development & housing (March31- 2017)

2.6. Quality Practices in Building Projects

Although a significant amount of quality practices has been introduced within the industry, attainment of reasonable levels of quality in construction projects continues to be an on-going problem” (Heravitorbati et al. 2011, pp. 265).

Some researchers like Arditi & Gunaydin (1997) use the term quality instead of project performance to indicate the effect. Quality project refers to a project, which is completed on timewithin budget and meets its functional requirement (Arditi & Gunaydin 1997). What is quality? Vincent & Joel (1995) define quality as the integration of all functions and processes to achieve continuous improvement of the quality of goods and services to meet customer satisfaction. According to Arditi & Gunaydin (1997), quality is meeting the requirements of the

stakeholders: designer, contractor and regulatory agencies as well as the owner. To ensure project quality implementation of a Total Quality Management System (TQMS) is necessary. TQMS is an effort that involves every organization in the industry to improve performance and focus on process improvement, customer and supplier involvement, teamwork, education and training to achieve customer satisfaction defect free work (Meng 2011). The system is also defined as being prescribed quality objective of the company (Oztas et al. 2005).

There are two widely used terms in TQMS namely Quality Assurance (QA) that covers activities Necessary to provide quality in project work and Quality Control (QC) that is set of procedure to meet QA. The activities in QA involve establishing project related policy, system necessary to produce quality, standards, training and guidelines whereas the procedures in QC involve planning, coordinating, developing, checking, reviewing and scheduling of work (Arditi & Gunaydin 1997). The training in QA includes instruction in the basic TQM cause and effect analysis, team problem solving, interpersonal communication and interaction and cost of quality measurement (Arditi & Gunaydin 1997)

Arditi & Gunaydin (1997) also identify the importance of teamwork in the implementation of TQMS. The team, which is responsible for establishing joint goals, plans, and controls, should include all members of the parties involved in the project. The teamwork provides a mechanism for listening to and communicating with the owner, thus useful for measuring the level of customer satisfaction

Defects in Building Construction

Defects in newly completed buildings are becoming a serious phenomenon as lower cost and medium cost house are being built (Alsadey, Omran&Pakir 2010). Construction defect according to Alsadey, Omran&Pakir (2010) is lacking and not meeting the required standard that may reveal as a building is constructed or after an element of work is completed. Construction defects usually include any deficiency in the performing of the design, planning, supervision, inspection, construction or observation of construction to any new home or building. The defects usually are to start to appear after 2 years of occupancy (Chong & Low 2006).

Construction defect affects society or end-users due to possible danger posed and direct and indirect cost of repairs imposed. Some of the most common construction defects involve leaking roofs and windows, cracked and heaving concrete, cracks in walls and joints, defective plumbing and improperly installed electrical equipment.

2.7. Empirical Review

Shaban (2008) in his thesis on factors affecting the performance of construction projects in the Gaza Strip, found out that the most important factors agreed by the owners, consultants and contractors were: average delay because of closure and materials shortage, availability of resources as planned through project duration, leadership skills for project manager, escalation of material prices, availability of personals with high experience and qualification and quality of equipment and raw materials in project.

Bui and Ling, (2010) in the study that was carried out in Vietnam on factors affecting construction project outcomes discovered that major enablers that lead to project success are foreign experts' involvement in the project, government officials inspecting the project and very close supervision when new construction techniques are employed. A factor which leads to poor performance is the lack of accurate data on soil, weather, and traffic conditions.

Amusan, (2011) studied factors affecting construction cost performance in Nigerian construction sites. It was discovered from the analysis that factors such as contractor's inexperience, inadequate planning, inflation, incessant variation order, and change in project design were critical to causing cost overrun, while project complexity, shortening of project period and fraudulent practices are also responsible.

Fetene, (2008) did a study on causes and effects of cost overrun on public building construction projects in Ethiopia. From the results it was found that 67 out of 70 public building construction projects suffered cost overrun. The rate of cost overrun ranges from a minimum of 0% to the maximum of 126% of the contract amount for individual projects. Iyer and Jha (2006) did a research on factors affecting cost performance evidence from Indian construction projects and found out that the project manager's competence and top management support are found to

contribute significantly in enhancing the quality performance of a construction project. Nyangilo, (2012) did an assessment of the organization structure and leadership effects on construction projects' performance in Kenya, he found out that lack of appropriate project organization structures, poor management systems and leadership are the major causes of poor project performance.

Gbadura and Oke, (2010) examined project management leadership styles of Nigerian quantity surveyors, on the general note, Nigerian quantity surveyors were found to be autocratic using Jerrell/Slevin measuring instrument while in the opinion of Nigerian construction professionals; they are more of task oriented in discharging their duties as construction project managers. Iyagba, Odusamiand Omirin, (2003) did a research on the relationship between project leadership, team composition and construction project performance in Nigeria. The tests of the hypotheses led to the conclusion that there was significant relationship between the project leader's professional qualification, his leadership style, team composition and overall project performance. No significant relationship was found between the project leader's profession and overall project performance.

2. 8 Conceptual Framework

A conceptual framework is defined as a set of broad ideas and principles taken from relevant fields of enquiry and used to structure a subsequent presentation (Ramey & Reichel, 1987). The conceptual framework in this study was used to show various variables that affect the performance of construction projects.

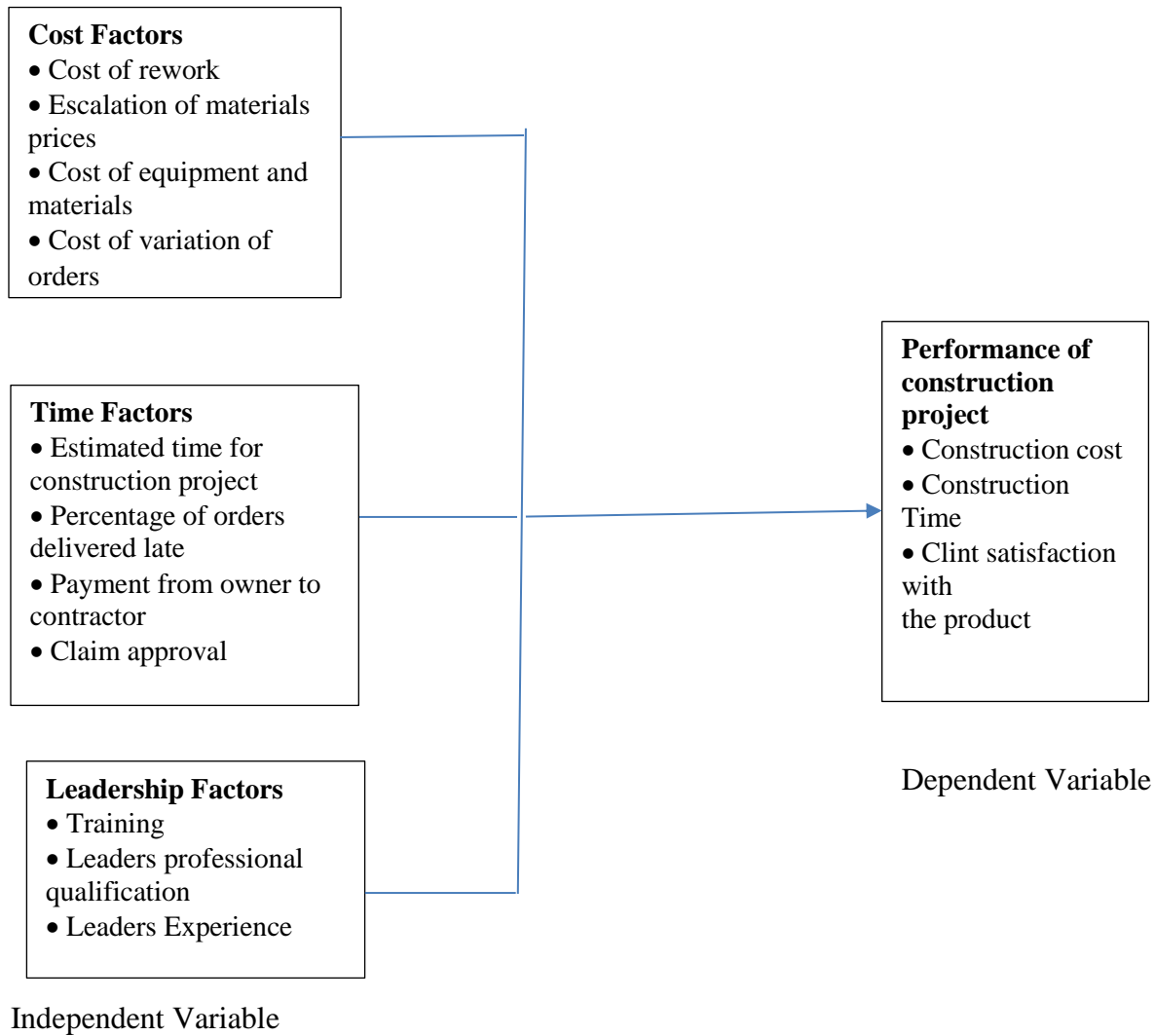


Figure 1: Conceptual Frame Work (Elger, 2008)

