ENGAGEMENT OF MICRO AND SMALL ENTERPRISES IN THE CONSTRUCTION PROCESS OF CONDOMINIUM HOUSING

The case of Basha Wolde Chilot condominium redevelopment project

This thesis is a Master's Thesis submitted to the Graduate Programs Director of the Ethiopian Institute of Architecture, Building Construction and City Development (EiABC), Addis Ababa University, in partial fulfillment of the requirements for the Master of Science Degree in Housing and Sustainable Development.

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EiABC, AAU

June 2023

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June 2023

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Declaration

I declare that this thesis is prepared for the partial fulfillment of the requirements for the degree of Masters of Science in Housing and Sustainable Development entitled. "**ENGAGEMENT OF MICRO AND SMALL ENTERPRISES IN THE CONSTRUCTION PROCESS OF CONDOMINIUM HOUSING: The case of Basha Wolde Chilot condominium redevelopment project.**" is my original research work prepared independently by my effort with the close guidance and supervision of my advisor. I also declare that this thesis has not been presented for a degree in any university and all sources that I used or quoted have been acknowledged using complete references.

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June 2023

Certification

Here, I state that Yohanna Rezene Elias has carried out this research work on the topic entitled "**ENGAGEMENT OF MICRO AND SMALL ENTERPRISES IN THE CONSTRUCTION PROCESS OF CONDOMINIUM HOUSING: The case of Basha Wolde Chilot condominium redevelopment project.**" under my supervision and it is sufficient for submission for defense.

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Abstract

Due to the poor housing conditions of the city, Addis Ababa city has undergone inner city redevelopment; as a result, the government utilized the Integrated Housing Development Program (IHDP) as one of its strategies for redevelopment. The IHDP has had several benefits in improving the physical, social, and economic image of the city and creating job opportunities for micro and small enterprises (MSEs), and other actors involved. Several studies have indicated the existence of quality problems in condominium houses in the IHDP and to solve these quality issues it is vital to understand the construction process undergone. To get a deeper understanding, this study addresses the MSEs which are the largest stakeholders in the IHDP among the actors involved in the construction work by assessing their engagement in the construction of condominium housing using the relation between process and the outcomes. A case study method was conducted to provide an in-depth understanding by taking the Basha Wolde Chilot condominium as a case and both qualitative and quantitative data were used. The findings show that the types of work performed by MSEs during the IHDP process are greater than that of other sectors that participated in the program, accounting for 60% of the total work. The study classified its findings into three categories based on quality issues, time delay, and cost overruns. The insufficient training given to MSEs that lasted seven to ten days caused quality issues, moreover, inadequate supervision and approval of MSEs work created a comfortable structure for MSEs to compromise the quality of the work. In addition, the engagement of unskilled MSEs led the task to being reworked again, and MSEs who left the work contract without any notice led to work delay. Moreover, the improper usage of supplied material and usage of damaged and replaced material with low-standard material during installation created cost overrun. Because of that, the MSEs' work in the condominium resulted in 80% of the respondents doing from simple to entire house modification and replacement. The research recommends selection of MSEs candidates in the IHDP should be based on the qualification of their working sector upon the decision of contractors. Furthermore, professionals who can guide MSEs during construction should be assigned for a better quality of the outcome and future studies could be carried out to assess other stakeholder's engagement in the IHDP.

Keywords: *Micro and small enterprises, housing construction process, integrated housing development program, urban redevelopment.*

Acknowledgment

Thank you, almighty God you never let me down!

This thesis is the output of the joint effort of many people other than the researcher. Hence, I am indebted to thank all of them who join their hands to the realization of the thesis. Most of all I would like to pass my deepest gratitude to my advisor Yonas Alemayehu Soressa for his priceless advice and constructive comments and valuable guidance from the beginning to the finalization of the study. My second appreciation goes to my co-advisor, Biruk Kebede Geletu for his consistent support toward the completion of my thesis.

I am thankful for the people in the administration who helped me with their hospitality and cooperation throughout my journey. I thank Imam Mahmoud Hassen, Yishak Abraham, Solomon Getachew, Nardos Aseged, Shewaye Habte, Jarso Gollisa, Nigus Hailu, and the respondent of Basha Wolde Chilot condominium.

I am deeply grateful to my family for their incredible support and love, and a special thanks to my husband who consistently support and encouraged me to finalize my thesis. Finally, I can't finalize my thesis without the backing of my closest friends throughout my study. I thank you all!

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Abbreviations and Acronyms

AAHDPO	Addis Ababa Housing Development Project Office
MSEs	Micro and Small enterprises
CSA	Central Statistics Agency
GTZ	German Technical Co-operation
IHDP	Integrated Housing Development Program
ADLI	Agricultural Development Led Industrialization
CBE	Commercial Bank of Ethiopia
ILO	International Labor Organization
UN-Habitat	United Nations Human Settlements Program
LDP	Local Development Plan
ORAAMP	Office for the Revision of Addis Ababa Master Plan
TVET	Technical and Vocational Education and Training
EPRDF	Ethiopian People's Revolutionary Democratic Front
MoWUD	Ministry of Works and Urban Development
HCB	Hollow Concrete Block
MoUDH	Ministry of urban development and Housing
KPI	Key performance indicator

Introductory Notes

- Unless they are specified, all pictures, maps, tables, and figures are produced by the author.
- One US dollar is equivalent to 52.25 Ethiopian birr as of July 2022
- Data for this study were collected from May to July 2021
- To protect the privacy of the respondent pictures which can identify individuals are omitted.
- For Ethiopians, first names are given in the citations of the text; while first names followed by the father's name are given in the reference. In the reference, both first and father's names appear in full, for the easy identification of the author.

