



**ST. MARY UNIVERSITY**  
**SCHOOL OF GRADUATE STUDIES**  
**DEPARTMENT OF PROJECT MANAGEMENT**

**ASSESSMENT ON FACTORS INFLUENCING SHORTAGE OF 20/80 HOUSING SUPPLY:  
CASE STUDY OF BOLE SUBCITY HOUSING PROJECT OFFICE**

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**ADVISOR: DR. BUSHA TEMESGEN**

June, 2021

Addis Ababa, Ethiopia

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**ST. MARY'S UNIVERSITY**  
**SCHOOL OF GRADUATE STUDIES FACULTY OF BUSINESS**

**ASSESSMENT ON FACTORS INFLUENCING SHORTAGE OF 20/80  
HOUSING SUPPLY**

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## DECLARATION

I, the undersigned, declare that this thesis entitled; ‘Assessment on Factors Influencing Shortage of 20/80 housing supply’ is my original work, prepared under the guidance and support of my Advisor Dr. Busha Temesgen. All sources of materials used for the thesis have been duly acknowledged. I further confirm that the thesis has not been submitted either in part or in full to any other higher learning institution for the purpose of earning any degree.

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Student’s Name

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Signature

St. Mary’s University, Addis Ababa

June, 2021

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## ACRONYMS

A.A	Addis Ababa
AAHDPO	Addis Ababa Housing Development Project Office
ACHPR	African Charter on Human and People's Right
CBB	Construction and Business Bank
CSA	Central Statistical Agency
BHDPO	Bole Housing Development Project Office
GTP	Growth and Transformation Plan
IHDP	Integrated Housing Development Program
MoFED	Ministry of Finance and Economic Development
MSEs	Micro and Small Enterprises
MDG	Millennium Development Goal
ODK	Open Data Kit
PMBOK	Project Management Body of Knowledge
PMI	Project Management Institute
UNHABITAT	United Nations Human Settlement Program
UDHR	Universal Declaration of Human rights

## ABSTRACT

*The speedy development of urbanization in developing countries accompanied with lack of adequate and affordable housing is one of the main development challenges. Though condominium housing is designed to overcome this challenge, the government is unable to match the demand with simultaneous provision of affordable and adequate housing. This study attempts to assess factors influencing shortage 20/80 housing supply of condominium project in Addis Ababa, specifically in Bole Housing and development project office. Descriptive together with explanatory survey method was employed for this study. In addition, purposive sampling technique was used to identify sample size of 115 from target population of 181. Accordingly, a researcher-administered questionnaire using a mobile application and document analysis were used as data collection instruments. The finding of the research shows, 12 major factors influencing housing supply and poor monitoring & evaluation takes the lead with RII of 0.883. This implies, monitoring & evaluation system in practice implemented by the project office is not adequate. Moreover, the result of the study revealed that unavailability of lesson learnt document, repetitive scope change, poor project planning, problems related to project procurement, deprived project financing, poor strategic project management, problems related to contractor selection, unavailability of material in local market, local ground conditions, lack of stakeholder involvement and continuous revision of construction contract duration are the major factors affecting the project delivery. The student researcher highly recommended that good monitoring and evaluation systems should be maintained through establishing checkpoints or milestones in order to keep track of progress and take correction action for a variation from the bench mark early.*

**Key words:** *Housing Delivery, Condominium.*

## **CHAPTER ONE**

### **1. INTRODUCTION**

#### **1.1 Background of the Study**

Ethiopia is one of the developing countries, characterized by intense urban development and population growth at an alarming rate. Urbanization brings both opportunities as well as challenges to social stability as well as economic development and growth. The rapid urban growth of Ethiopia is characterized by chronic housing shortage, high value of unemployment, high incidence of poverty, poor sanitation, inadequate infrastructure and services, traffic congestion, habitat losses, poor planning and land-use.

Amongst the exemplary urban cities of Ethiopia, Addis Ababa, the commercial and political center, is facing the problem of urban dynamics. Addis Ababa's growing population and rapid rate of urbanization is placing substantial pressure on housing, especially for the lower income population. Furthermore, according to Mekonen (2008), the majority of housing units in Addis Ababa, which contains 80% of the total housing stock, are substandard. Substandard housing has an unfavorable effect on health, education, job performance and overall quality of life. Most families in this situation need lots of help to improve their life. If not, their chances are slim. Therefore, their lives are a daily struggle.

The shortage of affordable standard housing problems in Ethiopia in general and Addis Ababa in particular is one of the pressing matters that call for immediate action. As a result, Addis Ababa Housing Construction project has emerged aiming to provide affordable and standard housing for the low and middle income group of the city.

According to UN-HABITAT (2011) statement, the Addis Ababa Housing Project Office is constructing low-cost houses to meet the housing needs of urban dwellers. The Addis Ababa Housing Project Office is constructing the houses for middle and low income earners and the office is increasing its construction capacity from time to time. According to AAHPO report since 2005 up to 2021 the project office constructed and transferred over more than 179,000 condominium houses to the city residents Addis Ababa. However, the project faces a number of unanticipated challenges. The most critical issue among all, is the late completion of houses. This leads to the continuous cost

escalation in the price of condominium houses leaving low-income dwellers to think the houses are no longer an option for the many low-income peoples. Besides, many households are pressured by their inability to pay the monthly mortgage and service payments. Due to this reason, households choose to move out of their unit and rent it rather than risking it through bank foreclosure. The quality and design of condominiums are critical to ensure the continuity of the program. (UNHABITAT2011).

This study assesses the factors influencing shortage of housing supply in connection with 20/80 condominium housing in case of Addis Ababa Housing Project Office (AAHPO). The study also investigated the demand for adequate housing in the study area and government response to meet that demand.



## **1.2 Statement of the Problem**

Housing is a welfare issue because human beings have the right to be sheltered in it, according to UNHRP (2003). Housing issues such as homelessness and overcrowding stems from the fundamental failure of market mechanism to meet the poorer sections of society's basic shelter needs. Thus, the public sector becomes more actively involved in filling the void left by the market system. As a result, housing is frequently viewed as a welfare issue that necessitates the transfer of resources to households that are unable to adequately house themselves.

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 standardize shelter for people with middle and low incomes.

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 relation to low and middle income people of Addis Ababa, Integrated Housing Development Program (IHDP) promised before ten years ago in 2010 that the city's current housing project has a goal of construction 400,000 condominium units between 2010 and 2015 (IHDP, 2015). The program, however, has not met its initial objectives. According to AA HDPO announcement in 2019, 178,753 houses have already been completed and transferred to 20/80 housing beneficiaries so far, while the total number of people registered in 2005 and 2013 together is 758,149. From the above information, the student researcher noted a 324.1% difference between supply and demand of housing.

The significance of this research project is thus motivated by a desire to find developmental solutions to Addis Ababa's housing delivery issues by listing the factors influencing housing supply.

Though, housing project has been continued in different parts of the city, it is going under different obstacles, implementation problems, misunderstanding from different sectors of the citizen. Based on the above fact this study attempted to assess the major factors that are affecting the housing supplies and the condition of condominium housing projects by answering the following basic research question:

### **1.3 Research Questions**

- What are the internal factors influencing shortage of 20/80 condominium housing supply in the selected sub city of Addis Ababa?
- What are the external factors influencing shortage of 20/80 condominium housing supply in the selected sub city of Addis Ababa?
- What are the effects of shortage of housing supply?

### **1.4 Research Objectives**

#### **1.4.1 General Objective**

The major objective of the study is assessing factors that influence the supply of condominium housing project in Addis Ababa with reference to Bole sub city project office.

#### **1.4.2 Specific Objective**

The specific objectives of this thesis are:

- To sightsee the internal factors influencing shortage of 20/80 condominium housing supply.
- To investigate the external factors that play a role in influencing shortage of 20/80 condominium housing supply.
- To assess the effects of shortage of housing supply.

### **1.5 Significance of the Research**

Even if there are few documents about the housing project with regard to Condominium Housing project, there are no previously well documented studies on House supply and its subsequent factor that affect housing supply with regard to Addis Ababa Condominium housing project. This research

is thus intending to fill the literature gap related to the constraints of satisfying demand from the supplier side in construction of condominium housing project.

Remarkably, lack of researches in the area initiated the student researcher to contribute something important like this research. Shortage of housing is a formidable challenge for the city administrations. Most city administrations invest huge amount of money on housing projects to reduce the gap of housing problems. Unless, urban planners and management take in to account the challenges of deliveries of condominium housing projects the invested budget will be wasted.

Thus, this paper is expected to give academic knowledge and create interest in researchers to undertake farther investigation on the issues raised. The study helps Bole Housing Development project officials and Addis Ababa Housing Development project office to gain valuable information about the critical factors that influence housing supply. Moreover, the finding and recommendation of the study enables concerned bodies like policy makers, administrators, designers, and programs evaluators to find out more effective solution on the problems of condominium housing projects in satisfying affordable housing demand.

### **1.6 Scope of the Research**

Even though housing is a nation- wide problem that requires large scale and rigorous study and also the construction of condominium housing projects 20/80 has been applied on the 11 sub-cities of Addis Ababa, due to constraints of finance, time and the student researcher ability, the study is bounded by Bole sub city project office and its project site. The study is limited to cover the year between 1997 and 2011 EC (2005 and 2019 G.C).

Although there are numerous factors affecting the supply of housing, the study is limited to external and internal factors related to project management.

### **1.7 Limitation of the Study**

Because the program has political implications and as the year is election year, HDPO officials were somehow reluctant to cooperate in this study. The other major limitation of the study is lack of well-organized and developed data system at the project office level. Nevertheless, the student researcher lacks financial resources.

## **1.8 Organization of the Paper**

The research report consists of five chapters. The first chapter encompasses background of the study, statement of the problem, basic research questions, objectives of the study, significance of the study, scope of the study, limitation of the study and terms and definitions. The literature review related to shortage of housing supply is presented in chapter two. The third chapter of the study includes type of research approach, research design, data type and source, target population and sample, instruments and procedure of data collections, data analysis and presentation, reliability, validity and ethical consideration. The fourth chapter deals with data analysis and discussions of survey findings. The fifth chapter covers three sections, which include summary of findings, conclusion of the study, and recommendations.

## CHAPTER TWO

### 2. RELATED LITRATURE REVIEW

#### 2.1 Theoretical Review

##### 2.1.1 Terms and Definitions

Terms' definitions might differ slightly depending on the emphasis placed on them. Accordingly, in this research the meaning of:

**Condominium** is a single privately owned housing unit contained within a multi-unit building. The condominium owner owns the unit solely, but shares ownership of land and common property (elevators, halls, roof, stairs, etc.) with other unit owners, as well as common property upkeep expenses. The unit owner only pays property taxes on his or her unit, which he or she may mortgage, rent, or sell like any other personal property. Furthermore, the term condominium is divided into two parts. The prefix “con” means sharing and “dominium” means owner ship. It is simply means sharing with others. A condominium is not particular kind of building rather; it is a legal arrangement. It refers to a specific kind of owner ship (Condominium Proclamation No. 370/2003).

**Condominium Housing** is a type of housing tenure in which each resident household owns their individual unit but shares ownership and responsibility for the building's communal areas and facilities, such as hallways, heating systems, and elevators. Plots of land do not have individual ownership. All homeowners own all of the land on a condominium site (UN-Habitat, 2011)

**Project** is a short-term endeavor undertaken to produce a one-of-a-kind product, service, or result. Projects' temporary nature indicates that they have a distinct beginning and end. A project may come to an end due to one of this reasons. The first one is when its objectives is met. The other reason behind project termination is when its objectives will not or cannot be met. Last but not least, when the need for the project no longer exists, a project might be terminated. A project may also be terminated if the client (customer, sponsor, or champion) wishes to do so (Harold and Kerzner, 2004).

**Housing Supply** is the flow of houses into the market at any given time, whether for sale or rent, with changing prices. It is mainly depending on the number of new housing units constructed by the concerned bodies (Ibid).

### **2.1.2 Concepts of Project Management**

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).

### **2.1.3 Project Management Process Groups**

According to PMI (2013), these processes ensure the effective flow of the project throughout its life cycle. These processes encompass the tools and techniques involved in applying the skills and

capabilities described in the Knowledge Areas (will be discussed later). There are five process groups in the life cycle of any project. These are:

- I. The initiating process group: consists of those processes performed to define a new project or a new phase of an existing project by obtaining authorization to start the project or phase. Within the Initiating processes, the initial scope is defined and initial financial resources are committed (PMI, 2013).
- II. The planning process group: according to PMI (2013), this process group consists of those processes performed to establish the total scope of the effort, define and refine the objectives, and develop the course of action required to attain those objectives. The Planning processes develop the project management plan and the project documents that will be used to carry out the project.
- III. The executing process group: according to PMI (2013), this consists of those processes performed to complete the work defined in the project management plan to satisfy the project specifications. This Process Group involves coordinating people and resources, managing stakeholder expectations, as well as integrating and performing the activities of the project in accordance with the project management plan.
- IV. The monitoring and controlling process group: consists of those processes required to track, review, and orchestrate the progress and performance of the project; identify any areas in which changes to the plan are required; and initiate the corresponding changes (PMI, 2013).
- V. The closing process group: consists of those processes performed to conclude all activities across all project management process groups to formally complete the project, phase, or contractual obligations. This process group, when completed, verifies that the defined processes are completed within all of the process groups to close the project or a project phase, as appropriate, and formally establishes that the project or project phase is complete (PMI, 2013)

#### **2.1.4 Project Management Knowledge Areas**

According to the PMI (2013), there are ten project management knowledge areas that every project addresses and these Knowledge areas represent a set of competency skills and processes that must be properly utilized by the PM throughout the life cycle (Richardson, 2015). These are:

- Project scope management: it includes the processes required to ensure that the project includes all the work required, and only the work required, to complete the project successfully.

- Project time management: it includes the processes required to manage the timely completion of the project.
- Project cost management: includes the processes involved in planning, estimating, budgeting, financing, funding, managing, and controlling costs so that the project can be completed within the approved budget.
- Project quality management: it focuses on all aspects of both the product and project quality processes and therefore project quality management includes the processes and activities of the performing organization that determine quality policies, objectives, and responsibilities so that the project will satisfy the needs for which it was undertaken.
- Project human resource management: focuses on actions related to the human element of the project (Richardson, 2015) and therefore project human resource management includes the processes that organize, manage, and lead the project team (PMI, 2013).
- Project communication management: Thus, project communications management includes the processes that are required to ensure timely and appropriate planning, collection, creation, distribution, storage, retrieval, management, control, monitoring, and the ultimate disposition of project information.
- Project risk management: project risk management includes the processes of conducting risk management planning, identification, analysis, response planning, and controlling risk on a project and the primary focus is to minimize the probability of negative events hurting the outcome and maximizing any opportunities that exist for positive events. Project procurement management: it includes the processes necessary to purchase or acquire products, services, or results needed from outside the project.
- Project stakeholder management: it includes the processes required to identify the people, groups, or organizations that could impact or be impacted by the project, to analyze stakeholder expectations and their impact on the project, and to develop appropriate management strategies for effectively engaging stakeholders in project decisions and execution. Project integration management: it includes the processes and activities to identify, define, combine, unify, and coordinate the various processes and project management activities within the Project Management Process Groups (PMI, 2013).



From a high-level viewpoint, project management is integration management. Therefore, one way or another project manager and the project team are involved in performing the above knowledge management areas in the project life cycle.

### **2.1.5 Performance measurement in Construction Industry**

Before starting to review and investigate the previous research regarding to performance measurement, it is necessary to define the word performance measurement.

Ahmad, et al. (1998) define Performance Measurement as “a process that involves the assignment of numerals to objects or events according to rules or to represent properties”

According to Sinclair & Zairi (1995) “Performance measurement is the process of determining how successful organizations or individuals have been in attaining their objectives”.

Performance measurement is defined as “a process of assessing progress toward achieving predetermined goals, including information on the efficiency with which resources are transformed into goods and services (outputs), the quality of those outputs (how well they are delivered to clients and the extent to which clients are satisfied) and outcomes (the results of a program of activity compared to its intended purpose)” (Sapri & Pitt, 2005).

Performance measurement was projected as the process of ensuring that an organization pursued strategies that led to the achievement of overall goals and objectives. More appropriately it has been defined as the process of quantifying the efficiency and effectiveness of an action taken, for instance by an organization. It has also been defined simply as the systematic assignment of numbers to entities or activities and the recording of business activity to provide a stimulus for action that would facilitate continuous improvement. In a construction project context, it is regarded as a systematic way of judging project performance by evaluating the inputs, outputs and final project outcomes. Measurement is important because it is a means of generating data that could find useful application in a wide variety of problems and situations. Its purpose is to provide timely and accurate feedback on the efficiency and effectiveness of operations and to focus attention on continuous improvement (Amaratunga & Baldry, 2002). Through this function, it acts as a key factor in supporting and ensuring the successful implementation of an organization’s strategy. According to Kaplan and Norton (1996) “if you can’t measure it, you can’t manage it.” It provides necessary information for

process control, and also enables an organization to establish challenging but feasible goals. With regards to the business of construction, the only way that prices could be seriously reduced, profit margins seriously raised and the out-turn costs kept within budget, is by the elimination of unnecessary costs caused by the ineffective and inefficient utilization of labor and materials. These unnecessary costs can however only be eliminated if their causes can be located, and performance measurement provides the means by which these unnecessary causes of waste can be identified so that the organization knows where to focus its efforts (Cain, 2004). Quite clearly, it is a critical means to the end of achieving continuous performance improvement in construction project delivery. It may be a “complex, frustrating, difficult, challenging, abused and misused” process, but as appropriately pointed out by Cain (2004), “if you don’t know how well you are doing, how you know you are doing well?”

The construction industry is mainly project based. Therefore, this perspective requires construction organizations to drive focus on evaluating the successfully achievement of project performance. Project performance is the realization of predefined project objectives and hence project success. Performance measurement is an integral part of management and defined as a process of quantifying both the efficiency and effectiveness of an action. Some of the major concerns of performance measurement include “What to measure?”, “Which measures are used?”, “How to measure?” and “How to interpret results?”

The success of the project should be measured in terms of completing the project within the constraints of scope, time, cost, quality, resources and risk as approved between the project managers and senior management (Project Management Institute, 2013).