CHAPTER THREE: METHODOLOGY

3.1. Introduction

This chapter briefly describes the research methodology used in the study. It describes the research design, the research approach, target population, sample technique, sources data and type, methods of data collection, and methods of data analysis, ethical consideration and validity and reliability of data collection instruments.

3.2. Research Design

The researcher used descriptive type of research method, because it tried to describe the actual phenomenon as it is and this design has been used in various related research to achieve a better result out of the study.

3.3. Research Approach

This research has tried to assess the performance of the condominium house projects offices under Bole sub city “Arabsa” sites in the last six years from 2004-2010 E.C and the research questions are orient to identify or describe the factors affecting the performance of project offices.

The research has used mixed approach (i.e., both qualitative and quantitative) to conduct the study by utilizing the benefits or strengths of both approaches. The qualitative data have been collected through distributing questionnaires to the respective respondents in terms of their opinions and comments, conducting an interview and reviewing secondary sources in terms of ideas and concepts. And the data for quantitative one has been obtained through distributing questionnaires to the respective responds and reviewing secondary sources.

The qualitative data has been analyzed using content analysis contextually and the quantitative data using simple descriptive statically tools. Finally, the results of which have been combined and analyzed in such a way that it gives meaningful outcome.

3.4. Target Population

Under Addis Ababa housing development project office (AAHDO) there are 18 project branches offices. Out of which, five of them are working under “Arabsa” site, and this study has focused these five projects as a target population. The participants were professional construction department project officers, project managers, and engineers and project managers of the supervisors and project contractors of the 20/80 condominium houses projects under “Arabsa” site. In all the five project offices there are 74 professional construction department officers ,55 engineers and project manager from contractors and 38 engineers and project managers from consultants.

3.5. Sampling Technique

The researcher used multiple stage sampling technique. In addition to the questionnaires, the study was conducted through semi structured interview and document analysis. The research is a case undertaken at Addis Ababa Housing and Development Project Office under Bole sub city “Arabsa” sites. The participants were professional employees from construction department of project offices, and engineers and project managers of the contractor sand supervisors or consultants of the project. They were selected using judgment sampling technique from their respective group. In Judgmental sampling the population elements are selected based on the judgment of the researcher by exercising judgment of expertise, chooses the elements to be included in the sample because he or she believes that they are representative of the population of interest or otherwise appropriate (Naresh, 2007). According to Saunders et al (2009), this method is appropriate for small inquiries and researches by individuals. It is appropriate if the research is aimed at explaining a phenomenon rather than making a generalization.

3.6. Sample Size

Taking the statement of Mugenda O. &Mugenda A. (2003) which states that when the target population is small (less than 1000 members), a minimum sample of more than 30% is a representative of the whole population. Consequently, from all strata (client’s contractors and consultants), 50 sample respondents were selected.

3.7. Source of Data and Type

In this research both primary and secondary data sources are used. The primary data is collected through a questionnaire and interviews. The secondary data sources are published or unpublished documents from the AAHDO, Journals, Magazines, Newsletters and Publications form other sourced are also used.

3.8. Data Collection

Survey method of data collection was used. Questionnaire survey was used to elicit the attitude of Client, contractors and consultants towards the factors affecting the performance condominium housing project in the selected project offices. Questionnaires were sent to randomly to selected owners, contractors and consultants .50 questionnaires were distributed as follows: 20 to owners (project offices); 10 to consultants; and 20 to contractors. In addition, interviews were conducted with officials of the construction departments; project Managers of the project offices, contractors, consultants and the owners of the delivered houses. Published and unpublished documents of AAHPO were used to substantiate the information with facts and figures.

3.9. Methods of Data Analysis and Interpretation

Specifically, to analyze the qualitative one, thematic analysis (i.e., summarizing and categorizing comments or opinions of the respondents on the basis of their majority of similarities and to analyze them thematically) was applied to analyze and explain the results of the interviews and discussion.

And the quantitative one has been analyzed based on all collective response of groups of respondents (contractors, consultants and owners) in order to obtain significant results. The data were analyzed by calculating the relative important index model to rank the hypothesized factors based on their importance and frequency which is derived from the views of the respondents of the three groups.

RIIs for each factor is calculated as shown below:

$$\mathbf{RII} = \sum \mathbf{W/A * N}$$

Where:

RII = relative importance index

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

A = highest weight (i.e. 5 in this case); and

N = total number of respondents.

The RII values have a range of 0 to 1 (0 not inclusive); the higher the RII is the more important factors indicators affecting the performance of construction projects. The RII's is ranked, and the results are shown by using tables. And the findings will be described and presented in tabular format. Finally, the finding of the research would be interpreted by triangulating the quantitative results with the qualitative and would be used to draw conclusions and recommendations.

3.10. Validity and Reliability Tests

The major data collection instruments to be employed in this research project were questionnaire And interview which were checked for validity and reliability by testing the questionnaire first with selected sample respondents and then modifying the questionnaire and interview questions on the basis of feed backs.

3.11. Ethical Issues

Ethics are standards of behavior that guide the moral choices about our behavior and our relationship with others. All parties in research should observe ethical behavior. Research ethics a were put into consideration when developing and administering data collection tools and techniques, to avoid any form of destruction or violation. This will be done through obtaining consent before the research; ensuring confidentiality of data obtained and learning more about the organization's culture and project before the research and where necessary absolute sensitivity and caution will be exercised.

CHAPTER FOUR: RESULTS AND DISCUSSIONS

4.1. Introduction

This chapter describes the results and discussion of questionnaire survey and document review concerning on assessment of the performance of the selected condominium project offices in Bole sub city, and to investigate the cost, time, quality and management related factors affecting the performance of condominium housing construction projects from contractors, consultants and owner's viewpoints. Finally, the effects of cost, time, quality and management related factor indicators on the construction of condominium housing projects will be analyzed.

4.2. Background Information of the Respondents

Before discussing the data related to the major items, a summary of demographic characteristic of the respondents was presented below. Descriptions of the demographic characteristics of the target population give some basic information about sex, age, educational status, work responsibility and experience of the respondents. Since demographic characteristics of a given population have their own implication on the performance of project.

4.2.1. Age Bracket

Age bracket in this study refers to the range between two particular ages. The researcher required the respondents to identify the age bracket for analysis. And the result of the survey is summarized in the table 4.1 below

Table 3: Respondents by their Age

| Category | Number of Respondents | Percentage |
|--------------|-----------------------|------------|
| 20 - 30 | 16 | 32% |
| 31 – 40 | 22 | 44% |
| 41 – 50 | 8 | 16% |
| 51 and above | 4 | 8% |
| Total | 50 | 100 |

Source: - Own survey 2018

Table 3 indicates that out of 50 respondents 16 (32 %) were aged between 20 and 30 years, 22 (44%) were aged between 31 and 40 years, 8 (16%) were aged between 41 and 50 years, while only 4 (8 %) were aged 51 and above years. The highest proportion of the respondents was within the age 31-40 years followed by age 20-30. These two age groups were the reproductive age group both in terms of economic and fertility perspectives. Thus, they have even high potential for working capacity which has direct impact on the performance of condominium housing projects, and this is an opportunity for the project

4.2.2. Characteristics of the Respondents By Sex

Table 4 Respondents by their sex

| Gender | Count | % |
|--------|-------|-----|
| Male | 41 | 82% |
| Female | 9 | 18% |
| Total | 50 | 100 |

Source: Own Survey 2018

The data presented in Table 4 demonstrates that there was a disparity in the representation of both male and female in the survey at 82 % and 18 % respectively. The high representation of male could be for the reason that male gender is perceived to be able to perform hard jobs which require masculine engagement, essential in the Constructions projects which the researcher believe is subject to further study.