It is obvious that the construction industry has special features that are not usually encountered in other industries. Usually in construction, when conditions in the field turn out to be more complex than what was anticipated in the planning and design phase, additional costs and time are needed. Any extremes can affect productivity level, damage materials and work in place. Moreover, the industry, most of the time, is custom oriented, meaning that it is difficult to use mass production techniques. Because of all these factors and others, it is difficult to predict creating a large facility takes a long time and usually involves a large capital investment. Cost overruns, delays and other

problems tend to be proportionally monumental Cost and time is the primary measures of a project's success.

A project successful if it was completed on budget, on schedule, conformed to user Expectations, met specifications, attained quality of workmanship and minimized Construction aggravation. Generally, a project is considered successful if the project is completed within a stated cost or budget, getting the project into use by a target date, meets the technical specification, and if there is a high level of satisfaction concerning the project outcome among the project participants.

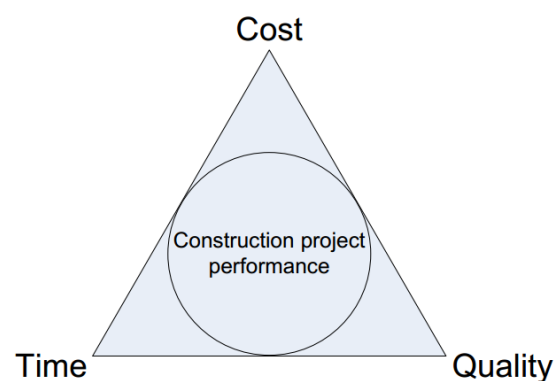
Completion alone does not constitute success for the project owner. For the owner, much of the success of a project depends on many factors, the most important of which is project completion within specified cost. The second most important factor affecting success is on time completion as delays in completion of facilities often directly equate to financial losses due to lack of revenue from facility operation.

The project follows up objectives are generally stated in terms of the specified completion time with in predetermined costs and profitability. The project plan shows the path of achieving these objectives. But even with the best efforts, the probability of execution of a project exactly as per planning is low. There will be unpredictable resource limitations and unforeseen activity delays. Project needs an effective follow-up system to continuously monitor the deviations from the planned paths, and to apply corrective measures.

According to Costa & Formoso (2004), managers in Brazilian construction firms still make decisions mostly based on intuition, common sense, experience, and a few broad financial measures that are inadequate in today's competitive environment. Although Brazil may not be representative of the general situation, anecdotal evidence suggests that to some extent, strategy is formulated in a similar fashion even in countries such as the UK where there has been strong advocacy for performance measurement (Cain, 2004). A growing awareness among construction firms of the importance of measurement systems for monitoring and controlling their performance. Unfortunately, this realization has not been well established and as a result, performance measurement is still not widely implemented in the construction industry (Costa & Formoso, 2004). This situation has been attributed to the inadequacy of measures with construction companies claiming to have difficulties in identifying and selecting adequate performance measures related to their strategies and critical

processes. It has also been due to the fact that industry practitioners consider comprehensive measurement too complex and time consuming, and that the benefits accruing from these measurements would not necessarily offset the cost of undertaking them. To some extent, another drawback to effective performance measurement has been the project-oriented nature of the industry. It is argued that the generally utilized approaches based on the business performance and measures of profitability do not meet the specific needs and strategies of a project-based industry like construction. Other views expressed in industry have been to the effect that “efficiency levels were universally high across the industry,” Cain (2004) implying that measurement is unnecessary. A further reason put forward by Cain (2004) for the lack of implementation of performance measurement was to the effect that the construction industry was unwilling to reveal the truth to itself by measuring its performance, finding it more convenient to bury its head in the sand like an ostrich. Despite this situation, it should be said that some amount of performance measurement is undertaken, and traditionally within the construction industry, performance has been measured in terms of cost, time and quality (Xiao & Proverbs, 2003) as shown in Figure 2.1. This has mainly been due to the fact that these indicators of performance provide ‘hard’ and relatively easy-to-collect data. Another important reason is that construction products tend to be investment goods with great potential to appreciate in value, hence the strong emphasis by construction clients on cost, time and quality.

Figure 2.1: The ‘iron triangle’ of construction Project



Source: Xiao & Proverbs, 2003

Other ‘hard’ indicators that are also employed in measuring performance include labour turnover, accident rates, and productivity. (Costa & Formoso, 2004)

### **2.1.6 Factors of Project Delay**

Delay can be described as one of the most important issues of a project success. Despite its proven significance, it is common to see public sector construction projects failing to achieve its objectives within the specified time. To this effect, several past studies have identified typical determinants of delay in the public sector construction projects. However, the focus this study will be on such determinants, which are very common in various construction projects. These are construction material, project financing, Project planning, Contractors experience and supervision of work.

#### **2.1.6.1 Project Planning**

Planning must reflect the tactics selected to achieve the project's strategic objectives including the integration sequence of the various system entities. Projects failing to do this will suffer huge overruns and schedule delays (Forsberg, Mooz and Cotterman, 2005).

Planning, in general, can best be described as the function of selecting the enterprise objectives and establishing the policies, procedures, and programs necessary for achieving them. Planning in a project environment may be described as establishing a predetermined course of action within a forecasted environment. The project's requirements set the major milestones. If line managers cannot commit because the milestones are perceived as unrealistic, the project manager may have to develop alternatives, one of which may be to move the milestones. Upper-level management must become involved in the selection of alternatives (H.Kerzner, 2003).

#### **2.1.6.2 Project Financing**

Construction is a high-risk business with historically low profit margins. Control over costs, cash flow, and adequate project funding is critical to the success of any business endeavor, and construction is certainly no exception (Levy, 2007).

Financing is related to unreasonable constraints to the owner or funding shortage, methods of payment, delayed payment on contracts, monthly payments from agencies, cash problem during construction, etc (Rahman et al., 2013). According to Zagorsky (2007), financial difficulty is defined as getting into a situation where a respondent's credit is adversely impacted, such as not paying bills. Contractor's financial difficulties are defined as the contractor not having sufficient funds to carry out the construction works. This includes payment for the materials, laborer's salaries and equipment

to be used for the construction work. Slow collection, low profit margins and insufficient capital or excessive debt are the 3 major causes of financial difficulties among contractors. Slow collections topped the list in the years 2005 and 2007, in which the contractor received late payment from the client. Delay in payment from the client would eventually cause financial difficulties to the contractor. Thus, most of the construction works cannot be carried out due to these financial difficulties. Insufficient profit is the second highest factor contributing to the financial difficulties of the contractor. Insufficient profit cannot be controlled because it is due to bad economic conditions. Insufficient capital is one of the major causes of financial difficulties among contractors. Poor financial control by the contractor can lead to insufficient capital (Liu, 2010). Hence, the contractor will have excessive debt which causes them to face financial difficulties as they cannot pay back the debt resulting into cost and time overruns of the project. Similarly, some contractors take up many projects at the same time thereby constraining their financial resources leading to some of the project being delayed.

Project finance is the financing of long-term infrastructure, industrial projects and public services based upon a non-recourse or limited recourse financial structure, in which project debt and equity used to finance the project are paid back from the cash flow generated by the project.

### **2.1.6.3 Construction Material**

Enshassi et al (2009) discovered in her study that top factors that influenced on delay and cost overruns included on increment in material prices due to continuous delay in construction fluctuation in cost of construction materials unsettlement of local currency in relation to dollar value, funds and associated auxiliaries not ready, lack of finance planning and monitoring during pre-test and post contract stages culminating into inaccurate construction project take-off. According to a study done by Kombo (2006) on delay and cost overruns in public sector construction projects in Kenya, it was found out that construction works in the public sector projects depends mainly on equipment, plants and materials whose unavailability may cause project delay and increase in cost overruns without effective and efficient procurement procedures.

#### **2.1.6.4 Supervision of Work (Monitoring and Evaluation)**

The competence of the project manager during project implementation will also affect the timely completion of a project. Positive attitude of project manager and project participants has emerged to be the most important success attribute for quality compliances at project sites (Kenig et al, 2012). The authors additionally observed that some of the attributes that are with high importance are all related to the project manager. For example effective monitoring and feedback by the project manager, project managers technical capability, leadership quality of the project manager, effective monitoring and feedback by the project team members. Also looked at is the authority to take day to day decisions by the project managers' team at site. Furthermore, the success of project hinges on the efficacy of the project team in managing the process (Olatunji, 2010). This indicates adequate capacity of the project manager as well as the project team to ensure proper inspection and investigation of work done on site.

According to McMiniminee et al. (2010), a weak link in the process such as a lack of project management experience, could adversely affect timely execution/ timely completion of the projects. When there is no proper inspection/supervision, quality control is greatly compromised. Chism and Armstrong (2010) agree by stating that inspection and workmanship standards are quite important to achieve quality. Fapohunda and Stephenson, (2010) state that to achieve the pre-determined project objectives, the construction site manager should have a significant influence over cost, time, scope and quality which make it paramount for the manager to have ability of exercising authoritative and absolute control.

#### **2.1.6.5 Contractor's experience and competency**

Contractor's experience and competency is a variable that affect adherence to timely completion of projects. A contractor is the one who carries the actual construction; the contractor who has been awarded the tender starts by identifying the best plan, allocating both manpower and required resources, linking all the legal partners and above all delivering within the assumed times (Elshakour, 2012). In his work of the 21st century projects in LDCs that are emerging like Angola, Libya, Ghana, SA and East Africa's Rwanda, Kaming et al. (2012) argue that the contractor's knowledge, competence and experience in construction projects have forced up to 85% of these countries run to sourcing for external experts from countries like China, Japan, Israel and many more

so that their projects can achieve the time frames and quality targets. This was rated as one of the highest benefactor that is experienced across the world.

Using a scientific approach on why the almost 32 roads constructed/maintained by the GoK, World Bank, KURA, KeNHA, Australian Development Bank etc. across the country failed to meet the deadlines between 2008- 2012, Oraro (2012) used the approach below and results published. Cross tabulation and the Chi-Squared test was carried out to determine the relationship between the contractors' experience and adherence to the time estimates by Oraro in 2012. The Chi-Squared critical value at  $\alpha = 0.05$  was 3.841 whereas the calculated value was 10.2011 which translates to a p-value of 0.00609339. As a result, the study established that the relationship between contractors experience and adherence to time estimates was very significant, at 0.05 level of significance. The Pearson coefficient of correlation at 0.05 confidence level was found to be 0.397 and a p-value of 0.041, which also showed that the relationship was significant at 0.05 confidence level.

### **2.1.7 Urbanization and urban housing in Ethiopia**

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% in Addis Ababa. Available data also indicate that nearly 40% of the nation's urban dwellers live below the poverty line (IHDP, 2008:2). An indicator of the magnitude of urban poverty is the proportion of the urban population that lives in slums - about 70% 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 (IHDP, 2008:2). Achieving Millennium Development Goal 7, Target II - improving the quality of lives of slum dwellers - is a major challenge in Ethiopia. Studies made in the last five years conclude that, there is currently a housing shortage of between 900,000 - 1,000,000 in urban centers, and only 30% of the existing urban housing stock is in good or fair condition(Ibid:2)

Ethiopia has identified housing problems as one of the key problems facing cities and towns. The Urban Sector Millennium Development Goals Needs Assessment estimated that the additional housing units needed due to population growth and formation of new households between 2005 and 2015 in order to achieve the MDGs in 2015 would be 2,250,831 units approximately 1.125 million during the IHDP period. This entails the construction of the 225,000 housing units per annum.



Further, the studies conducted in different times shows that, the market mechanism has failed so far to deliver affordable houses to the majority of urban dwellers over the past many years in the country, and is not expected to respond to such huge housing needs in the foreseeable future.

In line with the low and middle income people of Addis Ababa which is promised in its objective at the Integrated Housing Development Program (IHDP), actually before ten years ago (2010) the IHDP said that the city's current housing project has a goal of construction 400,000 condominium units between 2010 and 2015. However, the program has not met its original targets. So far, it has completed and transferred only 178,753 housing units to beneficiaries of 20/80.

### **2.1.8 Characteristics of Condominium House**

A condominium, usually shortened to condo, is a type of real estate divided into several units that are each separately owned, surrounded by common areas jointly owned.

Residential condominiums are frequently constructed as apartment buildings, but there has been an increase in the number of "detached condominiums", which look like single-family homes but in which the yards, building exteriors, and streets are jointly owned and jointly maintained by a community association.

Unlike apartments, which are leased by their tenants, condominium units are owned outright. Additionally, the owners of the individual units also collectively own the common areas of the property, such as hallways, walkways, laundry rooms, etc.; as well as common utilities and amenities, such as the system, elevators, and so on. Many shopping malls are industrial condominium in which the individual retail and office spaces are owned by the businesses that occupy them while the common areas of the mall are collectively owned by all the business entities that own the individual spaces.

### **2.1.9 Need for Condominiums**

According to Hyatt (2000), scarcity of land, migration to city, inconveniency of services like water supply in individual level, inconveniency of construction work in individual level, security and privacy and increase in population are the major reasons for demanding condominiums.

## **2.1.10 Laws, Policies and Programs of Housing**

### **2.1.10.1 International Law**

One can find the right to housing recognized in different international and regional and national human rights instruments either directly or indirectly. At global level, the right to housing came into existence in 1948 with the adoption of the Universal Declaration of Human Rights (UDHR) there by joining the body of international, universally applicable and universally accepted human rights law (Janka, 2007). After the adoption the UDHR, many other international human rights treaties have recognized the right to housing as human right. At regional level, the major African human rights document, the African Charter on Human and Peoples' Rights (ACHPR), does not expressly provide for the right to housing. Nevertheless, the African Commission on Human and

Peoples' Rights adopted the approach of generous and purposive interpretation which led to the development of the doctrine of implicitly guaranteed rights: reading rights which are not expressly recognized by the ACHPR "into" it. Luckily, the right to housing is one the two such rights read 'into' the ACHPR by the commission. Ethiopia ratified all the three instruments.

By virtue of article 9(4) of the Ethiopian Constitution, therefore, they are integral part of the law of the land thereby creating the obligation to realize the right to housing.

### **2.1.10.2 The Ethiopian Constitution**

The Ethiopian Constitution does not mention the right to housing as a human right at all. But article 41(3) states that every Ethiopian national has the right to equal access to publicly funded social services while article 41(4) imposes obligation on the state to allocate its ever increasing resources to provide to the public social services. Assessment of Affordability of Private Residential Developments in Addis Ababa. Similarly, article 41(5) of the Constitution imposes duty on the state, within the available means, to allocate resources to provide assistance to the physically and mentally disabled, the aged and the children who are left without parents or guardians (Tesfaye, 2011).

This attempt to situate the right to housing in the Constitution itself is important particularly in Ethiopian context where relying on international law, albeit they become integral part of the law of the land upon their ratifications, before the judiciary is almost impossible. Before commencing the

reading ‘into’ work, it is important to pay a brief attention to article 13(2) of the Constitution for it facilitates reading the right to housing ‘into’ other constitutional rights (Tesfaye, 2011).

### **2.1.10.3 The Ethiopian Integrated Housing Development Program**

Following the change of government in 1991, Ethiopia drafted a new constitution that introduced a federal system of government. A rural development policy, named the Land Reform Programme, was introduced in 1994. This sought to decentralize urban planning responsibilities and to encourage secondary cities to attract rural migrants to ease pressure on the already limited housing available for urban dwellers living in Addis Ababa and other major urban areas.

Addis Ababa’s first housing policy, incorporating the Government’s practice of maintaining public ownership, was also implemented at this time but it assumed that the housing market alone would meet the demand for affordable housing of the low-income population. Despite large subsidies and land provided at highly subsidized rates, the private sector has failed to deliver affordable housing at the large scale required. During this time house prices significantly rose making it extremely difficult for even professionals such as doctors and lawyers to access affordable housing. The post-1991 housing sector can therefore be typified by three characteristics. Primarily, the private housing sector has not been sufficiently engaged and therefore has not met the immense housing demand. The practice of low-cost government owned rental housing continues to be the dominant low-income housing strategy. Secondly, the housing stock is of a very low quality, is poorly maintained, and needs either replacement or significant upgrading. Lastly, informal unplanned housing has proliferated as a result of high urbanization, limited housing supply, and the limited affordability of formal housing.

To minimize urban poverty and to improve housing access to low and middle income residents of urban areas, Government has since 2005 designed and implemented an ingenious urban housing development program called INTEGRATED HOUSING DEVELOPMENT PROGRAM (IHDP). The major development components in the IHDP were the construction of 400,000 condominium units, creation 200,000 jobs, promotion for the development of 10,000 micro and small enterprises, enhancing the capacity of the construction sector, regenerating inner-city slum areas, and promoting homeownership for low-income households in urban area (National Report, 2014).

The IHDP has built and transferred 178,753 housing units between 2006 and 2019, a significant achievement considering the previously limited capacity of the Ethiopian housing sector. The program has greatly increased the number of home owners that would never have owned a home within their lifetime, and, in parallel, has benefited the housing market by increasing the supply of owner-occupied housing and rental units. The program has also built the capacity of the construction sector, addressed the existing slums, and been a significant generator of employment opportunities.

The IHDP is a large-scale program designed by the Ethiopian government to addressing the current housing deficit, the poor quality of existing housing stock, and the future housing needs due to continued rapid urbanization. Unlike prevailing piecemeal approaches to solving urban housing problems in several African countries, Ethiopia's housing program of the past ten years has been an ambitious large scale project that integrates a number of complementary policy objectives such as employment and saving mobilization.

The program is primarily focused to addressing the challenges of access to affordable housing by low- and lower middle-income urban households that typically live in precarious housing conditions. Through the provision of low-cost housing units, the IHDP is intended to greatly improve the living conditions and tenure security of low income households. The IHDP, being implemented in the past ten years, marked a radical departure from the previous government-owned rental housing approach to that of private homeownership.

According to the UN-HABITAT's evaluation of the IHDP, the Integrated Housing Development Program was an ambitious achievement for Ethiopia. It is a physical manifestation of the transition from a static urban housing sector based mainly on publicly provided and controlled poor quality rental housing to a dynamic homeownership-based approach with intelligent cross subsidization for the poor, where the focus is on building the capacity of private companies and on economic development in general. Whereas there is much interest for the program in Addis Ababa and few larger cities, lately implementation of the program was suspended in the regions because of low effective demand and weak ability to pay the down payment and the monthly mortgage (principal and interest). And lack of adequate financing from the national bank of Ethiopia. The program was also unable to meet its targets due to a shortage of skills in construction, project management and planning, construction design and poor logistic support and the shortage of construction materials.