4.2.3. Education Background

Information relating to the level of education attained by the respondents was also analyzed. This information would enable the researcher to determine if the employees are professional enough to understand the questions and provide reliable data to the study. In this paper respondents were asked by the researcher to give their history in terms of the academic experience.

Table 5: Work Experience of Respondents

| Category | No. respondents | Percentage |
|---------------------|-----------------|------------|
| Secondary Education | 0 | 0 |
| TEVT Certificate | 6 | 12% |
| Diploma | 4 | 8% |
| Degree | 38 | 76% |
| Post Graduate | 2 | 4% |
| Total | 50 | 100 |

Source: - Own survey 2018

Table 5 represents the findings on the level of education attained by the respondents. The study found out that, majority of the respondents had attained bachelor degree, this represented 76% of the respondents, 4 % of the respondents had attained master’s degree. It can be observed that the projects contain staffs with various qualifications at different levels with majority having attained a bachelor degree. The education qualifications of the respondents suggest the availability of sufficient educational qualification to make the information acquired reliable.

4.2.4 Place of Assignment of the Respondents

Table 6 Place of Job Assignment of the Respondents

| Present Responsibility | No. Respondents | Percentage |
|---------------------------------|------------------------|-------------------|
| Process leader | 6 | 12% |
| project officer | 5 | 10% |
| Office engineer | 7 | 14% |
| Site engineer | 8 | 16% |
| Project Manager | 2 | 4% |
| Contractor | 12 | 24% |
| Project consultant /supervisors | 10 | 20% |
| Total | 50 | 100% |

Source: - Own survey 2018

As shown on table 6 above, the respondent present job responsibilities are a mix of different departments. As explained in the research methods, part of the sampling technique was judgmental sampling. Out of the 50 respondents 28 respondents were selected from project offices i.e. 6(12%) process leaders ,5(10%) project officers ,7(14%) office engineers ,8(16%) site engineers and 2(4%)

project Managers, and, 12 (24%) respondents were contractors from the selected project sites and other 10 (20 %) respondents are consultants or project supervisors. This indicates the researcher tried to participate different concerned parties of the project based on judgmental sampling and random sampling from the owner, contractors and consultants under Bole Sub city “Arabsa” sites.

4.3. The Performance of Selected Projects Offices Based on Cost and Time Factors

For this study, as it was stated in the methodology part, the researcher selected all the five project offices which undertake the construction 20/80 condominium houses in Bole Sub City under “Arabsa” site. The performance these projects was evaluated on the basis of their estimated completion time and cost versus actual completion time and cost. Before identifying the factors affecting time and cost performance, the researcher calculated the variance and the rate of time and cost overrun. The information was gathered from the progressive and completion reports of the projects. The tables below present these projects and the observed variances from the plan.

Table 7 Cost variance and Rate of cost overrun of Projects

| Project name /Branch office | Site name | No blocks | Progress of the project | Budget cost | Actual cost | Variance | Rate of cost overrun |
|-----------------------------|---------------|-----------|-------------------------|------------------|------------------|----------------|----------------------|
| Lideta | Bole Arabsa 1 | 240 | 99% | 1,122,645,125.63 | 1,314,566,348.6 | 19,921,222,.97 | 17.1% |
| Kirkose | Bole Arabsa 2 | 41 | 99% | 218,642,125.88 | 247,039,051.97 | 28,396,726.09 | 12.98% |
| Project 15 | Bole Arabsa 2 | 71 | 99% | 439,821,269 | 498,110,617.53 | 58,289,347.58 | 13.25% |
| yeka | Bole Arabsa 3 | 51 | 34.23 | 318,655,603.63 | 424,438,037.90 | 105,782,434.27 | 33.20% |
| | Bole Arabsa 5 | 103 | 34.23 | 652,361,751.22 | 835,979,724.10 | 183,617,972.88 | 28.15% |
| Bole | Bole Arabsa 3 | 119 | 35.45 | 824,421,014.68 | 1,025,662,525 | 201,241,510.32 | 24.41% |
| | Bole Arabsa 5 | 30 | 35.45 | 72,882,150 | 92,549,700 | 19,667,550 | 26.99% |
| Project 13 | Bole Arabsa 6 | 116 | 37.71 | 1,002,118,193.39 | 1,179,969,525.32 | 177,851,331.93 | 17.75% |

Source: AAHDO Projects Progress and Completion Report 2013-2018

Tables 7 above and Table 8 below clearly show that, the rate of cost and time overrun has significantly high for all Condominium house construction projects under “Arabsa” sites. The projects progress was beyond their planned period. The adverse effect of time overrun on the projects stated on the table is directly reflected on the respective costs of projects. All of the above projects have consumed more than the planned cost. As it is clearly presented on the table, there is a significant difference between the plan and the actual performance of projects in terms of time and cost requirements. As the researcher reviewed above, Project efficiency is measured by its actual performance compared with what was planned in terms of time, cost and quality requirements. If any project failed to meet its planned requirement in terms of time, cost and quality that project will be assumed as inefficient. The selected condominium construction projects are completed beyond their plan in terms of time and cost; we can argue that all projects are inefficient in terms of time and cost.

Table 8 Time Variance and Rate of Time overrun of the Projects

| Branch Name | Name of the site | No Floor | No Blocks | Project Progress | Planned Time (months) | Actual time (months) | Variance | Rate of time overrun (%) |
|--------------------|-------------------------|-----------------|------------------|-------------------------|------------------------------|-----------------------------|-----------------|---------------------------------|
| Lideta | Bole Arabsa1 | G-7 | 102 | 99 | 24 | 72 | 48 | 200 % |
| | | G-4 | 138 | 99 | 18 | 72 | 54 | 300 % |
| Kirkose | Bole Arabsa2 | G-7 | 9 | 99 | 24 | 72 | 48 | 200 % |
| | | G-4 | 32 | 99 | 18 | 72 | 54 | 300% |
| Project 15 | Bole Arabsa2 | G-7 | 16 | 99 | 24 | 60 | 36 | 150% |
| | | G-4 | 55 | 9 | 18 | 60 | 42 | 233.3% |
| Project 13 | Bole Arabsa | G-7 | 78 | 50.8 | 12 | 46 | 34 | 283% |
| | | G-4 | 38 | 50.8 | 9 | 46 | 37 | 411% |
| Yeka | Bole Arabsa 3 | G-7 | 33 | 48.75 | 12 | 46 | 34 | 283% |
| | | G-4 | 18 | 48.75 | 9 | 46 | 37 | 411% |
| | Bole Arabsa 5 | G-7 | 73 | 48.75 | 12 | 46 | 34 | 283% |
| | | G-4 | 30 | 48.75 | 9 | 46 | 37 | 411% |
| Bole | Bole Arabsa 3 | G-7 | 109 | 53.25 | 13 | 46 | 39 | 300% |
| | | G-4 | 10 | 53.25 | 10 | 46 | 36 | 360% |
| | Bole Arabsa 5 | G-7 | 15 | 53.25 | 13 | 46 | 39 | 300% |
| | | G-4 | 15 | 53.25 | 10 | 46 | 36 | 360% |

4.4. Quality of Condominiums

According to the information from open ended interviews, respondents said that they cannot talk about the quality of condominium housing in general, because the projects are composed of with different quality of materials, professions, technologies, leaderships etc. So, the quality of the projects is not the same in all sites. But in some project sites like, “*Lideta* and *Kirkose*” it is difficult to say a quality condominium housing are transferred to the beneficiaries, specially these projects that does not have infrastructure exposed to quality assurance because they do not have provision of water, electric and not enough road availability from block to block specially these building does not get adequate water faced to poor quality of houses. The other problem that identified by the respondents is that the finishing of condominium housing project is very poor that beneficiaries exposed to extra costs after receiving the house from the government. Most of the respondents pointed out that the finishing cost they incurred very much amount of money because the government is transferred the project sites of the condominium housing before the projects they do not have completed finishing work and this cost is very headache to the individual households to finish the inside activities such as doors, windows, floor, walls, electric lines, water lines and to replace the agree stone work etc. So, basically the house looks like as a real house after an extra much amount of money is spent on, that means the final finished or end of the projects are done by the efforts of the condominium housing residents. Generally, all believes that this condominium site is located in a good site which is comfortable for living and even if there is problem regards to quality, they are much better than any other condominium which were delivered to the people (Annex, fig. 2 and 3).

4.5. Factors Affecting Performance of Condominium House Construction Projects that are Underway in Bole Sub City “Arabsa” Sites.

It is possible to assume different causes/factors for the inefficiency of the above projects in terms of their time, cost and quality requirement. The researcher assumed/hypothesized different factors which can contribute essentially for time and cost overrun and quality problems on condominium house projects. As it is presented below and prepared it with a Likert scale questionnaire format, distributed to the respondents. The respondents were engineers and project office professionals who were directly involving for the accomplishment of condominium projects understudied. The respondents were selected by using a Judgmental sampling technique which enables to meet

respondents who knows the area under study very well. The aim was to understand factors/causes affecting the performance of condominium house construction projects on the views of contractors, consultants and owner under Bole sub city

Table 9, 10, and 11 below Shows list of factors affecting performance of condominium house construction projects based on cost, time and Quality with the relative importance index and rank. All feedback from respondent were examined and tries to find out critical factors which severely affects the current performance of condominium house construction projects. Perspective of each respondent different from each other and therefore result obtained from clients, contractors and consultants, this would help us to get a more reliable result.

The respondents were experienced, site engineers, office engineers, contractors, project officers, project consultants and process leaders. The underlisted factors believed to affect project performance were considered in this study and were listed under 3 groups based on the literature reviewed (A. Enhassi. 2009; R. Takim. 2002; S. Alwi. 2003; A. Omran.2012; S. Bhatti. 2013; S. Sarahan. 2013). The performance factors were summarized and collected according to previous studies and others as recommended by local experts. The main groups considered in this paper are factors affecting performance of condominium construction projects in its progress phase includes pre-construction phase, construction phase and post-construction phase and according to these groups factors are sorted out. As it described in the methodology part, the relative importance index method (RII) was used herein to determine the relative importance of the identified performance factors.

A questionnaire survey was used to elicit the attitude of the client, contractor and consultants towards the factors affecting the performance of condominium house construction projects in Bole sub city. Questionnaires were sent to randomly selected project officers, contractors and supervisors. 50 questionnaires were distributed as follows: 20 to clients; 10 to supervisors; and 20 to contractors. 50 were received (Response rate of 100%). The respondents were asked to indicate, based on their local experience the level of importance of each one of the identified factors of performance on a five-point Liker scale as: Not important, Slightly, Moderately, Very, and Extremely important.

4.5.1. Factors Influencing Cost Performance of Condominium House Construction Projects in Bole Sub City “Arabsa” Sites

Table 9 shows the rank of all factors influencing cost overruns that have been investigated in this research from contractor, consultant and owner viewpoints. A total of 11 factors which influence cost performance of condominium house projects in Bole Sub city of Addis Ababa have been studied and discussed. The rank was based on relative importance index of the factors.

Table 9 Factors affecting cost performance of condominium house construction projects

| Sr. No | Factors affecting cost of project | Client | | Contractor | | Consultants | | Weighted Average | |
|--------|--|--------|------|------------|------|-------------|------|------------------|------|
| | | RII | Rank | RII | Rank | RII | Rank | RII | Rank |
| 1 | Escalation of Material Price | 0.92 | 1 | 0.83 | 5 | 0.91 | 2 | 0.88 | 1 |
| 2 | Lack of Cost planning/monitoring during pre and post contract stages | 0.89 | 2 | 0.78 | 8 | 0.93 | 1 | 0.86 | 2 |
| 3 | Design changes | 0.63 | 10 | 0.73 | 10 | 0.70 | 9 | 0.68 | 10 |
| 4 | Additional work at owner’s request | 0.65 | 9 | 0.75 | 9 | 0.66 | 10 | 0.69 | 9 |
| 5 | Effective Cost control system | 0.68 | 8 | 0.92 | 2 | 0.73 | 7 | 0.77 | 7 |
| 6 | Delay in progress payments for completed works | 0.81 | 4 | 0.86 | 4 | 0.87 | 3 | 0.84 | 3 |
| 7 | Unpredictable weather conditions | 0.60 | 11 | 0.68 | 11 | 0.65 | 11 | 0.64 | 11 |
| 8 | Effective project planning, scheduling or resource management | 0.79 | 5 | 0.81 | 6 | 0.71 | 8 | 0.77 | 7 |
| 9 | Lack of skilled professional in construction PM (project management) in the organization | 0.86 | 3 | 0.80 | 7 | 0.84 | 4 | 0.83 | 4 |
| 10 | Good site management and supervision | 0.74 | 6 | 0.89 | 3 | 0.78 | 6 | 0.80 | 6 |
| 11 | Project labour cost | 0.71 | 7 | 0.94 | 1 | 0.81 | 5 | 0.82 | 5 |

Sources: field survey, 2018

4.5.1.1. Contractor's View

Table 9 shows that among the listed top 11 factors, the most frequent and most critical cost performance factors that contractors ranked first with RII of 0.94 is “Project labor cost”. Since contractors pay salary of their employees by themselves from the contract amount, the continuous labor cost increase affects them significantly. As a result of this, contractors have been requesting contract adjustment in order to cope up the increment.

The second factor selected by the contractor which affects cost of the project with RII of 0.92 is “effective cost control system”. The contractor is one of the main parties in any construction industry. The amount of money that is released to the project by the client should be managed properly by the contractor in order to accomplish the project successfully. The contractor should assign the knowledgeable employees as an accountant and also it is better if he or she would be a responsible citizen to his or her works. The third factor contractors ranked with RII of 0.89 is good site management. If contractors had a capability of managing site, it all about resource management and it leads the contractor to accomplish the contract according to an agreement that they made with the owner of the projects and this lead them to successfulness.

The fourth factor that contractors ranked with RII of 0.86 is “delay in payment for completed works”. If contractors do not get payment on time, it is common that the project will not be completed on time, but fixed costs of the project will keep on going as far as the project is going on. Contractor's ranked unpredictable weather conditions the least factor that affects the cost performance of the project with RII of 0.68.

4.5.1.2 Consultant's View

The first important factor that affect cost performance according to consultant's view was “Lack of Cost planning and monitoring during pre and post contract stages” with a RII of 0.93. Monitoring is a continuous assessment that aims at providing all stakeholders with early detailed information on the progress or delay of the ongoing assessed activities. It is an oversight of the activity's implementation stage. Its purpose is to determine if the outputs, deliveries and schedules planned have been reached so that action can be taken to correct the deficiencies as quickly as possible. According to the information the researcher obtained during personal interview from the project consultants, there is no continuous project work monitoring and evaluation activities in

order to evaluate the performance of the project by comparing with the given time frame, the approved budget and also to make corrective action for the dalliance of project.

“Escalation of material price” was the second factors affecting cost performance ranked by consultant with a RII of 0.91. Consultants consider “Delay in progress payments for completed works” as the third factor ranked with RII of 0.87. Consultants ranked “unpredictable weather conditions” as the least factor that affect cost performance with a RII of 0.65. Addis Ababa and around has good climatic conditions, so it isn't exposed to any hurricanes or great leaps in temperature or snow fall, therefore the weather condition does not have a significant impact on execution of construction project and to make any damages of these projects.