The shortage of qualified contractors, both big and small, considerably slowed the pace of housing construction and delivery. Massive Interventions undertaken by government towards improving access to housing and infrastructure during the last decade, in addition to being central to meeting goal 7, target 11 of the MDGs, also have served as key inputs for achieving goals 1 through 6 which focus on eradication of extreme poverty and hunger, achieving universal primary education, promoting gender equality and empowerment of women, reducing child mortality and improving maternal health. In general, investment in housing and infrastructure has helped to reduce urban poverty through its multiplier impact in the entire economy. Especially, large scale interventions in both housing and infrastructure have helped in creating thousands of new jobs through increased demand for the products and services of the multifaceted construction, storage, transport, and distribution industries as well as for the services of the wholesale and retail trades sectors. Moreover, it plays a role in improving income earning capacity by facilitating the journey to work and by encouraging the development of small- and micro-enterprises.

Since the beginning of the Growth and Transformation Plan (GTP), the mode of housing delivery has changed and it includes: low-income housing development (ie.10/90 approach); condominium development (20/80 model); saving housing development for middle income group (40/60 option) and mega housing projects for sugar and fertilizer industry, and university housing.

The second approach is housing development by the private sector and cooperatives. Since the GTP started, a total of 96,233 housing units and 1,720 housing blocks have been constructed. An estimated 300,000 jobs have been created in the first half of GTP implementation (National Report, 2014).

According to National report explanation vigorous effort by government towards improving access to housing in the country, the Ethiopian urban housing situation reflects a gloomy picture.

The Urban Sector Millennium Development Goals (MDG) Needs Assessment: Improving the Lives of Slum Dwellers<sup>102</sup> (December 2004) estimated that the additional housing units will be needed due to population growth or formation new households between 2005 and 2015 will be 2,250,831 units – approximately 1.125 million during the 2005-2010 period – or 225,000 each year. To meet this need will require a substantial effort from the public sector supported by private sector and community participation.

The MUDHCo has issued a National Housing Development Policy and Strategic Framework (2014) in which it has identified key problems and their manifestations along with causal factors and pinpointed policy directions to deal with the problems. The following summarizes the key challenges in enhancing access to housing in urban areas along with policy options devised by government to overcome the key challenges.

### **2.1.11 Key Players in Housing Development**

According to Addis Ababa City Government, 2004 as cited in Haregewoin (2007) the main suppliers of housing in Addis Ababa are the public, cooperatives, individuals (formal), real estate developers and the informal sector. The dominant player in housing development is the state as it controls the majority of the rental accommodation and influences the supply of new housing units through active involvement in material production and importation, land supply, development of condominium housing and housing finance. The Government has taken the decision that low income housing development should primarily be undertaken by the public sector. This is a subsidized initiative to make houses affordable to the target group.

The Programme was pioneered by the Addis Ababa City Government with support from GTZ in 1996. Addis Ababa has established the Housing Development Project Office (HDPO) as a semiautonomous agency to supply housing at low and affordable cost. This is an ambitious plan to redevelop the kebele housing, by constructing 4 story walk-up blocks of flats for sale as condominium units. The major aim was to speed up supply of low-cost housing for the poor. Meanwhile, its goal was to boost the building/construction industry, and pump cash into the economy by generating employment opportunities for the poor. In addition, it has a target of redeveloping the existing run-down kebele housing and the residents into the new flats, thereby freeing up the land area for the construction of more new housing. Other kebele residents would be moved into this housing.

The Government's plan to provide affordable housing to low and middle income through the condominium project has not been without problems, and the Programme is increasingly coming under scrutiny because of doubts as to whether this scheme will provide sufficient affordable housing for the low and very low income groups. According to Meheret (2009) the concerns are the sharp rises in prices of construction materials such as iron, cement, wood and other building materials.

While this has not put a dent on the construction industry in the short-to medium term, its long term consequences and particularly its effect on the supply and demand for housing have yet to be seen. The other concern is although unit prices were set at the original estimate, many units are occupied by higher income households who can afford to pay full price “at one go” or a “larger down payment”. This means that moderate income families are benefiting from the scheme intended for poor and low-income households. The Government has not officially admitted the problem but they are aware that this is primarily caused by escalating costs of construction, which has rendered housing unaffordable for the poor. Further, many people have found it very difficult to adapt their living patterns to multi-story living. Whether for this reason, or the opportunity for windfall profits, many families move out and sub-let their dwellings to higher income families. The gap between the amount paid by the official allotted and the rent he can charge can be as much as five times.

The Government is aware of the potential contribution of the private sector towards easing the housing problem and aims to encourage its participation in the housing industry (Meheret, 2009). As a result, private real estate developers have increasingly been involved in the construction of standard housing units, mainly for the middle and high income groups. To make housing affordable, the Federal government has been helping private developers through incentives, for example, giving free land to real estate developers to build rental housing for low-income families and also facilitating the supply of essential infrastructure, like water, roads, telephone and electricity services, etc. However, the efforts were to no avail.

The real estate market in Ethiopia is underdeveloped. Factors limiting the growth of the sector are the fact that there is only a single government-owned bank, i.e. the CBB, operating in the real estate, particularly housing, sector. For a long time, private banks have not been lured into the market due to risk factors in short-term financing, less profitability, and lack of experience. As a result of the government policy concerning land values, and the fact that a free market does not really exist, it is exceedingly difficult to establish a ‘real’ market price to determine the value of a residential unit. This increases the risk of mortgage lending. All this has meant that the real estate market and mortgage financing in Ethiopia have a long way to go before they reach the standard of many sub-Saharan countries.

The Government sees one of its roles as the principal provider of land for housing construction by co-operatives at subsidized prices. The Government also provides basic facilities, such as water, electricity, sewerage, telephone, etc. to reduce cost and make the houses affordable to the target group.

### **2.1.12 Concept of Delays in Project**

Many studies have attempted to identify the causes that put construction projects behind planned schedule. For example, Baldwin and Manthei 1971 investigated delay causes in building projects in the United States. Sullivan and Harris 1986 examined delay causes in large construction projects in the United Kingdom. Kaming et al., (1997) analyzed the causes of time and cost overruns in high rise construction projects in Indonesia; Odeh and Battaineh (2002) investigated delay causes in large construction projects in Jordan.

The causes identified included design changes, poor labor productivity, and inadequate planning. Furthermore, previous studies showed that delays can be caused by owners, planners/designers, contractors, or acts of God. However, most studies focused mainly on identifying delay causes in the construction phase, rarely emphasizing on the planning and design phases. McManus et al., 1996, who evaluated delay causes in architectural construction projects, concluded that many delays manifest during all project phases and primarily occur during the construction phase; however delays that start in the design phase include inadequate schedule control by architects, inability of owners to review design in a timely manner, late incorporation of emerging technologies into a design, and ineffective coordination and/or inclusion of project user groups. Basu 2005 identified factors at the start of a project that almost certainly lead to project delays and provided insight into the reasons for the delay and their impact on schedule. Toor and Ogunlana (2008) studied construction delays in Thailand. They found that the problems faced by the construction industry in developing economies like Thailand could be shortages or inadequacies in industry infrastructure (mainly supply of resources), those caused by clients and consultants and others caused by contractor's incompetence/inadequacies.

They recommended that there should be concerted effort by economy managers and construction industry associations to provide the necessary infrastructure for efficient project management. Chan



and Kumara swamy (2008) conducted a survey to determine and evaluate the relative importance of the significant factors causing delays in Hong Kong construction projects.

They analyzed and ranked main reasons for delays and classified them into two groups. The first one is the role of the parties in the local construction industry (i.e. whether client, consultants or contractors) and the second one is the type/nature of projects.

Results indicated that five major causes of delays were: poor site management and supervision, unforeseen ground conditions, low speed of decision making involving all project teams, client initiated variations and necessary variations of works. Odeyinka and Yusif (1997) have addressed the causes of delays in building projects in Nigeria. They classified the causes of delay as project participants and extraneous factors. Client-related delays included variation in orders, slow decision-making and cash flow problems.

Contractor-related delays identified were: financial difficulties, material management problems, planning and scheduling problems, inadequate site inspection, equipment management problems and shortage of manpower. Extraneous causes of delay identified were: inclement weather, acts of nature, labor disputes and strikes. Al Momani(2000), carried out a quantitative analysis on construction delays in Jordan.

Results of the survey indicated that contractors and consultants agreed that owner interference, inadequate contractor experience, financing and payments, labor productivity, slow decision making, improper planning, and subcontractors were among the top ten most important factors. Frimpong et. al., conducted a survey to identify and evaluate the relative importance of significant factors contributing to delay and cost overruns in Ground water construction project (Education and Research,2014 Vol. 2 No. 4).

To sum up, housing is one of the basic necessities for human beings. However, there are very complex linkage between adequate housing supply and affordability practices. Throughout the less developed counties cities, uncontrolled rapid population growth from high rate of natural increase and rapid rural to urban migration together with low level of their income has resulted in high demand of urban housing which resulting in critical problem of housing supply and affordability. Like most urban centers of developing countries, Ethiopia's urban centers are characterized by

poorly developed economic base. Most cities and towns in Ethiopia face a plethora of problems, including an acute and ever worsening housing shortage. But, housing problems may not be the same in each city because of variations in physical conditions, economic development and cultural preferences of the given society (UN-Habitat, 2016). Therefore, the function of housing is the most important economic resource to Addis Ababa residents than any other urban cities of our country.

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. That is why, 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.

This chapter presents the review of related literature which is relevant to the study and attempts to answer why the projects of condominium housing failed to satisfy the demand by more than 100 percent, 123.683% difference to be exact.

## **2.2 Empirical Review**

### **2.2.1 Determinants of Projects Delays**

Delays happen in construction projects, but the magnitude of these delays varies from project to project. It is vital to identify the causes of delay in a bid to minimize or avoid delay in any construction project. A number of researches have been conducted on the causes of construction delay worldwide.

Alinaitwe, Apolot & Tindiwensi (2013) have made an investigation into the causes of delays and cost overruns in Uganda's Public Sector Construction Projects in the case of Civil Aviation Authority (CAA). It specifically aimed to identify the causes of delays and overruns and to rank them according to their frequency, severity and importance.

It computed and ranked frequency index, severity index and importance index values and all 20 factors. The five most important causes of delays in construction projects were found to be changes

to the scope of work, delayed payments, poor monitoring and control, the high cost of capital and political insecurity and instability. Moreover, the relationship between the factors that cause delays and those that cause cost overruns was found to be moderate (Alinaitwe et al., 2013).

An empirical study on key determinants of construction delay was made with the purpose of identifying the important dimensions of construction delay. It used questionnaire with 40 factors causing delay method to collect data from respondents. The study employed exploratory factor analysis and identified nine dimensions related to design, equipment, personal, manpower, experience, government, material, finance and owner (Abinayasri, Anandakumar & Krishnamoorthy, 2017).

Seboru (2015) investigated into factors causing delays in road construction projects in Kenya. The findings reveals the overall top five causes of delay identified by both consultants and contractors were: Payment by client; slow decision-making and bureaucracy in client organization; Claims; Inadequate planning / scheduling; and Rain. Likely, the top five causes of delay identified by consultants were: Payment by client; slow decision-making and bureaucracy in client organization; Inadequate planning / scheduling; Different site conditions; and Proximity to borrow pit. Moreover, the top five causes of delay identified by contractors were: Slow decision-making and bureaucracy in client organization; Payment by client; Engineer's certificates; Claims; and Rain.

Kusakc, Ayvaz, and Bejtagic (2017) studied an Analysis of Causes and Effects of Delays in Construction Projects in Libyan Oil Industry. To identify the most essential factors, the conducted survey among clients, consultants and contractors involved in projects in Libya. The sampling procedures used were convenience and snowball sampling where the participants are identified through referral networks and professional relations. Their findings reveal that the top three delay factors are: security factor, shortage in material, and construction method.

A study undertaken on Construction delay: a quantitative analysis investigated the causes of delays on 130 public projects in Jordan to aid construction managers in establishing adequate evaluation prior to the contract award using quantitative data. Projects investigated in the study were residential, office and administration buildings, school buildings, medical centers and communication facilities. The study identified the main causes of delay in construction of public projects to be related to

designers, user changes, weather, site conditions, late deliveries, economic conditions and increase in quantity (Al-Momani, 2000).

Kariungi (2014) investigated the determinants of Timely Completion of Projects in Kenya: A case of Kenya Power and Lighting Company, Thika. The factors were assessed from various project levels; ranging from formulation of project plans, execution, monitoring and evaluation, and closure. The study adopted descriptive and exploratory research designs while the target population was project engineers, supervisors and technical staff working in projects. Questionnaires, interviews and observation check lists were used to collect data from various respondents based on their suitability. The data it collected was coded and analyzed using SPSS. In addition, measures of central tendency and correlation analysis were used to establish an interaction between the independent and dependent variables. The findings were procurement delays, timely availability of funds and climatic factors.

Construction projects located in the Gaza Strip, Palestine suffer from many problems and complex issues and consequently a study with an objective to identify the factors affecting the performance of local construction projects; and to elicit perceptions of their relative importance was undertaken. The study deployed a comprehensive literature review to generate a set of factors believed to affect project performance and hence a total of 120 questionnaires were distributed to 3 key groups of project participants; namely owners, consultants and contractors. The survey findings indicate that all 3 groups agree that the most important factors affecting project performance to be: delays because of borders/roads closure leading to materials shortage; unavailability of resources; low level of project leadership skills; escalation of material prices; unavailability of highly experienced and qualified personnel; and poor quality of available equipment and raw materials (Enshassi, Mohame and Bushaban, 2009).

Delays are major problems that face the Western Australia's construction industry. Delays can lead to many negative effects such as cost overruns, and is of high concern to those who are involved in the construction industry. This study was set to identify the major causes of delays in the Western Australian construction industry, by means of a literature review and a questionnaire survey. A total of 48 delay factors were obtained from literature review and were further categorized into eight major groups that contributed to the causes of delay. The questionnaire survey was distributed to the

targeted respondents from a combination of clients, contractors, and consultants in Perth, Western Australia. About 32 respondents participated in the survey. Based on the data received, albeit limited, the top ten most important causes identified were: (1) Shortage of skills; (2) Financial difficulties; (3) Shortage of labour; (4) Unrealistic deadlines for project completion; (5) Unforeseen ground conditions; (6) Poor organization of the contractor or consultant; (7) Poor communication; (8) Underestimation of time of completion; (9) low speed of decision; and (10) Design errors made by designers (Wong and Vimonsatit, 2012). 21 Sambasivan and Soon (2007) studied the causes and effects of delays in Malaysian construction industry and identified ten most important causes as: (1) contractor's improper planning, (2) contractor's poor site management, (3) inadequate contractor experience, (4) inadequate client's finance and payments for completed work, (5) problems with subcontractors, (6) shortage in material, (7) labor supply, (8) equipment availability and failure, (9) lack of communication between parties, and (10) mistakes during the construction stage. The study adopted questionnaire survey to solicit the causes and effects of delay from clients, consultants, and contractors. About 150 respondents participated in the survey.

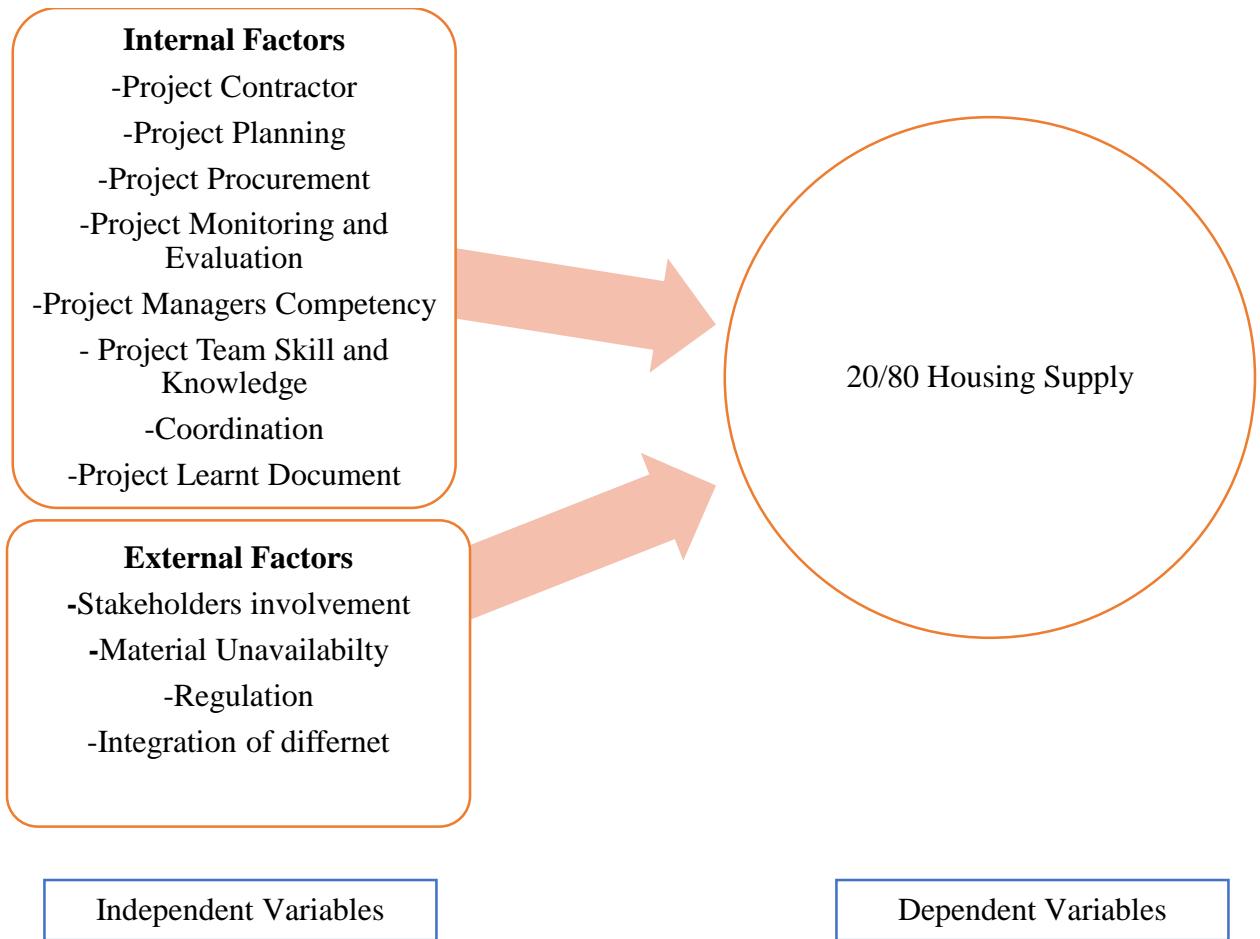
A survey conducted in Saudi Arabia to determine exact factors responsible for project delay was achieved by carrying a critical analysis of the literature and carrying out a questionnaires survey among consultants, project managers and engineers involved in construction projects and collecting their responses. The paper cited the main delay factors in the importance of Project owner's role, contractor related, Financing related, Materials related, Design documents have been cited as (Al Hammadi and Nawab, 2016).