4.5.1.3. Owner’s View

‘Escalation of material price ’ was ranked as the first major factor of cost overruns by clients with a RII of 0.92. This indicates that this factor is more important for owners than for others. Material and equipment cost is one of the project cost components that affects owners' liquidity and project budget. According to the information form interview, all the major construction materials required for the project provided by AAHDPO. Since materials like steel and finishing materials are imported from abroad, the current foreign currency shortage of the country contributed a lot for the project cost overrun. The second factor for cost performance with a RII of 0.89 was “lack of cost planning /monitoring during pre and post contract stages”. Contractor estimates prices of the tender according to the present prices at local markets. It's known that the tendering phase and awarding is an early phase of the project, even the awarding process takes long time, so there is a chance of price fluctuation. In case of high prices, the contractor would face the problem of cost overrun at the execution phase. The third factor owners ranked with RII of 0.86 is lack of skilled professionals specialized in PM (project management) in the project. Availability of personnel with high experience and qualification in project planning and implementation helps to maintain the cost and time and Quality. The last factor with minimum impact on the cost of the project is unpredicted weather condition.

4.5.2. Factors Influencing Time or Schedule Performance of Condominium House Construction Project Offices in Bole Sub City

This part consists of results and discussion of factors that affect time performance. These factors include: project related factors, contractor’s responsibility factors, consultant’s responsibility factors, client’s responsibilities factors and external factors indicators.

Table 10 Factors affecting time performance of condominium house construction projects.

| Sr. No | Factors affecting Time of construction | Client | | Contractor | | Consultants | | Weighted Average | |
|--------|--|--------|------|------------|------|-------------|------|------------------|------|
| | | RII | Rank | RII | Rank | RII | Rank | RII | Rank |
| 1 | Site preparation time | 0.7 | 8 | 0.71 | 8 | 0.73 | 8 | 0.71 | 8 |
| 2 | Proper planning and scheduling | 0.92 | 2 | 0.88 | 2 | 0.85 | 4 | 0.88 | 2 |
| 3 | Time needed to rectify defects | 0.72 | 7 | 0.74 | 7 | 0.76 | 7 | 0.74 | 7 |
| 4 | delay in progress payments | 0.82 | 4 | 0.91 | 1 | 0.95 | 1 | 0.89 | 1 |
| 5 | Bureaucracy (Excessively complicated administrative procedure | 0.6 | 10 | 0.63 | 10 | 0.61 | 10 | 0.61 | 10 |
| 6 | Type of project bidding and award i.e. negotiation, lowest bidder | 0.67 | 9 | 0.68 | 9 | 0.66 | 9 | 0.67 | 9 |
| 7 | Availability of personals with high experience and education | 0.74 | 6 | 0.8 | 5 | 0.88 | 3 | 0.80 | 6 |
| 8 | Communication and coordination among project participants /stakeholder involvement | 0.86 | 3 | 0.86 | 3 | 0.82 | 5 | 0.85 | 3 |
| 9 | Financial problems | 0.95 | 1 | 0.78 | 6 | 0.79 | 6 | 0.84 | 4 |
| 10 | Availability of resources as planned through project duration | 0.79 | 5 | 0.83 | 4 | 0.91 | 2 | 0.84 | 4 |

Source: filed survey 2018

4.5.2.1. Contractor’s View

The first important factor ranked by contractors with RII of 0.91 is “delay in progress payments for completed work”. It causes severe cash-flow problems to contractors and this can have a devastating effect down the contractual payment chain. Regular monthly payment to contractors for work done removed constraints which otherwise may have impeded project progress to cause delay and cost overruns. Failure to provide adequate funding resources to contractors for the job

done will make it difficult for the contractors to meet project objectives. Based on the personal interview conducted with contractors, they raised possible reasons for delay in payment. One of possible reason is that, AAHDP do not have adequate budget to run the project, this has brought delay in payment to them and affects to pay salary and sub -contractors payment on time.

“Proper planning and scheduling” is ranked by contractor as the second important factor that affects the time performance of condominium house construction projects with a RII of 0.88. Proper planning and scheduling is important for successful accomplishment of the project. Ineffective planning and scheduling has a significant impact on construction delays. It should be developed from the start of the project until completion of a project. According to the information from personal interview, reasons why contractors are not able to follow the planning and scheduling effectively is due to shortage of inexperience staff.

The third factor ranked by contractors with a RII of 0.86 is “Coordination and communication and among project participants”. Any project involves interaction between different project participants and most of the activities require proper understanding of the needs of the others. There are instances when the schedule of the project suffers for want of proper interaction between the participants. The coordinating ability of project manager with his/her team members and sub-contractors are great assets in such conditions. A short and informal lines of communication among project team members support achievement of desired project completion time. The least factor contractors ranked with RII of 0.63.was “Bureaucracy (Excessively complicated administrative procedure).

4.5.2.2. Consultant’s View

According to the consultant’s view, “delay in progress payments with a RII of 0.95 was one of the major factors that affect the schedule performance of the project. The suitable description for this consensus is that cash is very necessary for contractor to accomplish the project within specified time. Any shortage of cash for contractor will cause many problems such as, slow progress and work decline in productivity. Also, the contractors will not be able to purchase the needed equipment for work. The second factor ranked by consultants with RII of 0.91 was “availability of resources as planned through project duration”. This factor directly affects the project performance with regards to time. If resources are not available as planned through project duration, the project will suffer from the problem of time performance. Third factor ranked by consultants with RII of

0.88 was “Availability of personals with high experience and education “lack of adequate qualified and experienced professionals” in the construction sector was a long-term problem and will continue to push up project time and costs. According to the interview we had with some of the consultants, they believe that various higher institutions are providing huge number of graduates every year, but the education and training quality is inadequate to meet the needed large percentage of skilled workers.

4.5.2.3 Owner’s View

The first important factor which affects the project schedule performance according to owners view with RII of 0.95 was “financial problem (budget problem)”. The high demand of condominium house requires huge amount of budget, but the government is unable to allocate this budget on time hence, AAHDO don’t release payment for the executed work on time. This and likes of problems that the government is creating leads to financial difficulties to contractors and the pitfalls on the progress of the projects. The second important factor ranked by client’s response with RII of 0.92 is proper planning and scheduling. This result shows the importance of planning to deliver the project on time. When the activities execution is without priorities of tasks, it certainly causes the delay of the project. The third important factor was “Communication and coordination among project participants /stakeholder involvement “with a RII of 0.86.

4.5.3 Factors Influencing the Quality of Condominium House Construction Project under Bole Sub City Project Offices of “Arabsa” Sites

Table 11 shows the rank of all factors influencing quality performance that have been investigated in this research from contractor, consultant and owner viewpoints. A total of 8 key factor indicators which influence quality performance of the condominium house projects in Bole sub city of Addis Ababa have been studied and discussed. The rank was based on relative importance index of the factors.

Table 11 Factors affecting quality performance of condominium house construction projects

| Sr. No | Factors affecting Quality of construction | Client | | Contractor | | Consultants | | Weighted Average | |
|--------|--|--------|------|------------|------|-------------|------|------------------|------|
| | | RII | Rank | RII | Rank | RII | Rank | RII | Rank |
| 1 | Conformance to specification | 0.8 | 4 | 0.83 | 3 | 0.75 | 6 | 0.78 | 6 |
| 2 | Quality of equipment and raw materials | 0.78 | 5 | 0.96 | 1 | 0.91 | 2 | 0.88 | 2 |
| 3 | Quality assessment system in organization | 0.68 | 8 | 0.70 | 7 | 0.71 | 8 | 0.70 | 8 |
| 4 | Implementing effective quality assurance program | 0.72 | 7 | 0.68 | 8 | 0.72 | 7 | 0.71 | 7 |
| 5 | Technical competence of contractors | 0.93 | 1 | 0.72 | 6 | 0.79 | 5 | 0.81 | 4 |
| 6 | Stakeholder's involvement | 0.84 | 3 | 0.80 | 4 | 0.83 | 3 | 0.82 | 3 |
| 7 | Corruption | 0.75 | 6 | 0.77 | 5 | 0.81 | 4 | 0.79 | 5 |
| 8 | Availability of personals with high experience and education | 0.88 | 2 | 0.89 | 2 | 0.93 | 1 | 0.90 | 1 |

Source: own survey, 2018

4.5.3.1 Contractor's View

Quality of equipment and raw materials in project has been ranked by the contractor's respondents in the first position with RII equal 0.96. Contractors must implement their projects according to the required and agreed quality because owners and consultants usually want materials used in supervised project according to specification and agreement. Based on Cheung et al (2004) and Iyer and Jha (2005), this factor affects the quality performance and the degree of owners and consultants' satisfaction. During interview and site observation in "Arabsa" condominium projects, in which houses were transferred to lottery winners before 2 years, majority of the house owners changes the doors, windows and sanitation equipment like sink because, they are not happy on the quality of those materials which was originally fixed by the contractors.

Availability of personnel with high experience and qualification/education has been ranked by the contractor's respondents in the second position with RII equal 0.89. This factor is also important for contractors because availability of personnel with high experience and qualification assist contractors to implement their projects with a successful and suitable performance. In Arabsa project sites many of the site engineers are civil engineers but according to the interview response

from respondents, they have little training on management of projects. Conformance to specification has been ranked in the third position by contractor's respondents with RII of 0.83

4.5.3.2. Consultant's View

Availability of personals with high experience and education has been ranked by the consultant's Respondents in the first position with RII equal 0.93. This factor is the most important one for consultants because availability of personals with high experience and qualification assist consultants to supervise the project with a good professionalism and also assist them to satisfy the owner with a successful performance of project. This result is in agreement with Cheung et al (2004) and Iyer and Jha (2005) as this factor affects strongly on project performance because it affects strongly the degree of owner's satisfaction which is one of the main responsibilities of consultants.

Quality of equipment and raw materials in project has been ranked by the consultant's respondents in the second position with RII equal 0.91. Consultants usually want materials used in supervised project with a good quality and according to specification. Based on Cheung et al (2004) and Iyer and Jha (2005), this factor affects the project performance and the degree of owner's satisfaction which is one of the main responsibilities of consultants.

The third important factor consultants ranked with RII of 0.83 was "Stakeholder's involvement". Key stakeholders are usually considered responsible for many of the current quality problems or defects that occur in construction building projects. Jha&Lyer (2006) identify that one of the most important factors, which has an indisputable effect on project quality is efficient communication between parties involved in construction projects. Arditi & Gunayd in (1998) also affirm that high quality projects mainly depend on the relationship among the parties involved. Thus, Heravitorbati et al (2011) concluded that stakeholder incorporation within quality management planning and proceeding would facilitate greatly in solving large numbers of quality problems in building projects. Therefore, effective relationship among stakeholders and involving stakeholders in planning and practice has immense help in solving quality failure issues (Wang & Huang 2006 and Heravitorbat. "Conformance to specification" has been ranked by the consultant's respondents in the third position with RII equal 0.82.

4.5.3.3 Owner's View

The first important factor ranked by owners with RII of 0.93 is “technical competence of contractors”. Most contractors working in the construction of condominium houses are beginners with low levels of construction skills and capacity to discharge their duties. As it is understood from the interview conducted with the project officers of HDPO, there is no bidding procedure to select contractors; they are simply selected based on the order of list obtained from the Sub city. Contractors join the condominium houses to get letters of work experiences and use the project as a stepping stone for other bigger works. Thus, the engineers from the consultant and the client (HDPO) do most of the job to show techniques and methodologies in the construction processes to poor contractors and the MSEs. The knowledge transfer also depends on MSEs’ interest and readiness to learn and accept. The construction officer from HDPO also added that for most MSEs it is difficult to even read drawings and understand the modules of construction material they are producing. Both the consultant and HDPO rate technical know-how of the majority of MSEs and some contractors as poor. Therefore, this low level of technical competency of contractors and MSEs seriously affects the performance of the projects quality.

“Availability of personals with high experience and education” has been ranked by the owner’s respondents in the second position with RII equal 0.88. Availability of personnel with high experience and qualification; in project planning and implementation helps to maintain the cost, time and quality performance of the project in order to satisfy the owner. This result is related to Cheung et al (2004) and Iyer and Jha (2005) results as this factor affects strongly on project performance because it affects strongly the degree of owner’s satisfaction.

The third factor selected by the client with RII of 0.84 is stakeholder’s involvement. Key stakeholders are usually considered responsible for many of the current quality problems or defects that occur in construction building projects. Jha&Lyer (2006) identify that one of the most important factors, which has an indisputable effect on project quality is efficient communication between parties involved in construction projects. Arditi&Gunaydin (1998) also affirm that high quality projects mainly depend on the relationship among the parties involved. Thus, Heravitorbati et al (2011) concluded that stakeholder incorporation within quality management planning and proceeding would facilitate greatly in solving large numbers of quality problems in building condominium projects. Therefore, effective relationship among stakeholders and involving

stakeholders in planning and practice has immense help in solving quality failure issues (Wang & Huang 2006 and Heravitorbat

“Conformance to specification” has been ranked by the client’s respondents in the fourth position with RII equal 0.726. This factor is an important to client representative satisfaction because it is mainly related to owner satisfaction. Iyer and Jha (2005) are in agreement with our result as this factor is significant for client representative because this factor is strongly related to client satisfaction.

4.5.4. Management Related factors influencing the performance of 20/80 condominium house construction projects under Bole Sub city project offices in “Arabsa” sites

Project management action is a key factor for project success. Project successful management factors are not universal for all projects since different projects and different people prioritize different sets of success actors. Competent project managers can use management tools to plan and execute their construction projects to maximize the project’s chances of success. In order to investigate the impact major success factors related to project management, the responded questionnaires and interviewee was analyzed. The following tables indicate the output of the analysis.

Table 12 Leadership factors affecting the performance of condominium house construction projects

| No. | Leadership Factors influencing performance | Client | | Contractor | | Consultant | | Weighted Average | |
|-----|---|--------|------|------------|------|------------|------|------------------|------|
| | | RII | Rank | RII | Rank | RII | Rank | RII | Rank |
| 1 | Decision Making effectiveness | 0.83 | 3 | 0.82 | 3 | 0.92 | 1 | 0.86 | 1 |
| 2 | Project management strategies | 0.87 | 2 | 0.75 | 5 | 0.68 | 7 | 0.77 | 5 |
| 3 | Interaction among Project Participants (Stakeholder involvement) | 0.73 | 6 | 0.63 | 7 | 0.85 | 3 | 0.74 | 6 |
| 4 | Training the HR-in the skill demanded by the project | 0.65 | 7 | 0.68 | 6 | 0.75 | 6 | 0.69 | 7 |
| 5 | Project manager with professional education and with relevant work experience | 0.81 | 4 | 0.88 | 1 | 0.79 | 5 | 0.83 | 3 |
| 6 | Leadership skills of project manager | 0.89 | 1 | 0.79 | 4 | 0.81 | 4 | 0.83 | 3 |
| 7 | Project manager's competence | 0.78 | 5 | 0.85 | 2 | 0.89 | 2 | 0.84 | 2 |

Source: Own Survey, 2018

4.5.4.1. Contractor's View

Project managers with professional education and with relevant work experience has been ranked by the Contractors' respondents in the first position with RII equal 0.88 .This factor is the most important one for contractors because availability of professional project managers with high experience assist contractors to implement their projects with a successful and suitable performance Odusami, & Omirin (2003) argued that there was significant relationship between the project leader's professional education with relevant work experience and his leadership style, team composition and overall project performance. The other important factor that contractors ranked second with RII of 0.85 was "the project manager's competence." The project manager is the key person in a project and should understand his or her role. He or she should have interpersonal, technical and administrative skills. The third factor that contractors ranked with RII of 0.82 is "decision making effectiveness".

4.5.4.2 Consultants View

“Decision-making effectiveness” has been ranked by the Consultants’ respondents in the first position with RII equal 0.92. The assigned project manager should have the ability of effective decision making, good project monitoring skill, and well project planning ability in order to accomplish the project successfully.

The second factor selected by consultants with RII of 0.89 “Project manager’s competence”, competent project manager possesses the capability to ensure to complete the project in budget and on schedule. He or she does so by doing regular schedule and budget updates. The previous experience of a project manager on similar projects makes him or her competent. It is not enough to possess the skills mentioned above unless the project manager exerts him or her for the project by getting involved in the project through regular schedule and budget update and taking active part in construction control meetings and possesses a thorough understanding of the scope of work.