### **2.3 Conceptual Framework**

A conceptual framework is an analytical tool with several variations and contexts. It is used to make conceptual distinctions and organize ideas. Strong conceptual frameworks capture something real and do this in a way that is easy to remember and apply.

A student researcher tried to develop a conceptual frame work it related to the research study area and the concept of project management.

Figure 2.2: Conceptual framework



Source: - Adopt from Rahman et al. (2013). Weitz, Forsberg, Mooz and Cotterman (2005). Spiro, RL. And Weitz, BA. (1990)

## **CHAPTER THREE**

### **3. RESEARCH DESIGN AND METHODOLOGY**

#### **3.1 Introduction**

The purpose of the study was to establish the factors causing shortage of housing supply in the integrated housing development program. Review of literature was carried out to establish those factors influencing supply of housing construction projects. This chapter presents the research methodology of the study.

#### **3.2 Research Approach**

Even though each methodology represents a different approach for evaluation, in this thesis, a mixed approach is used which incorporates both quantitative and qualitative research methodologies to achieve the desired objectives of the study. Quantitative approach was used to understand the perception of the different respondents and qualitative approach was used to gain insights and to understand the attitudes of individuals towards factors influencing contract duration, project cost and project planning at government condominium housing construction projects in Bole sub city administration.

#### **3.3 Research Design**

In this study, the researcher used both descriptive and explanatory research designs. The motive behind using descriptive research design is that, it provides a picture of a situation, person or event or show how things are related to each other and as it naturally occurs (Blumberg, Cooper and Schindler, 2005). On the other front, an explanatory study sets out to explain and account for the descriptive information. Explanatory research looks for causes and reasons and provides evidence to support or refute an explanation or prediction. It is conducted to discover and report some relationships among different aspects of the phenomenon under study.

Since, the study aims at explaining the overall situation related housing supply and causes of shortage of housing supply in the housing and development program, descriptive and explanatory research designs are appropriate methods for this study.

### **3.4 Data Source and Type**

Kothari, (2004) notes that there are two major sources of data namely primary and secondary data sources that could be used in any study. To conduct this study the researcher used both primary and secondary source of data. Primary source of data was collected from purposively selected individuals from both project offices, Bole and Addis Ababa housing and development project offices through self- administered questionnaire. Secondary data, taken from published article, previous research works, reports, and other sources, was used.

### **3.5 Target Population and Sampling Size**

#### **3.5.1 Target Population**

As explained by Hair et al. (2010), target population is a specific group of people or object that can be asked or observed to develop required data structures and information. In other words target population refers to all the members who meet the particular criterion specified for a research investigation.

Though the stakeholders of the project are numerous, engineering and social science experts and officers, the Addis Ababa Housing Project Office and Integrated Housing Development Program, the contractors and consultants, the huge number of temporary workers, the direct beneficiaries from the project, the indirect supporters such as, the Ethiopian Electric Corporation, Commercial Bank, Road Authority, Land Administration, the indirect facilitators in the office are some of the stakeholders. For this study, the population is limited to those directly involved in the project and are professionals.

As seen in Table 3.1, the total population under Bole housing development project office and Addis Ababa housing project office are 74 and 107 respectively. The workers are of permanent or contract type professionals. Therefore, total population size is 181 employees.



Table 3.1 Population Size of the research study

	Professionals considered in the Study													Total Population Size (N)
	Process Leaders	Project Officers	Engineers	Project Supervisors	Project Managers	Project Consultants	Other							
							Purchasers	Finance Officers	Supply Managers	Budget Officers	Human Resource Officers	Researchers	Communication Officers	
Bole sub city project offices	4	5	14	16	11	7	2	2	5	4	1	2	1	<b>74</b>
Addis Ababa housing project office	7	9	21	23	17	13	3	3	2	4	1	3	1	<b>107</b>
Total	11	14	35	39	28	20	5	5	7	8	2	5	2	<b><u>181</u></b>

Source: AAHDPO, March 2021

### 3.5.2 Sampling Strategy and Size

Judgmental sampling is a type of convenience sampling in which the population elements are chosen based on the researcher's judgment. 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).

Judgmental sampling involves the choice of the subjects whom well equipped with information that will be relevant to the researcher focuses (Alula, 2017). Moreover, 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.

Since the study explains the factor of housing supply shortage from respondents who are well equipped with information, the researcher found the sampling method prominently convenient.

The research case was undertaken on Bole Sub city Housing and Development Project Office. The participants of the research study were representatives from both project offices, BHDPO and AAHDPO. Therefore based on the above technique process leaders (functional managers), project consultants, managers, supervisors and officers were selected.

As seen in Table 3.2, the total sample size for Bole housing development project office is 45, while Addis Ababa housing project offices' is 70. This implies the total sample size for this study is 115 professionals.

Table 3.2 Sample Size of the research study

	Professionals considered for the Study													
	Process Leaders	Project Officers	Engineers	Project Supervisors	Project Managers	Project Consultants	Other						Total Sample Size (n)	
							Purchasers	Finance Officers	Supply Managers	Budget Officers	Human Resource Officers	Researchers		Communication Officers
Bole sub city project offices	3	3	10	9	6	3	1	1	2	3	1	2	1	<b>45</b>
Addis Ababa housing project office	5	4	16	14	9	7	1	3	2	4	1	3	1	<b>70</b>
Total	8	7	26	23	15	10	2	4	4	7	2	5	2	<b><u>115</u></b>

Source: AAHDPO, March 2021

### 3.6 Instruments and Procedure of Data collection

There are different methods of data collection instrument Creswell, (2003). The attributes of the subjects, research topic, problem question, objectives, design and expected data all play a role in the selection of a tool and instrument. With the intention of achieving the desired objectives: well framed

survey design, questionnaire, is designed in light of getting high response rate from respondents. A survey design provides quantitative or numeric description of trends, attitudes, or opinions of a population which can generalize to make claims about the population (Creswell, 2009).

Factors influencing housing supply in housing construction in Bole sub city was first examined and identified through relevant literature reviews. The questionnaire encompasses five point Likert's scale as well as questions regarding to planning and controlling of time and cost of construction projects. Each types of measure have specific type of issues that need to be addressed to make the measurement meaningfully accurate and efficient.

The answers of the questionnaire were based on Likert's scale of five point's ordinal measures of agreement towards each statement from 1 for "Strongly Disagree" to 5 for "Strongly Agree". The reasons for adopting this simple scale were to provide simplicity for the respondents to answer and make evaluation of collected data easier for researcher. A Likert's scale is important to know respondents' feeling or attitudes about something in terms of intensity (degree of agreement or disagreement) and direction (positive or negative). The respondents therefore, indicated how closely their feelings matched with the questions or statements provided on rating scale. Questionnaire also contains both open ended and close ended questions.

Data was collected using a mobile application named ODK in order to grant a better quality of data and reliability.

### **3.7 Data Analysis and Presentation**

The data collected were analyzed using XLSAT 2015.5.01.22537. A five point weighing scale "w" was used to indicate the relative importance of contributor "i" in shortage of housing supply where the one rated "1" and "2" are interpreted as no or less contributors while "4" and "5" as high contributors in shortage of housing supply. A factor rated "3" was taken as uncertain.

The relative importance index, RII, which indicated the relative importance of a contributing factor "I" to the shortage of housing supply were calculated based on the following equation 3.1. Sambasivan and Soon (2007) used this equation.

$$RII = \frac{\sum W_i}{A * N} \dots\dots\dots \text{equation 3.1}$$

Where

W = Weighting given to each factor by the respondents and ranges from 1 to 5 where “1” stands for “Strongly Disagree” and “5” for 'Strongly Agree”,

i = Response category index (frequency of response given for each cause)

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

N = total number of respondents.

### 3.8 Descriptive Analysis for Scale Items

Descriptive analysis for scale items demonstrates the level of agreement of the respondent’s perception towards different variables of the research. The questionnaire gave each respondent an opportunity to identify the factor that was likely to cause shortage of housing supply by giving the response “Strongly Disagree”, “Disagree”, “Neutral”, “Strongly Agree” and “Agree”. An itemized rating scale was used to construct a range. This range used to measure the perception level of the respondents towards each variable. The researcher used the following formula to construct the range.

$$\begin{aligned} \text{Itemized rating scale} &= \frac{\text{Max} - \text{Min}}{N} \\ &= \frac{5 - 1}{5} \\ &= \underline{0.8} \end{aligned}$$

Table 3.3 shows the mean interval under which each variable cascades. Intervals from 1.00 – 1.80 and 1.81 – 2.60 represents the sentiments “Strongly Disagree” and “Disagree” respectively. On the other hand, intervals 3.41 – 4.20 and 4.21 – 5.00 represents the sentiments “Agree” and “Strongly Agree”. Meanwhile, the interval between 2.61– 3.40 represents the sentiment of uncertainty.

Table 3.3 Mean Interval

<b>Interval</b>	<b>Perception</b>
1.00 - 1.80	Strongly Disagree
1.81 - 2.60	Disagree
2.61 - 3.40	Neutral
3.41 - 4.20	Agree
4.21 - 5.00	Strongly Agree

Source: - Own computation, 2021

### 3.9 Reliability

The reliability test is conducted to check the stability and consistency of data by adopting Cronbach’s alpha method. Cronbach's Coefficient Alpha gives a measure of internal reliability which, in general terms of the meaning, is computed based on the mean scores of the inter-item correlation. Thus, the higher these correlation the higher the Coefficient Alpha. Furthermore, higher scores of Alpha indicate that all items in the scale perceived highly similar to each other by the respondents. In some cases, this can also be interpreted as evidence for construct validity. To sum up, Cronbach’s alpha is not a statistical test rather it is a coefficient of reliability or consistency. Cronbach’s alpha reliability coefficient is ranged from 0 to 1 according to the correlations between the items with 0 denoting no reliability and 1 denoting total reliability. Values between 0.70 and 0.80 respectable and are considered “acceptable” in most social science research situations.

Table 3.4- Reliability test of Questions and/or Components

<b>Question/Component</b>	<b>Cronbach’s Alpha</b>
17	0.715

Source: - Own Computation, 2021

As shown in Table 3.4, a Cronbach's Coefficient Alpha of 0.715 is noted for this study which was obtained using XLSTAT. Since the coefficient is greater than 0.70, it reflects a respectable degree of internal consistency.

### **3.10 Validity**

Validity refers to how accurately a method measures what it is intended to measure. For this purpose, the content of the questionnaire was prepared by referring to scientific texts and theories relevant to the subject and the questions of the research. Validity of the questionnaire was maintained through consultations with the advisor.

### **3.11 Ethical Consideration**

Participation of respondents was at their will and could stop at any time when they felt uncomfortable. The researcher respected and protected the rights and dignity of participants of the study.

## CHAPTER FOUR

### 4. DATA PRESENTATION, ANALYSIS AND INTERPRETATION

#### 4.1 Introduction

Analysis is a process of inspecting data file and exploring the nature of the research variables. The procedure used in analyzing the results was aimed at establishing the relative importance of the various factors responsible for shortage of supply. Accordingly, this chapter gives an outline of the research finding and a discussion of the various responses gathered from the documents and questionnaire survey interviews. The study set out to establish an assessment on factors influencing housing supply. That is, factors affecting the delivery of housing project in Addis Ababa condominium Project in the case of Bole Housing and Development Project. Under this descriptive statistics and perception analysis were presented.

Besides, the contract time during signing of the contract and actual completion time of the project were investigated. In addition, the applicability of project management strategy and the existence of lesson learned document were assessed. This chapter also identifies the existence and extent of gap between demand and supply in Addis Ababa.

#### 4.2 Response Rate

The sample size for this research was 115. While cross-examining, additional 9 questionnaires were used as a substitute for those rejected due to different reasons.

Table 4.1 Response Rate

<b>Questionnaire</b>	<b>Number</b>
Cross-examined questionnaires	124
No-response questionnaires	-
Incomplete questionnaires	9
Total usable questionnaires	115

Source: - Survey result, 2021

### 4.3 Population Characteristics

This part is designated to provide demographic data. Demography of the respondents was assessed to see the factual data of respondents involved in the data collection. This includes general information about the respondent's profile in terms of the respondents' age, sex, educational level, work experience and position. Interview was conducted with employees and consultants of Bole and Addis Ababa housing development project offices.

#### 4.3.1 Respondent's Age

Table 4.2 Respondent's Age

Age	Frequency	Percent	Valid Percent	Cumulative Percent
20 - 30 Years	12	10.4%	10.4%	10.4%
31 - 40 Years	64	55.7%	55.7%	66.1%
41 - 50 Years	35	30.4%	30.4%	96.5%
Above 50 Years	4	3.5%	3.5%	100%
Total	115	100%	100%	

Source: - Survey result, 2021

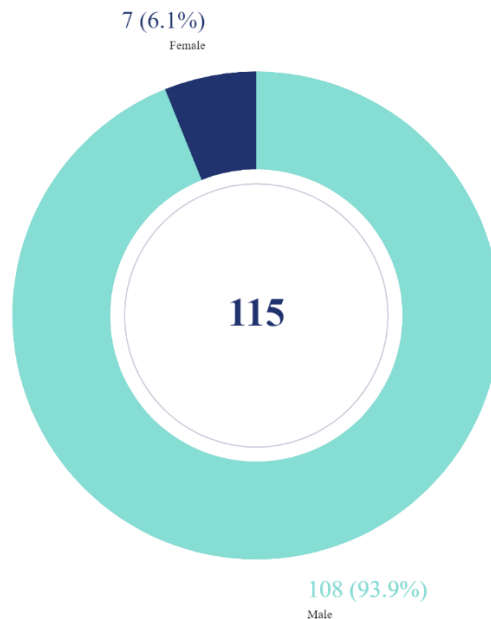
Looking at the age of the sample in Table 4.2, out of 115 respondents 12(10.4%) were aged between 20 and 30 years, 64 (55.7%) were aged between 31 and 40 years, 35 (30.4%) were aged between 41 and 50 years, while only 4 (3.5%) were aged above 50 years. The highest proportion of the respondents was within the age 31-40 years followed by age 41-50. These two age groups are in the prime working age group or the productive age group both in terms of economic and fertility perspectives. Besides, these two age groups gained ample life experience. Thus, they have even high capacity for improving the quality of the project which has a direct impact on housing delivery and this can be taken as a great opportunity for the project.



### 4.3.2 Respondent's Sex

The study observed that out of 115 respondents engaged in the housing construction projects, there were more males than female. 108 of respondents were males, whereas only 7 were females. Figure 4.1 below shows the percentage of males and females who filled the questionnaires.

Figure 4.1: Respondent's Sex

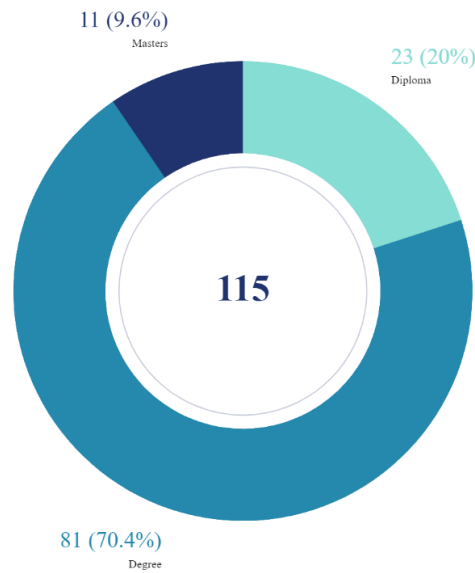


Source: - Survey result, 2021

### 4.3.3 Respondent's Educational Level

Looking at the education status of the sample, most of the respondents involved in the survey were holders of bachelor degree in term of educational qualification with a percentage of 70.4%. Those having diploma qualification accounts for 20% of the total respondents. The remaining 9.6% respondents were holders of master degree. There was no respondent holding a certificate or is below grade 12. To conclude, all the respondents educational level is Diploma and above with higher percentage of degree holders. This shows that respondents are in a good position to easily understand the content of questionnaire.

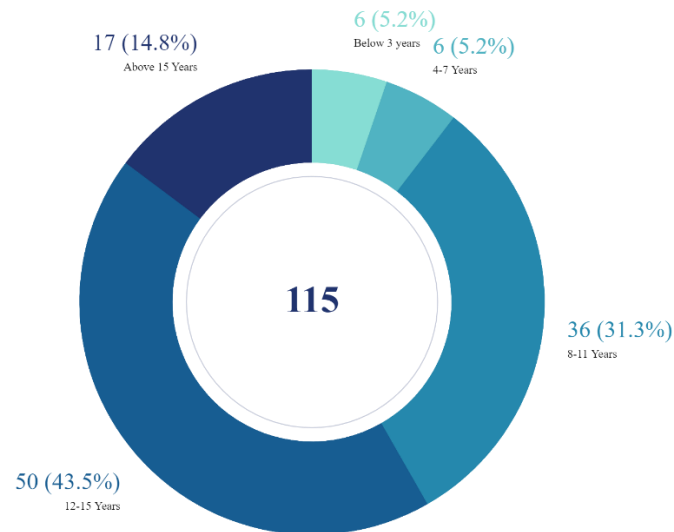
Figure 4.2: Respondent's Educational Level



Source: - Survey result, 2021

#### 4.3.4 Respondent's Work Experience

Figure 4.3: Respondent's Work Experience



Source: - Survey result, 2021

The frequency and percentage distribution of work experience of respondents of this research categorized into 5 groups. Figure 4.3 shows, 5.2% (6) respondents been recorded for both below 3 years and between 4-7 years. The percentage and frequency of those with work experience between

8 and 11 were 31.3% (36), while those between 12 to 15 years' experience were 43.5% (50). The last category comprises 17 respondents which are 14.8% of the total respondents with work experience above 15 years. The percentage of those with 12 to 15 and 8 to 11 years' is relatively higher than the other categories. This implies, respondents have ample work experience which is relevant to understand the subject matter discussed in the study allowing them to provide relevant information.