The third factor ranked by contractor with RII of 0.85 is interaction among Project Participants. Any project involves interaction among different project participants. The participants include the internal participants, such as the contractor’s team members, as well as the external team members, such as different subcontractors and vendors. Most of the activities require proper understanding of the needs of the others. There are instances when the quality of the project suffers for want of proper interaction between the participants. This fact is more vivid if one executes projects that involve multiple categories of work; say, for example, civil works; electrical works; mechanical works;

4.5.4.3 Client’s View

From those listed leadership factors, client ranked “leadership skills of project manager” first with RII of 0.89 Project managers should have the capability of leading the workers in the project. Leading of the workers includes many activities like assigning the right persons to the right place, giving the direction of the work to the workers, encouraging the workers, controlling the quality of construction materials, monitoring the cost of the project, generally controlling the all over activities of the project is the duty of the project managers. Therefore, the project manager should be having leading skills to accomplish the project successfully.

“Strategic project management best practices” was the second factor clients ranked with RII of 0.87. Strategic problem is a major problem of delaying the project and affecting cost and quality of the project. In addition to the respondent information, AAHDO GTP 1 performance review document explained lack of implementing strategies was one of the factor that affect condominium housing project. According to the perception of contractors the third factor ranked with RII of 0.83 was “decision making effectiveness”.

4.6 Others Factors Affecting the Performance of Condominium Houses Construction Projects in Bole Sub City “Arabsa” Sites

In addition to the above factors the condominium projects were affected by different factors. Based on the information from interview, the following factors were pointed out:

- ✚ Turnover of Experienced and skilled human power from project office
- ✚ Lack of skill in MSEs association
- ✚ Unethical business characteristics of supplier
- ✚ Lack of integration of stakeholders
- ✚ Lack of project management training for project teams and managers
- ✚ Fluctuation of electric power
- ✚ **Infrastructural provision**

According to the interview of respondents, lack of infrastructural provision is one of the reasons for the condominium housing project weakness and the project cannot move in the right speed. Since the infrastructure sectors are part of (stake holders) the project their inefficiency and ineffectiveness are reflected on the construction of condominium housing activities. Because, when we take supply of electric power, water and road are very important variables in the project sites that means they are independent variables that determine the time, cost and quality of the condominium housing. As a result, poor supply of infrastructure is going to have huge impact on the accomplishment of the project program. Therefore, the concerned body should give attention to provide adequate infrastructural service to minimize the problem of condominium housing projects.

Corruption

One of the challenges in financing of condominium houses is corruption. This has remained as a latent, but challenging component of the condominium housing system since the beginning of the program. Employees of AAHCPO who responded in the questionnaire mentioned that corruption is wide spread in the Program due limitations or absence of proper control or organized financial management system and monitoring mechanism. Information released on different media by Regional and the Federal Ethics and Anticorruption Commissions indicate that quite a significant number of employee's businessmen, contractors, supplies have been alleged of profound corruption related to condominium housing projects. According to the Research conducted by Federal Ethics and Anti-Corruption Commission of Ethiopia April, 2018 pointed out that, the reason for the delay of condominium projects is corruption.

CHAPTER FIVE: CONCLUSIONS AND RECOMMENDATIONS

5.1. Conclusion

Based on the results of the analysis of the study and respondents' responses from interview the following conclusions are drawn. The entire condominium house projects in Bole Sub city “Arabsa” sites investigated in the research, suffered in cost performance in their execution. For these projects, the actual costs were overrun ranges from 12.99% to 33.2 % (28.39 to 105.78 million) birr of the contract amount. Among the projects “ Kirko’s” performs better relative to the others. The most common factor affecting the cost performance of the condominium house projects were escalation of material price, lack of cost planning and monitoring during the pre and post contract stage and delay in progress payment for completed works.

All of the condominium house projects in Bole Sub city “Arabsa” sites, the contract time performance was affected ranges from 150% to 411% of the actual contracted time. From the results of this project work 10 factors affecting time performance of the projects were examined by the respondents. The most common factors were delay in progress payment for completed work, poor planning and scheduling, lack of communication and coordination among project participants and financial problem (budget problem).

Quality is an essential component for sustainability and customer satisfaction while unskilled workmanship, inferior of quality of equipment and materials, qualification and experience of personnel and poor profession of project management and leadership have contributed to the housing project quality problems. Lack of coordination and communication between project stakeholders, lack of commitment and sense of ownerships are the major common bottlenecks of the project stakeholders. And lack of previous experiences of contractor was also identified as one factors that affected the performance of projects quality.

The key factors that affect the performance of condominium construction projects are cost, time, quality, and leadership style. The most common causes of cost overrun were inflation or increase in the cost of construction materials, change in foreign exchange rate (for imported materials), lack of cost control and failure to identify problems and institute the necessary and timely actions.

Time management is an important factor that the contractor should ensure that it is well planned for. Delivering orders late to the site should be avoided. Financial problem of contractor should minimize to determine how fast the project will be executed. When financial capabilities are approved on time, it leads to some activity lagging behind that must be approved. Owners should ensure that they pay their contractors on time to motivate them regarding work faster.

The lack of careful identification of qualified contractors at the early stage of bidding adversely affect the practice and performance of the project in terms of time, cost and quality because, there are many contractors that participate in the project with their major problems such as ineffective planning and scheduling, poor site management and supervision, poor qualification of technical staff and difficulties in financing projects.

5.2. Recommendations

Based on results of the analysis of study and respondents' responses during the personal interviews a number of recommendations emerged to enhance the poor performance of 20/80 of condominium house construction projects in Bole sub city "Arabsa" sites. The researchers classified those under three categories of recommendation depending on the stakeholders such as client, contractor, and consultant.

5.2.1 Actions to be taken by Contractors

Contractors are recommended to have a proper planning and good site management system in the different activities of the project so as to avoid any mistakes that may lead to rework of activities, resulting in time and cost performance problem. The contractors should be very keen in bidding for the project so that they quote the exact cost and not low cost to enable win the bid and collect advance payment and disappear. Proper planning and scheduling are continuing processes during construction and match with the resources and time to develop the work to avoid cost overrun/performance problem and disputes. To have a good site management and supervision accordingly administrative and technical personnel should be assigned as soon as project is awarded, to make arrangements to achieve completion within specified time with the required quality, and estimated cost. In order to avoid financial problems contractors are recommended to use the advance payments properly and develop philosophy on financial management per project.

And, do not use one project finance to another project. Arrange some incentives and give training, to motivate labors and increase productivity.

5.2.2 Actions to Be Taken by Consultant/Supervisor

Consultants are recommended to give orientation to the clients, what impacts are encountered on the construction of the project. Example, immediate approval of payments, variations, additional works, and price escalation are improving project success. Approve the requested payments, additional works, variation orders etc. on time, as per the rule and regulation of contract, to successful completion of the construction of the proposed projects on time.

Consultants are advised to hire qualified technical personnel to manage and improve the projects achievement timely with its budget and quality. It is also advised for consultant to have high qualification to give suitable instruction in a suitable time and to be able to answer any question stated by contractor to avoid time and cost performance problem. Consultants are advised to adopt efficient information distribution systems to guard against communication gaps respond as quickly as possible to contractor and owner questions and requests for clarification to avoid associated delays and confusions which consequentially will affect time, cost and quality performance.

5.2.3. Actions to Be Taken by Client

As we studied in the analysis part, escalation of material price was one of the key factor affecting cost and time performance of condominium house construction projects. As a result of this clients are recommended to consider appropriate inflation factor during cost estimation process. Because during the construction period the cost of construction materials, tools, labors, equipment etc. may vary from time to time. Clients are advised to setup stores for required construction materials, and especially that are scarce or that are in limited quantity in the markets to avoid time and cost performance problem. Cost impacts can be mitigated through aggressive value engineering for substitute materials, by developing on time order culture and stockpiling of regular materials, early purchases of those materials subject to escalation risk, and identify critical materials, whose production and procurement takes long time and act early supply commitments. To effectively utilize those methods, Clients/Owners, Supervisors and Contractors should seek the early involvement of specialty contractors and their collaboration with the design team.

The project manager as well as a top-level management should apply proper project management techniques, such as: proper planning, scheduling and monitoring, proper cash flow and resource scheduling together with strict monitoring. Since clients provide materials for the project, they are advised to supply good quality of materials and equipment and ensure that the project conforms to the specification. Leaders and personnel should be trained on new skills to improve their performance.

The main source of finance for condominium projects is sale of bonds to the Commercial Bank of Ethiopia (CBE). Other banks be it government or private are not involved in financing of the Project. Hence, the clients are advised to incorporate other banks to satisfy the huge financial needs of the projects

Government should focus on selection of competent consultants and reliable contractors to carry out the project activities of condominium housing. The government is also advised to allow international contractors who have high capacity on the sector by conducting international bidding in order to speed up the construction processes and satisfy the huge housing demand of the people. It should also assure continuous coordination and relationships among project participants are required throughout the project life cycle for solving problems and development project success.

The study recommended that clients should strictly supervise construction of condominium housing projects to minimize time delay, cost overrun and poor quality of houses. In addition, owners are encouraged to facilitate payments to contractors in order to overcome delay, disputes and claims.

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ANNEX



Figure 2: Bole Arabas1 Project Site



Figure 3: Bole Arabas 2 project site

Addis Ababa University School of Commerce
Post Graduate program
Department of project Management

Dear Participants

I am MA student in Project Management in Addis Ababa University School of Commerce. As part of my MA project work, research as partial fulfillment of the requirements for the Master's Degree in Project Management (MPM), I am conducting research on the topic “**Assessment of the performance of condominium housing projects in the Case of Bole Sub City “Arabsa” sites**”. I kindly request you to participate in this research study by completing the attached questionnaire. In order to ensure that all information will remain confidential please do not include your name.

The main objective of this research is to assesses the performance of the two projects and to identify the significance of time factors, cost factors, quality factors and leadership factors that affects the performance of projects and to make recommendations based on the findings. The questionnaire consists of three sections and general comments. Section 1 general information, Section 2 is the current assessment of the two projects, Section 3 consists of cost factor indicators, time factor indicators, quality management factor indicators and management Related factor in Condominium House construction projects in Bole Sub City Arabsa 1 and Arabsa2 sites.

✚ General Instruction and information:

The questioner has close-ended and open-ended questions please indicate the extent to which you can select the correct answer of your expectation with the following statements by putting “√” on the box which most accurately reflects your opinion.

Part one: General Information

1. Age

20.-30 years 31 -40 years 41-50 years above 51years

2. Sex

Male Female

3: Level of Education

High school Diploma TEVT Certificate College Diploma
 University Degree Postgraduate (MA/MSC)

4. Respondent organization/company type:

Owner Contractor Consultant

5. Your present responsibility

- | | |
|--|---|
| <input type="checkbox"/> Process leader | <input type="checkbox"/> Project Supervisor |
| <input type="checkbox"/> Project officer | <input type="checkbox"/> Project consultant |
| <input type="checkbox"/> Site Engineer | <input type="checkbox"/> Project Manager |
| <input type="checkbox"/> Office Engineer | Other_____ |

6. For how many years have you worked on construction projects?

- Less than 2years 2 – 3 years 3 – 4years 4 – 5years
 Greater than 5 years

7. For how many years does your company participate in construction of condominium house projects?

- less than 2years 2-3 years 3-4 years 4-5 years Grater than 5 years

Part II: Questioners to Assess the current performance of the projects

8. Do you think that the projects could be completed on time?

- Yes No

9. If **No**, why do think it took so long?

- | | |
|---|--|
| <input type="checkbox"/> Delayed by the City Administration | <input type="checkbox"/> Delayed by the contractor |
| <input type="checkbox"/> Houses were incomplete | <input type="checkbox"/> Shortage of material |
| <input type="checkbox"/> Shortage of finance | <input type="checkbox"/> Shortage of man power |
| <input type="checkbox"/> Lack of Monitoring and Evaluation | |

Other specify _____

10. What do you think can be done in order to improve housing project performance in project office regards to schedule?

- More funding needed
 Proper supply (procurement) of material
 Proper Planning
 Proper monitoring and evaluation
 Proper assignment of Human Resource

Other specify_____

11. Did the Project cost increase from the initial cost?

Yes No

12. If the answer to the above question (10) is **yes** could you give the reason of increase in project cost?

13. Does project financing affect construction project completion in your opinion?

Yes No

14. If the answer to question (12) above is **yes** what project financing issues affects Construction housing project completion?

15. Does project planning affect construction project completion?

Yes No

16. If the answer to question (14) above is **yes** what project planning issues affect On your construction housing project completion?

- Pre-planning
- Construction planning during implementation
- Material delivery on site
- Following project schedule during construction

Other-----

17. Does supervision/inspection affect construction project performance?

Yes No

18. If the answer to question (16) above is **yes**, what supervision/inspection issues affect construction projects completion? Say whether good supervision helps or not.

Part-III

For each of the following factors, please indicate your level of agreement, as they apply to your organization's perception on management of Bole Housing Condominium Development projects by ticking (☐) the appropriate boxes.

- 1 -Not significant (NS)** **3- Moderate significant (MS)** **5 -Extremely significant (ES)**
2 -Slightly significant (SS) **4-Very significant (VS)**

A. Factors Influencing Cost of Condominium Construction Projects

| Sr. No | Factors affecting cost of construction | Scale | | | | | Remarks |
|--------|--|-------|---|---|---|---|---------|
| | | 1 | 2 | 3 | 4 | 5 | |
| 1 | Escalation of Material Price | | | | | | |
| 2 | Lack of Cost planning/monitoring during pre and post contract stages | | | | | | |
| 3 | Cash flow of the contractor | | | | | | |
| 4 | Design changes | | | | | | |
| 5 | Additional work at owner's request | | | | | | |
| 6 | Cost of rework | | | | | | |
| 7 | Effective Cost control system | | | | | | |
| 8 | Delay in progress payments for completed works | | | | | | |
| 9 | Material and equipment cost | | | | | | |
| 10 | Unpredictable weather conditions | | | | | | |
| 11 | Project labor cost | | | | | | |

B. Factors influencing time of condominium house construction projects

| Sr. No | Factors affecting Time of construction | Scale | | | | | Rank |
|--------|--|-------|---|---|---|---|------|
| | | 1 | 2 | 3 | 4 | 5 | |
| 1 | Site preparation time | | | | | | |
| 2 | Proper planning and scheduling | | | | | | |
| 3 | Time needed to rectify defects | | | | | | |
| 4 | Average delay in regular payments | | | | | | |
| 5 | Bureaucracy (Excessively complicated administrative procedure) | | | | | | |
| 6 | Type of project bidding and award i.e. negotiation, lowest bidder | | | | | | |
| 7 | Late delivery of materials | | | | | | |
| 8 | Communication and coordination among project participants /stakeholder involvement | | | | | | |
| 9 | Financial problems | | | | | | |
| 10 | Availability of resources | | | | | | |

C. Factors influencing Quality of condominium house construction projects.

| Sr. No | Factors affecting Quality of Construction | Scale | | | | | Remark |
|--------|--|-------|---|---|---|---|--------|
| | | 1 | 2 | 3 | 4 | 5 | |
| 1 | Conformance to specification | | | | | | |
| 2 | Quality of equipment and raw materials | | | | | | |
| 3 | Quality assessment system in organization | | | | | | |
| 4 | Fast Decision Making by owner | | | | | | |
| 5 | Implementing effective quality assurance program | | | | | | |
| 6 | Technical Competence of contractors | | | | | | |
| | communication between the parties | | | | | | |
| 6 | Availability of personals with high experience and education | | | | | | |

D. Management Related Factors Influencing the Performance Of Condominium Construction Projects

| Sr. No | Leadership Factors influencing performance | Scale | | | | | Remark |
|--------|--|-------|---|---|---|---|--------|
| | | 1 | 2 | 3 | 4 | 5 | |
| 1 | Decision Making effectiveness | | | | | | |
| 2 | Project monitoring | | | | | | |
| 3 | Control of sub- contractor's work. | | | | | | |
| 4 | Training the HR-in the skill demanded by the project | | | | | | |
| 5 | Prior project management experience | | | | | | |
| 6 | Communication with project teams | | | | | | |

Thank you for your kind cooperation