#### **4.3.5 Respondent's Place of Assignment and Current Position**

##### **4.3.5.1 Respondent's Place of Assignment**

Table 4.3 shows the responses for place of assignment of respondents. The respondents from BHDPO were 39.1% while 60.9% were from AAHDPO. Both offices are represented with fair number of respondents in relation to the targeted population. This shows, the researcher received balanced information.

Table 4.3 Respondent's Place of Assignment

<b>Assignment Place</b>	<b>Frequency</b>	<b>Percent</b>	<b>Valid Percent</b>	<b>Cumulative Percent</b>
Bole HDPO	45	39.1%	39.1%	39.1%
AA HDPO	70	60.9%	60.9%	100.0%
Total	115	100%	100%	

Source: - Survey result, 2021

##### **4.3.5.2 Respondent's Current Position**

Table 4.4 (a) shows that 7% (8) of respondents were project leaders, 6.1% (7) of respondents were project officers and 22.6% (26) were site engineers. It has been founded that project supervisors, project managers and project consultants account for 20% (23), 13% (15) and 8.7% (10) respectively. Other designations, like purchasers, finance officers, supply manager accounts for about 22.6% (26 respondents). Table 4.4 (b) illustrates the frequency and percentage distribution of respondents in "other" category. Other designations, like purchasers, finance officers, supply manager.

Table 4.4 (a) Respondents' Current Position

<b>Position</b>	<b>Frequency</b>	<b>Percent</b>	<b>Valid Percent</b>	<b>Cumulative Percent</b>
Process leader	8	7.0%	7.0%	7.0%
Project officer	7	6.1%	6.1%	13.1%
Site Engineer	26	22.6%	22.6%	35.7%
Project Supervisor	23	20.0%	20.0%	55.7%
Project Manager	15	13.0%	13.0%	68.7%
Project consultant	10	8.7%	8.7%	77.4%
Other	26	22.6%	22.6%	100.0%
Total	115	100%	100%	

Source: - Survey result, 2021

Table 4.4 (b) Respondents' Current Position

<b>Other Position Categories</b>	<b>Frequency</b>	<b>Percent</b>	<b>Valid Percent</b>	<b>Cumulative Percent</b>
Purchasers	2	7.7%	7.7%	7.7%
Finance Officers	4	15.4%	15.4%	23.1%
Supply Managers	4	15.4%	15.4%	38.5%
Budget Officers	7	26.9%	26.9%	65.4%
Human Resource Officers	2	7.7%	7.7%	73.1%
Researchers	5	19.2%	19.2%	92.3%
Communication Officers	2	7.7%	7.7%	100.0%
Total	26	100%	100%	

Source: - Survey result, 2021

The above two tables, Table 4.4 (a) and 4.4 (b), implies the researcher tried participating different concerned department from the project offices based on judgmental sampling. This indicates, each items are viewed from different perspective.

#### 4.4 Demand and Supply Gap Analysis

##### 4.4.1 Demand of Housing

Table 4.5 Demand of Condominium Housing of all Programs

<b>Total Number of Registrants in all Programs in 2005 and 2013</b>					
<b>(Addis Ababa)</b>					
<b>No</b>	<b>Programs</b>	<b>Male</b>	<b>Female</b>	<b>Total</b>	
1	10/90	9,647	12,677	22,324	22,324
2	20/80	87,197	44,974	132,151	758,149
3	20/80 New registered	355,394	270,603	625,998	
4	40/60	95,429	69,258	164,687	164,687
	<b>Total</b>	<b>547,667</b>	<b>397,512</b>	<b>945,160</b>	<b>945,160</b>
5	Associations	0	0	2,216	2,216
	<b>Grand Total</b>	<b><u>547,667</u></b>	<b><u>397,512</u></b>	<b><u>947,376</u></b>	<b><u>947,376</u></b>

Source: - Official web page of Ministry of Urban Development & Housing, March 2019

As presented in Table 4.5, a total of 945,160 registrants are listed under the three low cost housing scheme; of which 22,324 in 10/90 scheme, 758,149 in 20/80 scheme and 164,687 in 40/60 scheme. In addition, 2,216 registrants are listed under the association scheme. Thus, the total number of registrants of 2005 and 2013 is 947,376.

In response to shortage of houses in Addis Ababa city, the city government has planned to construct 200,000 apartments in its initial plan; and in the future the government has also planned to supply more than 50,000 apartments each year.

#### 4.4.2 Supply of Housing

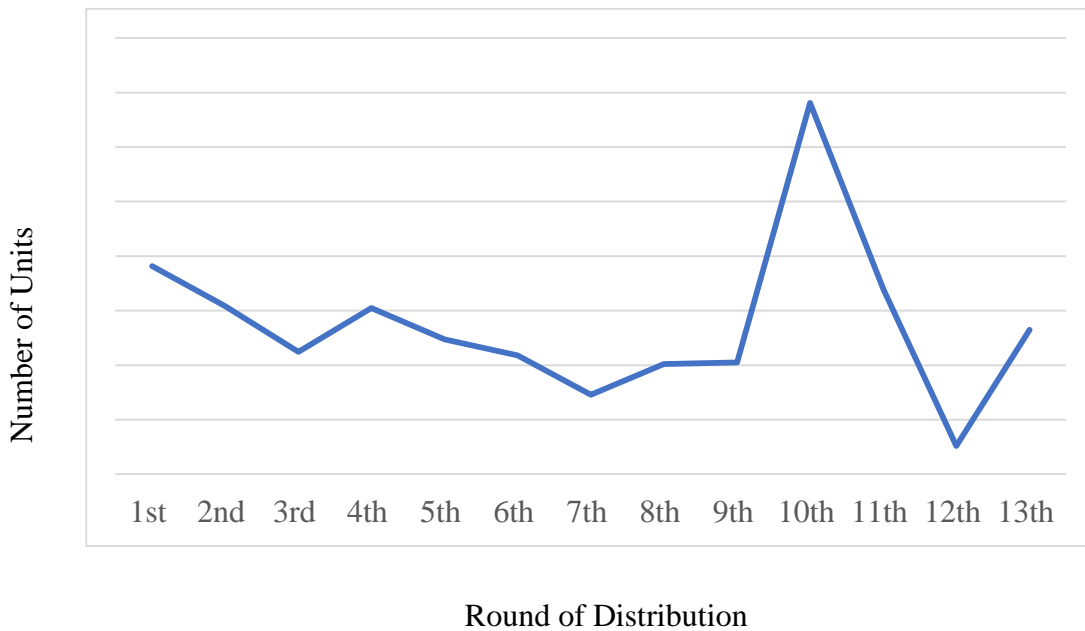
Table 4.6 Supply of Condominium Housing of 20/80 Program

Round / Year of Distribution	Condominium Units Distributed up to March 06, 2019 G.C. ( 20/ 80 Program )				
	Studio	1 Bedroom	2 Bedroom	3 Bedroom	Total
1st / 2006	4,118	5,767	6,548	2,645	19,078
2nd / 2007	2,992	5,070	6,263	1,106	15,431
3rd / 2009	2,695	3,979	3,826	735	11,235
4th / 2010	2,797	6,755	4,308	1,372	15,232
5th / 2010	3,988	4,719	2,728	934	12,369
6th / 2011	1,755	4,567	2,743	1,831	10,896
7th / 2012	2,951	3,594	433	321	7,299
8th / 2013	1,326	4,665	2,952	1,155	10,098
9th / 2013	2,570	4,423	2,330	934	10,257
10th / 2015	6,734	15,670	7,309	4,327	34,040
11th / 2016	1,600	3,920	5,698	5,750	16,968
12th / 2017	246	1,041	125	1,193	2,605
13th / 2019	1,248	5,999	2,999	2,999	13,245
<b>Total</b>	<b><u>35,020</u></b>	<b><u>70,169</u></b>	<b><u>48,262</u></b>	<b><u>25,302</u></b>	<b><u>178,753</u></b>

Source: - AAHDPO, March 2021

According to AAHDPO (2021), the total number of houses transferred to beneficiaries through 20/80 scheme within the past 14 years are 178,753. On the other hand, the demand for 20/80 scheme condominium houses is 758,149.

Figure 4.4: Trend of Supply of Condominium Houses



Source: - Survey result, 2021

#### 4.4.3 Gap among Demand and Supply

As it is stated and illustrated above in different ways, the total number of demand for 20/80 condominium housing is 758,149. Whereas, the total number of supply of 20/80 condominium housing is 178,753. A gap of 579,396 is seen between demand and supply of 20/80 condominium housing, which means there exists a 324.1 % difference between demand and supply or only 24 % of the demand is fulfilled by the supply. From this it can be concluded that the number of condominium housing compared to the demand for housing is inadequate. This indicates, demand for housing is increasing at an increasing rate even though performance of the project is increasing at a decreasing rate.

#### 4.5 General Insight of Respondents' on Waiting Time and Assistance Availability

Here, the researcher attempted to find the period registrants wait before getting a chance of owning a house. In addition, the researcher was able to know the respondents' perception if the waiting period is long or not.

##### 4.5.1 Respondents' Insight on Waiting Period

Table 4.7 (a) Waiting Period of People before Getting Chance

Waiting Time	Frequency	Percent	Valid Percent	Cumulative Percent
Two years	-	-	-	-
Three Years	-	-	-	-
Four Years	-	-	-	-
Five Years	6	5.2%	5.2%	5.2%
Above Five Years	109	94.8%	94.8%	100.0%
Total	115	100%	100%	

Source: - Survey result, 2021

Table 4.7 (b) Elongated Waiting Period

Long Waiting Time	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	112	97.4%	97.4%	97.4%
No	3	2.6%	2.6%	100.0%
Total	115	100%	100%	

Source: - Survey result, 2021

Based on Table 4.7 (a) & (b), the following summarized report was generated. Among the total 115 respondents, 109 (94.8%) of them responded waiting period of the people before getting the chance



is more than 5 years and 6 (5.2%) respondents expect the waiting period is equal to 5 years. According to the interviewee from the project offices of Addis Ababa housing development project and Bole housing development project, all agreed that people waited a minimum of 5 years before getting a chance of owning a house.

Moreover, out of the 109 respondents, who responded waiting period of the people before getting the chance is more than 5 years, also believed that the waiting time is long. In addition, out of the 6 respondents who expect the waiting period is equal to 5 years, 3 believed the waiting time is long while the remaining 3 respondents responded the time is not long.

To sum up, most respondents agreed that registrants wait for an extended time, more than 5 years, before being able to get a dwelling.

#### 4.5.2 Respondents' Insight on Assistance Availability and Provider

Table 4.8 (a) Assistance Availability

Assistance Availability	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	109	94.8%	94.8%	94.8%
No	6	5.2%	5.2%	100.0%
Total	115	100%	100%	

Source: - Survey result, 2021

As seen from Table 4.8 (a), among the total 115 respondents, 109 (94.8%) of the respondents confirmed that the project office receives assistance from one or more governmental offices which are outside the project office. The remaining 6 (5.2%) respondents responded the availability for assistance is null.

As seen in Table 4.8 (b), from those 109 respondents who confirmed the availability of assistance, 27 (24.8%), 11 (10.1%) and 5 (4.6%) chose Addis Ababa City Administration, A.A Housing and development office and Ministry of urban and Housing Development separately. In addition, Addis Ababa City Administration & A.A Housing and development office were chose by 13 (11.9%)

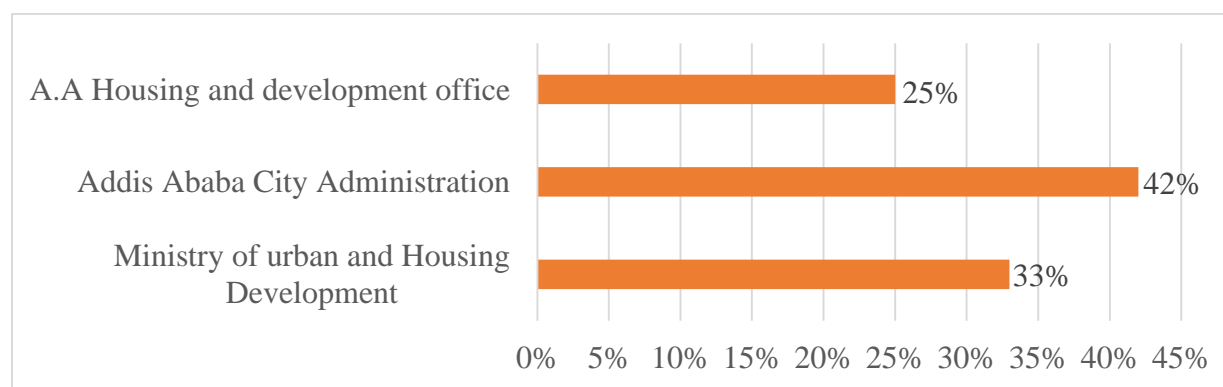
respondents while 33 (30.3%) reside to Addis Ababa City Administration & Ministry of urban and Housing Development offices. A.A Housing and development office & Ministry of urban and Housing Development offices were chosen as assistance provider by 20 respondents which represent 18.3% of the total 109.

Table 4.8 (b) Assistance Provider

Assistance Provider	Freq.	Percent	Valid %	Cum. %
Addis Ababa City Administration	27	24.8%	24.8%	24.8%
A.A Housing and development office	11	10.1%	10.1%	34.9%
Ministry of urban and Housing Development	5	4.6%	4.6%	39.5%
Addis Ababa City Administration & A.A Housing and development office	13	11.9%	11.9%	51.4%
Addis Ababa City Administration & Ministry of urban and Housing Development	33	30.3%	30.3%	81.7%
A.A Housing and development office & Ministry of urban and Housing Development	20	18.3%	18.3%	100.0%
Total	109	100%	100%	

Source: - Survey result, 2021

Figure 4.5: Summarization of Assistance Providers



Source: - Survey result, 2021

As seen in Figure 4.5, both project offices (Bole housing and development project and Addis Ababa housing and development offices) mostly receive assistance from Addis Ababa City Administration office with 42% of the total 109 respondents. Following Addis Ababa City Administration office, Ministry of Urban and Housing Development office gives its most assistance to the project offices having the share of 33% out of the total 109 respondents. The remaining 25 % share out of the 109 goes to the Ministry of Urban and Housing Development office as assist to the project offices.

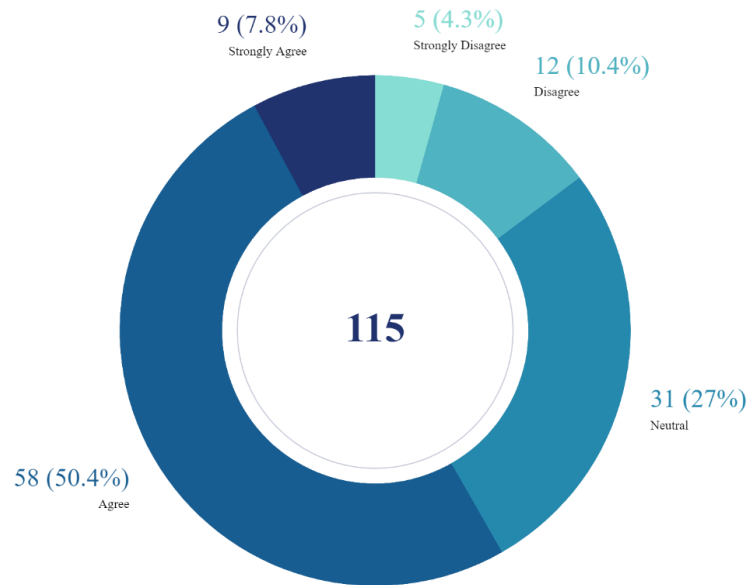
To sum up, the project office gains support from different governmental offices. This implies, unavailability of assistance is not an issue. In other words, unavailability of assistance is not a contributing factor for shortage of housing supply in BHDP office. But, the strength of the assistance or support needs further investigation.

#### 4.6 Evaluation of Respondents’ Perception on Factors of Housing supply

This part gives interpretation and analysis of the major questions related to factors influencing housing supply of the selected case project office.

##### 4.6.1 Construction Contract Duration

Figure 4.6: Respondents standpoint on Construction Contract Duration



Source: - Survey result, 2021

Table 4.9- Respondents standpoint on Construction Contract Duration

<i>Is supply of housing unit affected by the continuous revision of construction contract duration?</i>	<b>Mean = 3.47</b>
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Source: - Computed from survey result, 2021

Table 4.9 shows the respondent's anticipation towards the relationship between the continuous revision of construction contract duration and housing supply. Most respondents agreed that continuous revision of construction contract duration affect the supply of housing unit, with a mean score of 3.47.

Furthermore, Figure 4.6 illustrates, out of the total 115 respondents, 67 (58.3%) of them agreed that continuous revision of construction contract duration affect the supply of housing unit while 17 (14.7%) disagree. The remaining 31 (27.0%) were indecisive, which means the respondents do not have any information about the contract issue. Thus, the researcher reaches at the conclusion that continuous revision of construction contract duration affects the supply of housing unit in BHDPO.

The judgment above is supported by the data directly taken from the consultant's office of the project site. It shows the performance of the project in terms of the contract time from the beginning up to the ending of the projects.

Table 4.10 (a) Performance of Bole-Arabsa: Site One

No	Activities	G+4	G+7	Total / Average
1	Total number of blocks	27	56	83
2	Total number of blocks on progress	17	52	69
3	Total number of blocks with zero progress	10	4	14
4	Contract time	540 days	720 days	
5	Revised contract time	-	-	
6	Elapsed time to date	625 days	625 days	
7	Accomplished to date for active blocks (%)	31.5	27.7	29.6
Total number of contractors Participated = 30				

Source: - Belese Consulting, February 2021

As seen in the above table, Table 4.10 (a), a total of 83 numbers of blocks but 69 blocks are active in the project the sites while 14 blocks are not active. The estimated contract time recorded to complete the project of constructing G+4 and G+7 are 540 days and 720 days respectively while the elapsed time recorded shows 625 days for both G+4 and G+7 blocks. This indicates that G+4 used extra 85 days and G+7 remains 95 days to complete the contract time. Besides for the two years used, an average of 31.5% work is completed for G+4 active (on progress) blocks while an average of 27.7% work is completed for G+7 active (on progress) blocks.

Table 4.10 (b) Performance of Bole-Arabsa: Site Two

No	Activities	G+4	G+7	Total / Average
1	Total number of blocks	8	72	80
2	Total number of blocks on progress	-	-	
3	Total number of blocks with zero progress	8	72	80
4	Contract time	540 days	720 days	
5	Revised contract time	720 days	-	
6	Elapsed time to date	767 days	767 days	
7	Accomplished to date for active blocks (%)	31.2	34.8	33.0
Total number of contractors Participated = 32				

Source: - Image Consultancy PLC, February 2021

Table 4.10 (b) shows, a total number of 8 and 72 blocks for G+4 and G+7 respectively. The contract time for G+4 is 540 days and for G+7 is 720 days. The revised contract time for G+4 is 720 days (extra 180 days), whereas the revised contract time for G+7 is not clearly stated. The elapsed time recorded shows 767 days for both G+4 and G+7 blocks. Besides, an average of 31.2% work is completed for G+4 active (on progress) blocks while an average of 34.8% work is completed for G+7 active (on progress) blocks.

The researcher further investigated the type of construction contracts agreed between Bole Housing and Development Project Office and contractors to construct housing construction at different project sites in Bole sub city. From this intensive study, the researcher understood the variation on the type of construction contract in Bole Housing Development and the conventional one. In the conventional construction contract agreement, contractors are obliged to supply all construction

materials, labors and equipments to the project while in these construction contract agreements both the BHDPO and the contractors supplying construction materials to the projects. Construction materials supplied by BHDPO are cement, reinforcement bars, crushed stone, hollow concrete blocks for walls and slabs, precast beams, electrical and sanitary fixtures and fittings but other construction materials like stone, sand, selected soil from quarry, forms, nails, are supplied by contractors. In addition, the contractors supply machineries and equipments; and manpower to the project. These shared responsibilities have created complex relationships among the projects stakeholders: owner (BHDPO), contractors, consultant, micro and small enterprises, vendors, etc, to manage the project effectively. The essence of effective project management is to manage the technical, schedule and financial elements of a project to a successful conclusion.

From the above verdict, the researcher noted that the complexity raised due to variation of the contract from the conventional one has an impact on the performance of the project which is measured by the number of houses supplied in this case.

Moreover, during time of interview the interviewees mentioned, these kind of complexity made the contract administration system to be weak. Though there exists a mechanism to control such delays which can be implemented by the project offices, the project offices compromises as the problem for delay is mutual.

#### 4.6.2 Project Finance

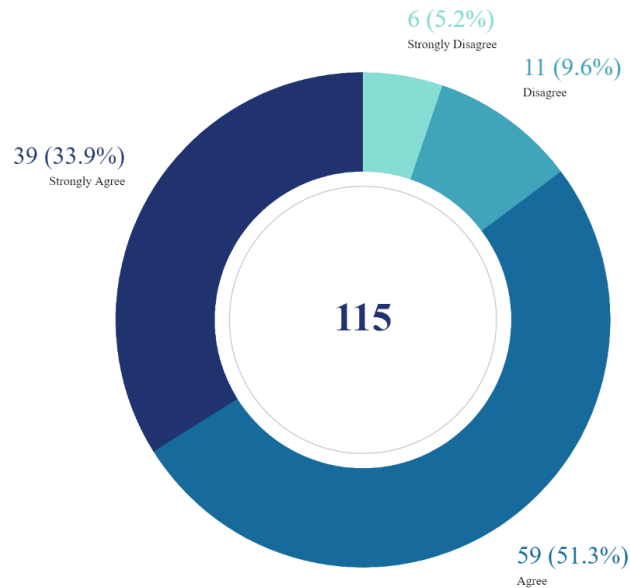
Table 4.11 and Figure 4.7 shows the respondent's anticipation towards the relationship between project finance and housing supply. Most respondents agreed that deprived project finance affect the supply of housing unit, with a mean score of 3.99. In addition, the figure shows 98 (85.2%) of the respondents agree that deprived financing is a factor that affects project delivery while the remaining 17 (14.8%) respondents stand on the contrary. Based on the results obtained, the researcher concluded that deprived project finance is an affecting factor in housing supply.

Table 4.11- Respondents standpoint on Project Financing

<i>Is supply of housing unit affected by deprived Project financing?</i>	<b>Mean = 3.99</b>
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Source: - Computed from survey result, 2021

Figure 4.7: Respondents standpoint on Project Financing



Source: - Survey result, 2021

#### 4.6.3 Project Managers' Competency

As Table 4.12 explains, project managers' competency plays no role in the supply of housing unit, with mean score of 2.59. In addition, the table below shows, 69 (60.0%) of the participants of the population disagreed on the fact that project managers' competence plays a role in the delivery of housing unit while 30 (26.1%) respondents consider project managers' competency as a factor that affects the delivery of housing project. The remaining 16 (13.9%) were indecisive. Depending on the results obtained from the interviewees, the researcher concluded that project managers' competence is an not an affecting factor in supplying housing units in case of Bole sub city housing and development project office.

The possible justification behind this could be the fact that project managers, in general, have no formal authority, though they are held responsible for the overall success of the project. They are responsible for managing the interaction between all stakeholder groups, each having their own expectations and project success criteria.

Table 4.12- Respondents standpoint on Project Managers' Competency

	Item	Freq.	Percent	Valid %	Cum. %
<i>Is supply of housing unit affected by project managers' competence?</i>	Strongly Disagree	17	14.8%	14.8%	14.8%
	Disagree	52	45.2%	45.2%	60.0%
	Neutral	16	13.9%	13.9%	73.9%
	Agree	21	18.3%	18.3%	92.2%
	Strongly Agree	9	7.8%	7.8%	100.0%
	Total	115	100%	100%	
	<b>Mean = 2.59</b>				

Source: - Computed from survey result, 2021

#### 4.6.4 Project Planning

Table 4.13- Respondents standpoint on Project Planning

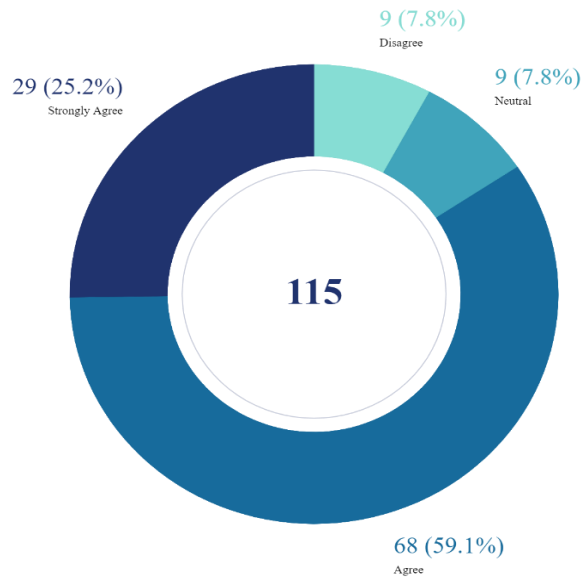
<i>Is supply of housing unit affected by poor project planning?</i>	<b>Mean = 4.02</b>
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Source: - Computed from survey result, 2021

According to the respondent information illustrated in Figure 4.8, from 115 total respondent 97 (84.4%) of respondent Agree and strongly agree that poor project planning is a factor in the project office and 9 (7.8%) of respondent neutral, 9 (7.8%) of respondent respond disagree to the fact that poor project planning is a factor for project delivery as seen in the table and figure above. In addition to the respondents information, the table also shows a mean score of 4.02, which falls in the “agree” category.



Figure 4.8: Respondents standpoint on Project Planning



Source: - Survey result, 2021

Depending on the information illustrated above, the researcher can conclude poor project planning is one of the factors that affect the housing delivery in BHDPO. The interviewees emphasized on the existence of difference between project implementation plan and actual implementation. The variance is due to time. This can be backed up by the information revealed on Table 4.10 (a) & (b), row 6. Consequently, time delay will basically lead to cost overrun.

#### 4.6.5 Project Procurement

Figure 4.9 shows that majority, 92 (80.0%), of the respondents agreed that problems related to procurement does affect the delivery of housing project in the selected area. Meanwhile, 9 or 7.8% respondents disagree on the same premises. The remaining 12.2% that is about 14 people out of 115 respondents are uncertain about the subject matter.

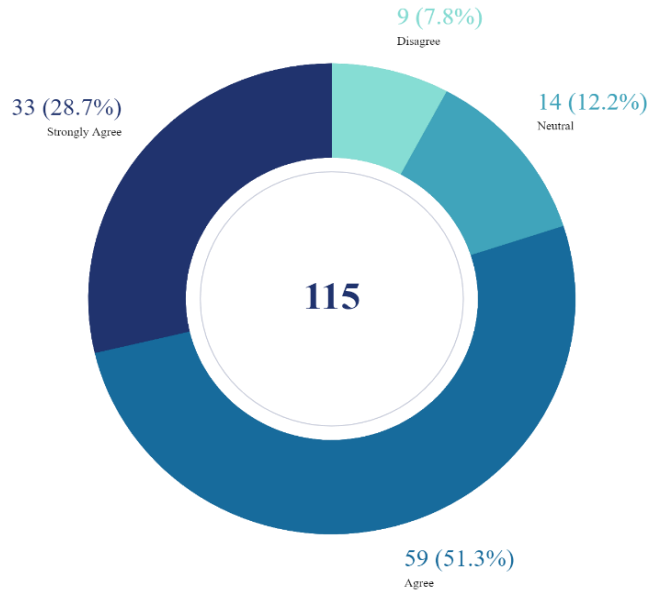
Table 4.14- Respondents standpoint on Project Procurement

<i>Is supply of housing unit affected by problems related to project procurement?</i>	<b>Mean = 4.01</b>
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Source: - Computed from survey result, 2021

In addition to the respondents' information, the Table 4.17 also shows a mean score of 4.01, which falls in the "Agree" sentiment level. Therefore, the researcher can conclude, problems related to procurement does affect the housing supply in BHDPO.

Figure 4.9: Respondents standpoint on Project Procurement



Source: - Survey result, 2021

#### 4.6.6 Communication within Project Team

Table 4.15 represents frequency and percentage distribution of 115 respondents in this study. It shows that a total of 76 or 66.1% respondents disagree that communication among project teams has been an issue for housing supply. At the same time, 12 or 10.4% respondents agree that communication barrier has been one of the cause for housing supply issue. The remaining 27 or 23.5% respondents were indecisive. In support of this, a mean score of 2.32 has been noted. Relaying on the above information, the project office team members have a relatively good communication among themselves. Therefore, the researcher can concluded that communication among project team members has not been a factor for the shortage of housing supply in the project office.

Table 4.15- Respondents standpoint on Communication within Project Team

	Item	Freq.	Percent	Valid %	Cum. %
<i>Is supply of housing unit affected by lack of Communication within the project team?</i>	Strongly Disagree	14	12.2%	12.2%	12.2%
	Disagree	62	53.9%	53.9%	66.1%
	Neutral	27	23.5%	23.5%	89.6%
	Agree	12	10.4%	10.4%	100.0%
	Strongly Agree	0	0.0%	0.0%	100.0%
	Total	115	100%	100%	
	<b>Mean = 2.32</b>				

Source: - Computed from survey result, 2021

#### 4.6.7 Communication within Project Manager and Team Members

Table 4.16- Respondents view on Communication within Project Manager and Team Members

	Item	Freq.	Percent	Valid %	Cum. %
<i>Is supply of housing unit affected by lack of Communication within the project manager and the team members?</i>	Strongly Disagree	19	16.5%	16.5%	16.5%
	Disagree	78	67.8%	67.8%	84.3%
	Neutral	9	7.8%	7.8%	92.2%
	Agree	9	7.8%	7.8%	100.0%
	Strongly Agree	0	0.0%	0.0%	100.0%
	Total	115	100%	100%	
	<b>Mean = 2.07</b>				

Source: - Computed from survey result, 2021

According to the respondent information, from the total 115 respondent 97 or 84.4% of the respondents disagree about Communication within the project manager and the project team is a factor which affects the delivery of housing, 9 or 7.8% of respondents respond neutral. In the meantime, 9 or 7.8% of respondents agree it is a factor. A mean score of 2.07 has been recorded. Based on the above information, BHDP office team members have a good communication with the project manager.

#### 4.6.8 Contractor Selection Mechanism

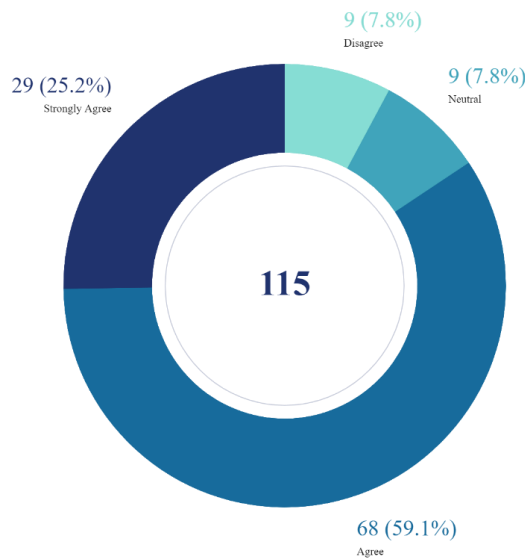
Figure 4.10 represents frequency and percentage distribution of 115 respondents in relation to assessment of contractor selection mechanism. It shows that a total of 78 or 67.8% respondents agree that contractor selection mechanism has been one of the cause for housing supply issue. At the same time, 11 or 9.6% respondents disagree that contractor selection mechanism has been an issue for housing supply. The remaining 26 or 22.6% respondents were indecisive. A mean score of 3.73 has also been noted in the table, Table 4.17. Relying on the above information, the researcher can concluded that contractor selection is one of the major factor affecting the housing delivery due to the contractor’s lack of finance, experience and technical skill.

Table 4.17- Respondents standpoint on Contractor Selection Mechanism

<i>Is supply of housing unit affected by Contractor selection mechanism?</i>	<b>Mean = 3.73</b>
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Source: - Computed from survey result, 2021

Figure 4.10: Respondents standpoint on Contractor Selection Mechanism

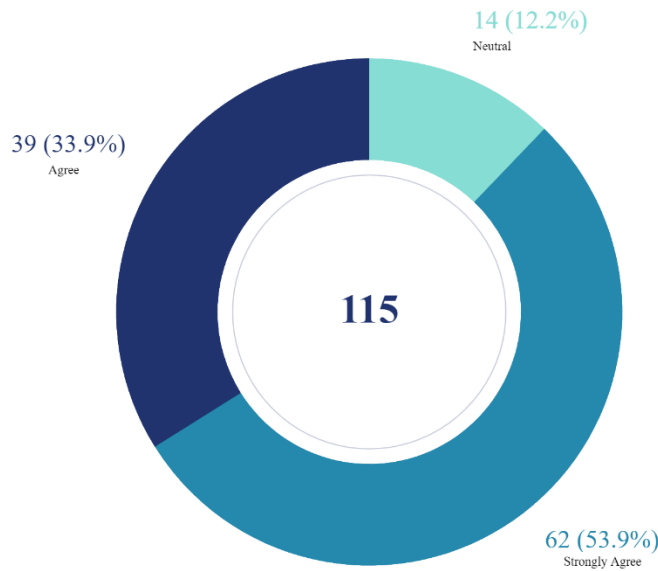


Source: - Survey result, 2021

Moreover, the researcher finds out that the contractor selection process is held at head office level and based on the IHDP policy, participant contractors should be level 3 and level 4 internal contractors. The reasons for selecting contractors with such level is to improve the MSEs internal capacity.

#### 4.6.9 Monitoring and Evaluation of the Project

Figure 4.11: Respondents standpoint on Monitoring and Evaluation of the Project



Source: - Survey result, 2021

Table 4.18- Respondents standpoint on Monitoring and Evaluation of the Project

<i>Is supply of housing unit affected by poor Supervision/inspection of work (M&amp;E)?</i>	<b>Mean = 4.42</b>
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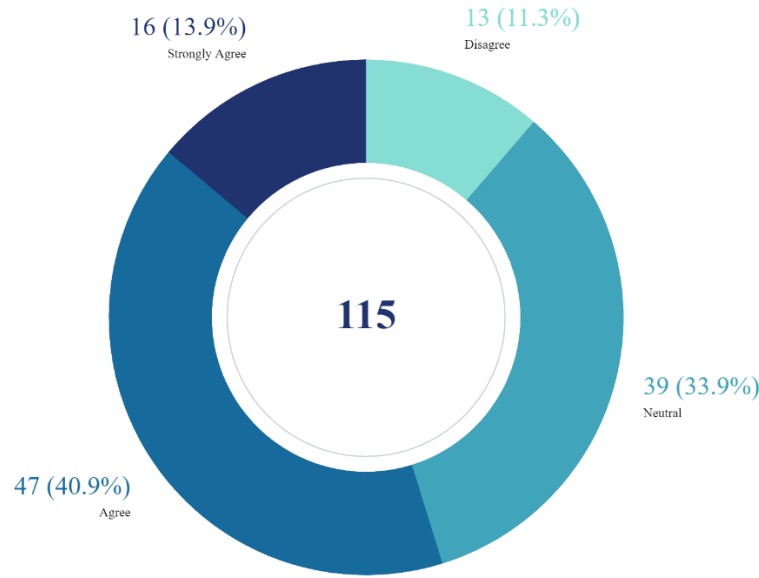
Source: - Computed from survey result, 2021

Figure 4.11 represents frequency and percentage distribution of 115 respondents in the study. While 14 or 12.2% respondents were indecisive, a total of 101 or 87.8% respondents agreed that poor monitoring and evaluation has been one factor causing shortage of housing supply. In addition, a mean score of 4.42 has also been noted in Table 4.18.

Relaying on the information mentioned above, the researcher can concluded that supply of housing in the selected project office is highly affected by improper monitoring and evaluation system.

#### 4.6.10 Local Ground Condition

Figure 4.12: Respondents standpoint on the Local Ground Condition



Source: - Survey result, 2021

Table 4.19- Respondents standpoint on the Local Ground Condition

<i>Is supply of housing unit affected by local ground conditions?</i>	<b>Mean = 3.57</b>
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Source: - Computed from survey result, 2021

Sometimes different local ground rules affect project’s performance. According to the response of interviewees, 13 or 11.3% respondents disagree that local ground rule affects project performance whereas 63 or 54.8% respondent agree that local ground rule affects the project’s performance. The remaining 39 or 33.9% of respondent were indecisive on the subject matter. Based on the respondents information, a calculated mean score of 3.57 is noted, which falls in the “Agree” sentiment level. Considering all the information mentioned above, the researcher concluded local

ground rules as an affecting factor in the supply shortage of housing in the selected sub city project office.

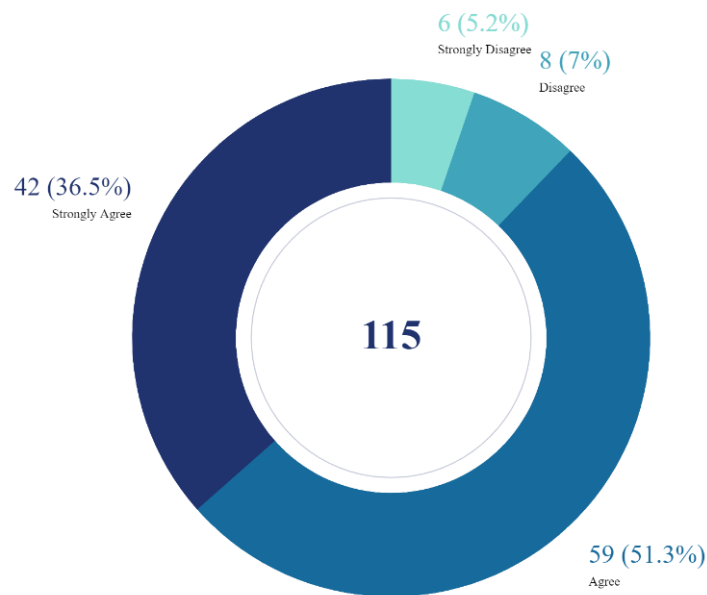
#### 4.6.11 Scope Change

Table 4.20- Respondents standpoint on Scope Change

<i>Does continues scope change within the project implementation time play a role in creating problem related to housing supply shortage?</i>	<b>Mean = 4.07</b>
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Source: - Computed from survey result, 2021

Figure 4.13: Respondents standpoint on Scope Change



Source: - Survey result, 2021

The table and figure above shows, the respondent's perception towards the relationship between scope change and housing supply. The result shows a mean score of 4.07. This indicates respondents agreed that repetitive scope change within the project implementation time plays a role in creating shortage related to housing supply. Besides the mean score, Table 4.26 also shows, 101 or 87.7% of 115 respondents agree that repetitive scope change in Bole Housing and Development project office has been one of challenges in delivering condominium houses to low and middle incomers.

Meanwhile, 14 or 12.1% of respondents disagree on the concept that repetitive scope change within the project implementation time plays a role in creating housing supply shortage. None of the respondent were faltering or indecisive.

Relying on the above well-equipped information, the researcher concluded repetitive scope change in Bole Housing and Development project office has been one of the challenges in delivering condominium houses to low and middle incomers in the selected sub city housing project.

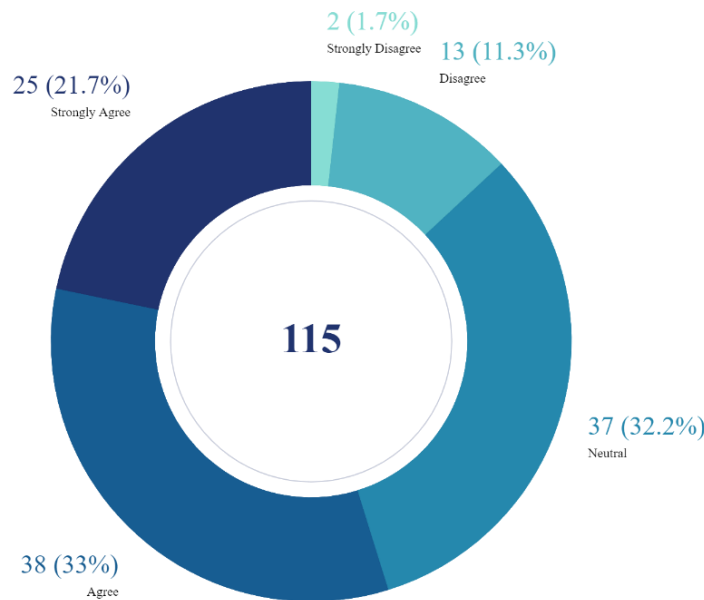
#### 4.6.12 Material Availability in Local Market

Table 4.21- Respondents standpoint on Material Availability in Local Market

<i>Does availability of materials in local market not being easy play a role in causing shortage of housing supply?</i>	<b>Mean = 3.62</b>
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Source: - Computed from survey result, 2021

Figure 4.14: Respondents standpoint on Material Availability in Local Market



Source: - Survey result, 2021

Table 4.21 shows the respondent's anticipation towards the relationship between unavailability of materials in the local market and housing supply. Most respondents agreed that unavailability of



materials in the local market affect the supply of housing unit, with a mean score of 3.62. In addition, Figure 4.14 illustrates, out of the total 115 respondents, 63 (54.8%) of them agreed that supply of housing unit is affected by unavailability of material in the local market while 15 (13.0%) disagree. The remaining 31 (27.0%) were indecisive. Depending on the information mentioned above, absence of some materials in the local market do exist. The absence of materials in local market basically affects implementation time. Thus, the researcher concludes unavailability of construction material in the local market plays a role in the shortage of housing supply.

#### 4.6.13 Material Distribution

Table 4.22- Respondents standpoint on Material Distribution

	Item	Freq.	Percent	Valid %	Cum. %
<i>Does site material distribution problem play a role in causing shortage of housing supply?</i>	Strongly Disagree	4	3.5%	3.5%	3.5%
	Disagree	33	28.7%	28.7%	32.2%
	Neutral	41	35.7%	35.7%	67.8%
	Agree	28	24.3%	24.3%	92.2%
	Strongly Agree	9	7.8%	7.8%	100.0%
	Total	115	100%	100%	
	<b>Mean = 3.04</b>				

Source: - Computed from survey result, 2021

As shown on table 4.22 above, from a total 115 respondent 37 or 32.2% of respondents agree and the same number of respondents (37 or 32.2%) disagree that distribution of materials has been an affecting factor in satisfying the demand of housing. The larger share, 41 or 35.6% of respondents were neutral on the subject matter. The table also shows a mean score of 3.04. Relying on the information mentioned above and interviewee's further explanation, distribution problem has not been a direct factor for the shortage of housing supply. Rather material distribution itself is affected by or is dependent on procurement even though transportation problem sometimes exists to some extent while distributing bulk resource from the center to the project office.

#### 4.6.14 Strategic Project Management

Table 4.23 represents frequency and percentage distribution of 115 respondents in the study. Accordingly, 8 or 7.0% respondents were indecisive while a total of 95 or 82.6% respondents agreed while 12 or 10.4% disagree on implementation of best strategic project management practices. In addition, a mean score of 3.92 has also been noted in the table. Depending on this information, it is clear that best strategic project management practices are not implemented. Besides, the GTP 1 performance review document also explains that lack of strategies affect the overall project performance. Thus, the researcher concludes that both project offices, Bole and Addis Ababa Housing and Development project office, did not implement best practices of project strategies. Supply of housing in the selected sub city has been affected by the failure to implement best strategic practices which could improve the earliest delivery time of the project so that cost incurred due to this delay could be avoided and quality is not compromised.

Table 4.23- Respondents standpoint on Strategic Project Management

<i>Does the best Strategic project management practices to improve earliest delivery time not being implemented play a role in causing shortage of housing supply?</i>	Item	Freq.	Percent	Valid %	Cum. %
	Strongly Disagree	4	3.5%	3.5%	3.5%
	Disagree	8	7.0%	7.0%	10.4%
	Neutral	8	7.0%	7.0%	17.4%
	Agree	68	59.1%	59.1%	76.5%
	Strongly Agree	27	23.5%	23.5%	100.0%
	Total	115	100%	100%	
	<b>Mean = 3.92</b>				

Source: - Computed from survey result, 2021

#### 4.6.15 Stakeholder Involvement

Table 4.24 and Figure 4.15 shows the respondent's anticipation towards the relationship between stakeholder's involvement and housing supply. Most respondents agreed that lack of stakeholder's involvement affect the supply of housing unit, with a mean score of 3.50. In addition, Figure 4.15 illustrates, out of the total 115 respondents, 68 (59.1%) of them agreed that lack of stakeholder's

involvement affect the supply of housing unit while 26 (22.6%) disagree. The remaining 21 (18.3%) were indecisive, which means the respondents were unsure about the issue.

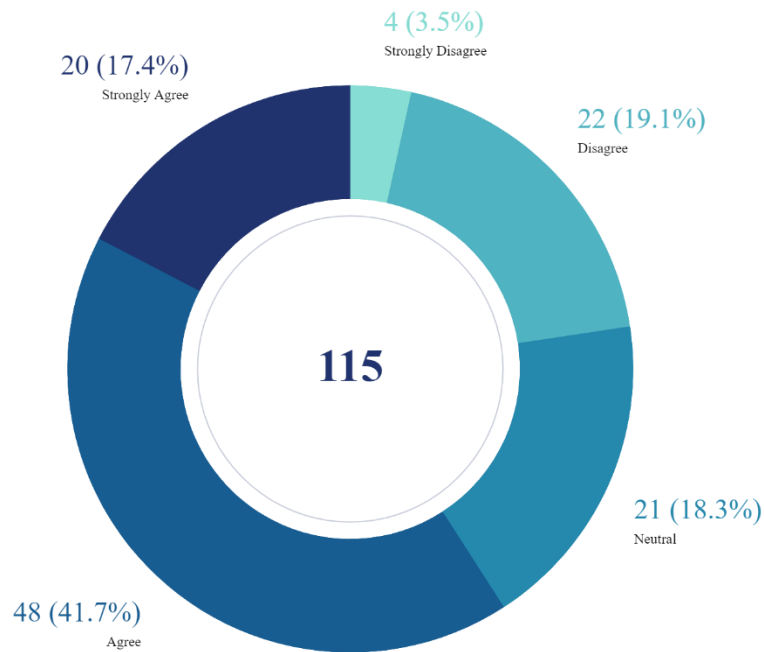
Therefore, inadequate stakeholders’ involvement has be noted as one of the major factor that affects supply of housing project.

Table 4.24- Respondents standpoint on Stakeholder Involvement

<i>Does lack of stakeholder involvement in the project hinder timely completing of project?</i>	<b>Mean = 3.50</b>
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Source: - Computed from survey result, 2021

Figure 4.15: Respondents standpoint on Stakeholders Involvement



Source: - Survey result, 2021

#### 4.6.16 Lesson Learnt

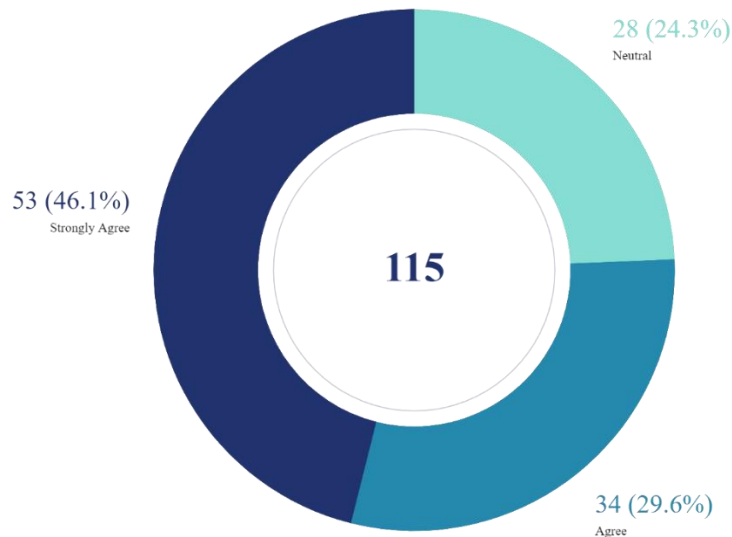
Table 4.25 together with Figure 4.16 represents frequency and percentage distribution of 115 respondents in relation to assessment of documentation of lesson learned from completed projects. It shows that a total of 87 or 75.7% respondents agree that failure in documentation of lessons learned from completed projects has been one of the cause for housing supply issue. At the same time, none of the respondents disagree on this subject matter. The remaining 28 or 24.3% respondents were indecisive. A mean score of 4.22 has also been noted in Table 4.25. Moreover, during desk survey, the researcher finds out there exists no lesson learned document in the project offices. Relying on the above information, the researcher can concluded that failure to document lesson learnt is one of the major factor affecting the housing delivery in the selected project office.

Table 4.25- Respondents standpoint on Lesson Learnt

<i>Does the absence of lesson learnt document from completed project play a role in causing shortage of housing supply?</i>	<b>Mean = 4.22</b>
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Source: - Computed from survey result, 2021

Figure 4.16: Respondents standpoint on Lesson Learnt



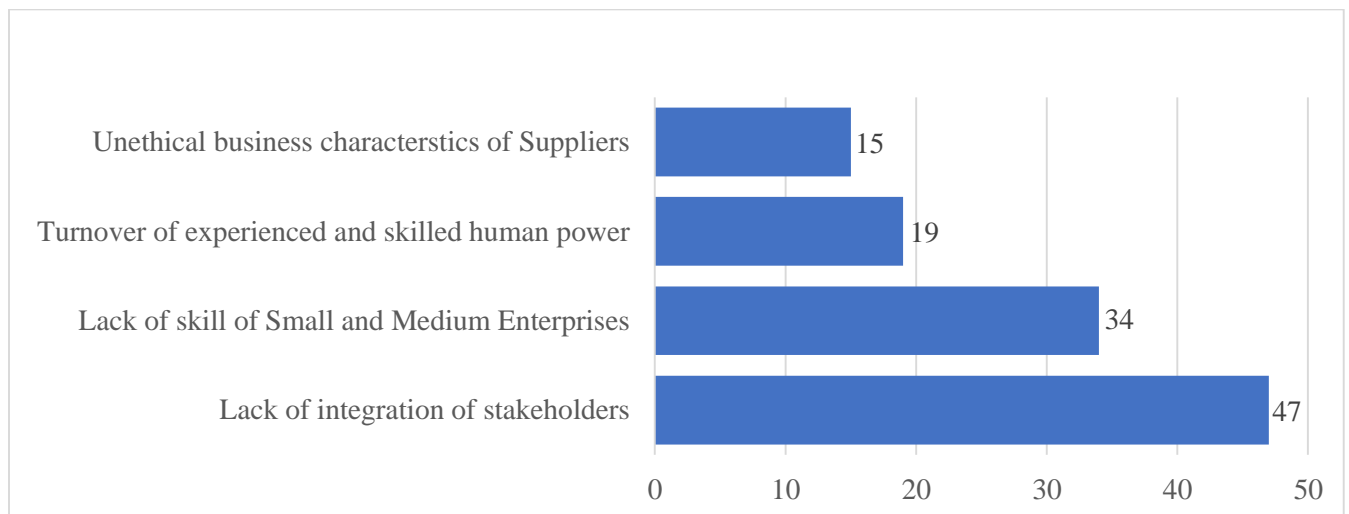
Source: - Survey result, 2021

#### 4.6.17 Other Factors

Beside the factors listed above, the housing project was affected by various different factors. Based on the responses of the interviewees and desk study, the following reasons are identified as factors contributing to the shortage of housing supply.

- Turnover of experienced and skilled human power
- Lack of integration of stakeholders
- Lack of skill of Small and Medium Enterprises
- Unethical business characteristics of Supplier

Figure 4.17: Other Factors Influencing the Supply of Housing Unit

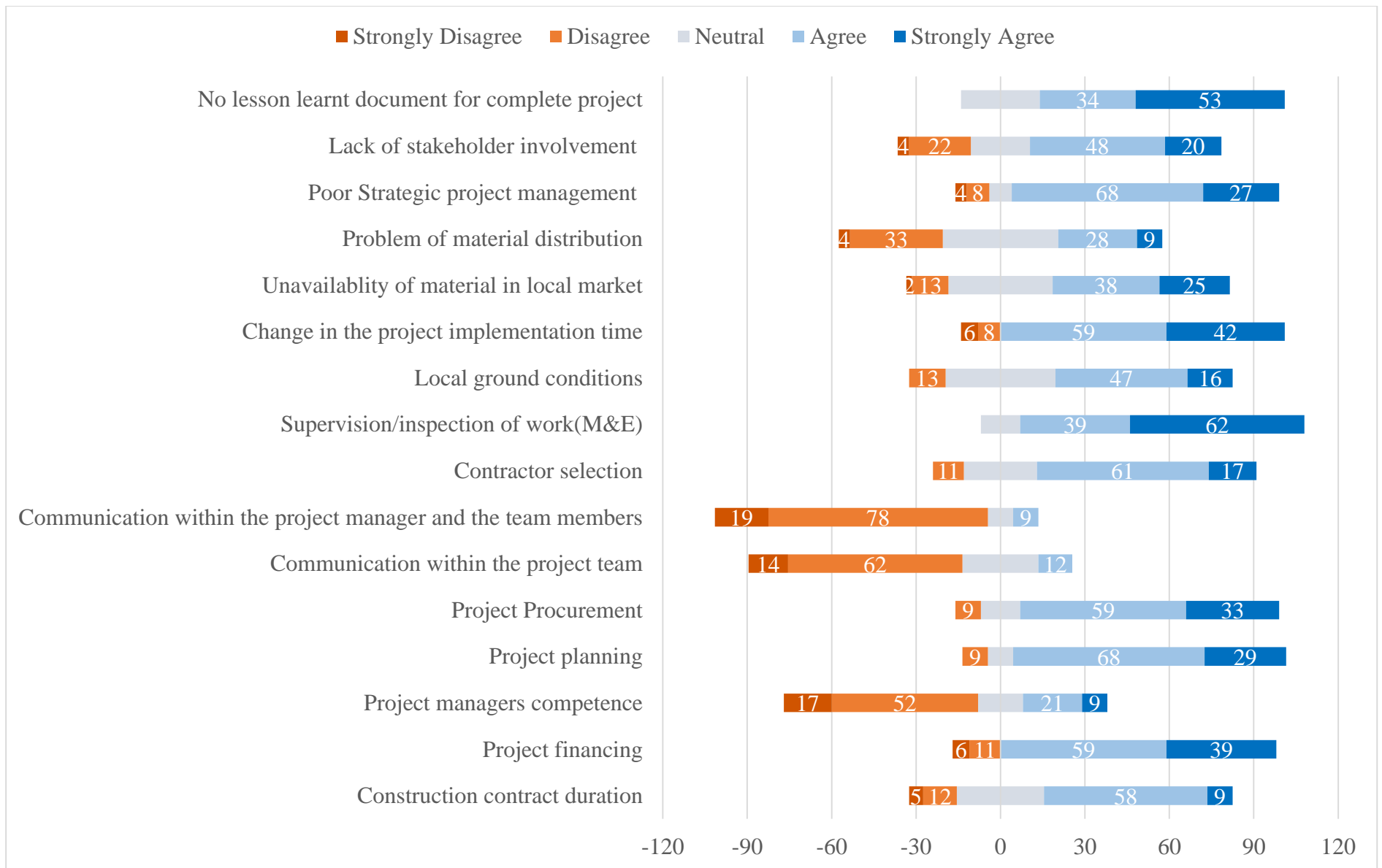


Source: - Computed from survey result, 2021

#### 4.7 Summary for Housing Supply Factors

The figure below summarizes the different factors affecting the supply of housing for the selected housing project office.

Figure 4.18: Summary of Factors Influencing the Supply of Housing Unit



Source: - Survey result, 2021

#### 4.8 Ranking of Factors Influencing the Supply of Housing Unit

Table 4.26- Rank of Factors Influencing the Supply of Housing Unit

<b>Factors</b>	<b>RII</b>	<b>Rank</b>	<b>Mean Score</b>	<b>Std. Deviation</b>
Supervision / inspection of work(M&E)	0.883	1	4.42	0.7007
No lesson learnt document for complete project	0.843	2	4.22	0.8142
Scope Change	0.814	3	4.07	1.0573
Project planning	0.803	4	4.02	0.8055
Project Procurement	0.802	5	4.01	0.8532
Project financing	0.798	6	3.99	1.0962
Poor Strategic project management	0.784	7	3.92	0.9473
Contractor selection	0.746	8	3.73	0.8306
Unavailability of material in local market	0.723	9	3.62	1.0051
Local ground conditions	0.715	10	3.57	0.8692
Lack of stakeholder involvement	0.701	11	3.50	1.0952
Construction contract duration	0.694	12	3.47	0.9396

Source: - Own Computation, 2021

The ranking of factors was calculated based on Relative Importance Index as shown in equation 3.1. Accordingly, the following result has been obtained and hierarchal assessment of factors was carried out and factors were ranked accordingly. On the basis of ranking of the factors it was possible to identify the most important factors that influenced the supply of housing units. It was assessed based on RII value.

The results show that, there are several important factors underlying causes shortage of supply in housing construction projects in Bole sub city. The factors have been assigned rank in relation to their RII. In total 16 factors were analyzed and the top 12 factors contribute to the shortage in housing supply.

It seems that “poor monitoring and evaluation” was the most important housing supply factor as it has the highest rank among all factors with RII of 0.883. The factor also has highest mean value equivalent to 4.42 and a standard deviation of 0.7007. Following monitoring and evaluation, an index of relative importance of 0.843, mean score of 4.22 and standard deviation of 0.8142 has been recorded for the variable that discusses lesson learnt documentation. Moreover, the table above shows that Scope Change, Project planning and Project Procurement are ranked from 3<sup>rd</sup> to 5<sup>th</sup> with RII of 0.814, 0.803 and 0.802 respectively.

#### **4.9 Effects of Housing Supply Shortage**

The effects of the housing shortage are significant, both economically and socially. Based on the responses of the interviewees and document review, the following effects are identified as effect of the housing supply shortage.

- Budget increase or Cost overrun
- Amendment of policy
- Increased Congestion
- Sky rocketing rental
- Increased house price
- Depressing savings
- Increased wealth gap



## **CHAPTER FIVE**

### **5. SUMMARY, CONCLUSION AND RECOMMENDATIONS**

This chapter provided the summary of what the findings entails, answers to research questions, conclusions of the student researcher discoveries and there after gave the recommendation of the research study.

#### **5.1 Summary of Major Findings**

Among the questions forwarded to respondents, questions like age, sex, educational background and occupation were selected from the six demographic questions. Based on the findings, 7 (6.1%) and 108 (93.9%) of respondents were females and males respectively. With regard to age distribution, most of the employees are in the range between 31 and 40 in comparison with the other age groups and those between 41 and 50 are around 30.4% of employees, the rest 16% are in the other two age categories. In relation to educational background of respondents, 81 or 70.4% of respondents are holders of bachelors' degree while 23 or 20.0% and 11 or 9.6% respondents are diploma and masters holders respectively. Composition of the respondents in the quantitative part indicate that most of them, 22.6% (26), are site engineers. It has been founded that project supervisors, project managers and project consultants account for 20% (23), 13% (15) and 8.7% (10) respectively. Other designations, like purchasers, finance officers, supply manager accounts for about 22.6% (26 respondents).

Among the 16 variables, the result of this study identified 12 high contributor factors causing shortage of housing supply in Bole housing construction projects with mean score ranging from 3.47 to 4.42. Based on ranking, poor monitoring and evaluation, no documentation of lesson learnt for completed project, repetitive scope change, poor project planning, problem related to project procurement, deprived project financing, poor strategic project management, problems related to contractor selection, unavailability of material in local market, local ground conditions, lack of stakeholder involvement and continuous revision of construction contract duration define housing supply in Bole sub city.

Moreover, this study illustrated the effects of housing shortage. Based on the respondents answer and document review, Budget increase or Cost overrun, Amendment of policy, Increased Congestion, Sky

rocketing rental, Increased house price, Depressing savings, Increased wealth gap are identified as effect of the housing supply shortage.

## **5.2 Conclusion of the Study**

In general terms, the number of lodging development projects in Ethiopia is steadily increasing. Delivering of housing unit for low and middle income groups is the main objectives of the housing and development project. However, it becomes difficult to supply houses for low and middle income individuals demanding house. The finding of the study concluded that shortage of housing supply is resulted from the following internal and external factors.

- The most contributing factor is weakness of monitoring and evaluation mechanisms of the head office and project office. This affects the timely completion of the project and also affects cost and qualities of the condominium houses.
- The next most affecting factor is the non-existence of lesson learnt document. This distresses the performance of the project.
- Scope change, repetitive design change from earth work up to structural change at the middle of construction in the project office is one of the major problem for affecting the timely completion of the project and cost of project.
- The existence of central procurement policy without flexibility for emergency procurement affects the housing supply. This makes decision making for the project office difficult and makes the process time taking.
- Project management strategic approaches saves time and reduces cost. However, in real ground this strategies are not applied in the project office due to different reasons, the main being project managers skill lack.
- Based on the IHDP to capacitate the internal contractor and creating job for MSEs the project office participate level 3 & 4 contractor according to the contractor financial capacity, level of technical skill, and organizational structure this are a factor for delivery problems.
- In addition to the factors mentioned above, turnover of experienced human power, lack of integration of stakeholders, and corruption are factors that affect the delivery of project.

To sum up, demand for condominium is increasing at an alarming rate due to population growth and migration from rural area to urban area. Even though the program has shown some achievements in minimizing the gap between demand and supply, the progress is not satisfactory. That is, shortage of housing supply is resulted from various factors which had been identified in this study. So this implies that a need of urgent attention is to be put on these factors to avoid time and cost overruns; and their effects on projects.

### **5.3 Recommendation**

In order to alleviate performance of the project and meet the targets of integrated housing development program, the researcher forwarded the following multi directional approach recommendations based on the findings of the research and desk survey.

- Government should focus on strong political commitment at all levels of administration to address the major challenges of the integrated housing development program, and appropriate organizational structure is needed including with better higher management and experts to monitor and evaluate the project activities. The researcher highly recommends that good monitoring and evaluation systems should be maintained through establishing checkpoints or milestones in order to keep track of progress and take correction action for a variation from the bench mark early.
- The project offices should develop a lesson learnt document for each completed projects to boost future performance.
- Government should give more attention to appropriate policy intervention involving others rather than monopolize every individual activities of the construction of condominium housing projects. One of the intervention may revolve around designing procurement policy that gives some loophole for the project office to solve the problem related to purchasing and give for some procurement right for the project office. In addition, AAHDPO should establish effective and efficient material procurement system as material procurement has the potential to cause major delays to construction projects leading to shortage in housing supply. The other policy intervention that the government should pay special attention is on facilitating a comprehensive

national housing policy by providing land, funds, discounted interest rate, and infrastructures to participate the private sector and the individual citizens to solve the housing deficit.

- Participatory planning and implementing campaign that builds up understanding and cooperation between concerned actors of the project are important to enhance the project success.
- Continuous capacity building and inherent commitment of the project participants or stakeholders are very important to overcome the problems. This can be realized by strengthening their coordination and communication throughout the project life cycle to achieve the stated objectives.
- The study showed that the occurrence of high government bureaucracy in the projects especially in purchasing, finance and supply management affects the projects in their time, cost and quality; therefore, the study recommended that government should provide appropriate and flexible rules and regulations concerning the project characteristics.
- Applying alternative low cost durable local construction materials and technology and encouraging different actors involved in the construction of affordable housing are indispensable to address the targets of IHDP.
- From the study, it was evident that the study found out that there is lack of professions and leaderships of project managers, so the government should give special attention in selection and appointing qualified project managers.

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APPENDIX A:

**General Instruction and Information**

**Introduction:** Thank you for your willingness to participate in this study as a respondent. This Questionnaire is used to collect data for the master’s research entitled “Assessment on Factors Influencing Shortage of 20/80 housing supply”. Indicate your answer by putting “X” on the box which most accurately reflects your opinion. Your experiences and opinions serving as an input will significantly add value to this thesis.

The researcher assures you that the information you provide will only be used for academic research purpose and anonymity of the respondent maintained throughout the research process. Thank you for your cooperation.

**Part One: General Information**

1. Age:

a) 20-30years <input type="checkbox"/>	b) 31-40years <input type="checkbox"/>	c) 41-50years <input type="checkbox"/>	d) Above 50 years <input type="checkbox"/>
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2. Sex:

a) Male <input type="checkbox"/>	b) Female <input type="checkbox"/>
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3. Level of Education:

a) Below grade 12 <input type="checkbox"/>	b) Certificate <input type="checkbox"/>	c) Diploma <input type="checkbox"/>	d) Degree <input type="checkbox"/>
e) Masters <input type="checkbox"/>	f) Other Please specify _____		

4. Years of work experience:

a) Below 3 years <input type="checkbox"/>	b) 4-7 Years <input type="checkbox"/>	c) 8-11 Years <input type="checkbox"/>	d) 12-15 Years <input type="checkbox"/>
e) Above 15 Years <input type="checkbox"/>			

5. Where is your job location now:

a) Bole sub city project office or site <input type="checkbox"/>	b) Addis Ababa housing project office <input type="checkbox"/>
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6. Your present position/responsibility:

a) Process leader <input type="checkbox"/>	b) Project officer <input type="checkbox"/>
c) Site Engineer <input type="checkbox"/>	d) Project Supervisor <input type="checkbox"/>

e) Project Manager <input type="checkbox"/>	f) Project consultant <input type="checkbox"/>
g) Other Please specify _____	

7. For how long will people wait before getting chance of owning a house?

a) Two years <input type="checkbox"/>	b) Three years <input type="checkbox"/>
c) Four years <input type="checkbox"/>	d) Five Years <input type="checkbox"/>
e) Above five years <input type="checkbox"/>	

8. Do you think people on waiting list took long to get the house?

A. Yes <input type="checkbox"/>	B. No <input type="checkbox"/>
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9. If yes, why do think it took so long?

a) Delayed by the City Administration	<input type="checkbox"/>
b) Delayed by the contractor	<input type="checkbox"/>
c) shortage of material	<input type="checkbox"/>
d) Shortage of finance	<input type="checkbox"/>
e) Shortage of man power	<input type="checkbox"/>
f) Poor of Monitoring and Evaluation	<input type="checkbox"/>
g) Other Please specify _____	

10. Do you (the project office) get any assistance with regards to housing project problems?

a) Yes <input type="checkbox"/>	B. No <input type="checkbox"/>
---------------------------------	--------------------------------

11. If the answer to question 10 is Yes. Who assists you with regards to your housing project problems?

a) Addis Ababa City Administration	<input type="checkbox"/>
b) A.A Housing and development office	<input type="checkbox"/>
c) Ministry of urban and Housing Development	<input type="checkbox"/>
d) Other specify _____	

12. What do you think can be done in order to improve housing delivery in project office?

a) More funding needed	<input type="checkbox"/>
b) Proper supply (procurement) of material	<input type="checkbox"/>
c) Proper Planning	<input type="checkbox"/>
d) Proper monitoring and evaluation	<input type="checkbox"/>

e) Proper assignment of Human Resource	<input type="checkbox"/>
f) Other please specify _____	

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

a) Yes <input type="checkbox"/>	b) No <input type="checkbox"/>
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14. If the answer to the above question (13) is yes could you give the reason of increase in project cost?

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15. Is the Project actual duration different from the planned duration?

a) Yes <input type="checkbox"/>	b) No <input type="checkbox"/>
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16. If the answer to the above question (15) is yes could you give the reason of varies from the Actual project duration?

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**Part Two:** For the following questions, please put (X) mark in the proper box or fill the proper number using the scale below depending on your experience in your project office.

1 – Strongly Disagree	3 – Neutral	5 – Strongly Agree
2 – Disagree	4 – Agree	

NO	The delivery of housing unit is affected by	Scale				
		SD	D	N	A	SA
17.	Continuous revision of Construction contract duration					
18.	Deprived Project financing					
19.	Lack of Project managers competence					
20.	Poor Project planning					
21.	Problems related to Project Procurement					
22.	Lack of Communication within the project team					
23.	Lack of Comm. within the project manager and the team members					
24.	Problems related to Contractor selection					
25.	Poor Supervision/inspection of work(M&E)					
26.	Local ground conditions					

27. Does contract duration affect project completion in your opinion?

a) Yes <input type="checkbox"/>	b) No <input type="checkbox"/>
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28. If the answer to the above question (27) is Yes what affects contract duration?

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29. Does project cost affect construction project completion in your opinion?

a) Yes <input type="checkbox"/>	b) No <input type="checkbox"/>
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30. If the answer to question (29) above is YES what project cost issues affects construction housing project completion?

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31. Does project planning affect construction project completion?

a) Yes <input type="checkbox"/>	b) No <input type="checkbox"/>
---------------------------------	--------------------------------

32. If the answer to question (31) above is YES what project planning issues affect your construction housing project completion?

i) Pre-planning	<input type="checkbox"/>
ii) Construction planning during implementation	<input type="checkbox"/>
iii) Following project schedule during construction	<input type="checkbox"/>
iv) Other please specify _____	

33. Does supervision/inspection affect construction project completion?

a) Yes <input type="checkbox"/>	b) No <input type="checkbox"/>
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34. If the answer to question (33) above is YES what supervision/inspection issues affect construction projects completion?

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**Part Three:**

For each of the following statements, please indicate your level of agreement, as they apply to your organization's perception on management of BHD projects.

1 – Strongly Disagree	3 – Neutral	5 – Strongly Agree
2 – Disagree	4 – Agree	

No	Perception	Scale				
		SD	D	N	A	SA
35.	There is a lack of technical competence by contractors.					
36.	Problems related to Delivery of housing projects are caused by contractors using unskilled labor.					
37.	Project planning is not properly planned.					
38.	There is a continues scope change within the project implementation time					
39.	There is a lack of communication with project teams.					
40.	Procurement problem is a major problem of delaying the project					
41.	Materials are not easy available in local market					
42.	There is a problem for distributing materials on site					
43.	Housing development project office uses not good monitoring and evaluation mechanism					
44.	Strategic project management best practices are not implemented to improve earliest delivery time.					
45.	A lack of stakeholder involvement in the project hinders timely completing of project.					
46.	There is no a lesson learnt document for complete project					

47. If you have any information related to factor affecting the delivery of housing project in your project area, please write in the given space. \_\_\_\_\_

48. What are the effects of shortage of housing supply? \_\_\_\_\_

APPENDIX B:

Summary Statistics

<b>Variables</b>	<b>Mean</b>	<b>Max</b>	<b>Min</b>	<b>Std. Dev.</b>	<b>Skewness</b>	<b>Kurtosis</b>	<b>Obs</b>
Constr. Contract Duration	3.47	5	1	0.9396	-0.8038	0.3767	115
Project Financing	3.99	5	1	1.0962	-1.3873	1.2511	115
Proj. Managers Competency	2.59	5	1	1.1765	0.5752	-0.6839	115
Project Planning	4.02	5	2	0.8055	-0.9417	0.9046	115
Project Procurement	4.01	5	2	0.8532	-0.7825	0.2205	115
Comm Team Member	2.32	4	1	0.8224	0.4872	-0.2080	115
Comm Project Manager	2.07	4	1	0.7460	1.0339	1.4741	115
Contractor Selection	3.73	5	2	0.8306	-0.4790	-0.2013	115
M and E	4.42	5	3	0.7007	-0.7797	-0.6196	115
Local Ground Location	3.57	5	2	0.8692	-0.1076	-0.6474	115
Scope Change	4.07	5	1	1.0573	-1.5700	2.0336	115
Material Avail	3.62	5	1	1.0051	-0.2722	-0.5690	115
Material Distribution	3.04	5	1	0.9946	0.1816	-0.6114	115
PM Strategies	3.92	5	1	0.9473	-1.3363	1.8671	115
Stakeholder involvement	3.50	5	1	1.0952	-0.4537	-0.6979	115
Lesson	4.22	5	3	0.8142	-0.4157	-1.3595	115

Source: - Own computation and Presentation, 2021

APPENDIX C: Ranking of Factors Using RII

<b>Factors</b>	<b>RII</b>
Supervision/inspection of work(M&E)	0.883
No lesson learnt document for complete project	0.843
Change in the project implementation time	0.814
Project planning	0.803
Project Procurement	0.802
Project financing	0.798
Poor Strategic project management	0.784
Contractor selection	0.746
Unavailability of material in local market	0.723
Local ground conditions	0.715
Lack of stakeholder involvement	0.701
Construction contract duration	0.694
Problem of material distribution	0.609
Project managers competence	0.518
Communication within the project team	0.464
Communication within the project manager and the team members	0.414