CHAPTER 1: Introduction

1.1 Background of the study

The rapid urbanization has affected the housing sector in Addis Ababa. This rapidly growing city has been unable to provide adequate housing, particularly for low-income citizens; the increase in population in the cities led to creating an increase in housing needs. According to Larsen et al. (2019) the overall density (built area/people) of Addis Ababa was 109 people per hectare in 2006 and the overall density became 98 people per hectare in 2016; this shows the overall density (built area/people) of the city decreased between 2006 and 2016. Most of those people reside in informal housing that lacks sanitation, access to clean water, and is overcrowded in most cases (Karadimitriou , et al. 2021).

According to the survey done by Delz (2016) over 95% of total housing units in Addis Ababa were showing substantial deficits regarding sanitation, cooking, and personal hygiene facilities. These challenges have affected both peripheral and central areas. Twenty-five percent of units in the suburbs derive from squatting activities (illegally built) and mostly poorly built shelters whereas in the inner city, 60% of the units are identified as dilapidated. In terms of construction quality, over 50% of the housing units are categorized as sub-standard and poor quality (Delz 2016).

Because of the poor city's image, the government created an intervention for redeveloping the inner city. The redevelopment projects include housing development, commercial buildings, office, and infrastructure improvement. The program aimed to tackle problems like unemployment, lack of social and physical amenities, urban sprawl, and congestion (UN-HABITAT 2010).

In designing the program, the government created the national micro and small enterprises (MSEs) development in 1997E.C. under the supervision of the ministry of urban development and construction bureau. Since the beginning of the integrated housing development program (IHDP), it is planned to engage the MSEs in the production of construction materials and building low-cost housing by utilizing low-cost labor (GTZ 2004). The engagement in both material production and construction process gives MSEs a great role in the IHDP Program (World Bank 2009).

1.2 Statement of the problem

According to UN-HABITAT (2007), 80% of Addis Ababa's population resides in slums, in poorly constructed, mostly one-story, overcrowded housing units with little access to basic urban utilities including access roads, clean water, flood control, and garbage collection. These slum areas are concentrated in the inner and older parts of the city which are highly congested. To this date, there have been small redevelopment to improve the conditions (UN-HABITAT 2007).

One of the methods used by the government to improve the conditions is the Integrated Housing Development Program which has been used to re-develop the inner city, improve the housing conditions, and decrease the deficit of housing within the city. The project also aimed to improve the physical, social, and economic image of the city.

The IHDP has created job opportunities for various youth engaged in micro and small enterprises (MSEs) in the construction of housing. A survey done by World Bank (2009) indicated that a greater amount of the tasks in IHDP are done by MSEs in comparison to large contractors and other stakeholders who are involved in the construction work. The scale of the program has played a substantial role in the creation of employment opportunities and income generation for a large proportion of the population.

MSEs are a good option as they absorb more labor force and operate at a lower overhead cost and are considered crucial for enforcing Ethiopia’s construction industry by enhancing the occupational skill capacity building and transfer of technology on the ground. For this purpose, MSEs are integrated into both the material production process and construction process (Delz 2015).

The construction process, majorly characterized by labor work is one of the major sectors of participation of MSEs (ILO 2002). It includes block work or wall construction, electrical installation, sanitary installation, finishing (ceramics, tile laying, painting), and site works. The other part MSEs take part in, the production activity includes pre-cast beam production, hollow block production, metal work, woodwork, tone work, and gravel production works.

Since the IHDP was started, it has been indicated that there were different construction problems in relation to water provision, wastewater disposal, and poor quality of the housings (UN-HABITAT 2010). Yet it has not been described which sector of the IHDP is responsible for the

construction defects and what kinds of the construction process have led to these outcomes of the low-cost condominium housings.

Despite the short period of occupation, these defects in the condominium have resulted in deteriorated building parts leading to maintenance and replacement of parts (UN-HABITAT 2010). As per Delz's (2015) research, physical maintenance of condominium buildings is challenging because the individual ownership model necessitates a group effort for general maintenance. Based on the residents' financial and organizational skills, the criteria for these upkeeps vary from one condominium housing site to another and even within the same neighborhoods, which has led to diverse outcomes where some sites flourish and others deteriorate. This upkeep also comes with economic impacts on the inhabitants of the site, and this effect could be reduced by identifying the source of the failures by studying the construction process. Given that, it is crucial to thoroughly assess the construction procedure used by MSEs because they make up a higher portion of the IHDP.

Even though there have been many studies done on condominium housing, there has been little research on the quality of condominium housing. In response, additional studies should be undertaken on the construction process of condominium housing for further recommendations and implications. Accordingly, this research is conducted to assess the engagement of MSEs in condominium housing and to have an understanding of the construction process by taking specific cases.

1.3 Objective of the study

1.3.1 General objective:

To assess how the construction process undergone by MSEs affected the quality of condominium houses in the Basha Wolde Chilot condominium I.

1.3.2 Specific objectives

1. To understand how MSEs are engaged in the construction process of condominium houses.
2. To identify how the construction process is undergone by MSEs in the Basha Wolde Chilot condominium.

3. To assess how the engagement of MSEs affects the quality of Basha Wolde Chilot Condominium.

1.4 Research questions

1. How are MSEs engaged in the construction of condominium houses?
2. How did MSEs participate in the construction processes of the Basha Wolde Chilot condominium?
3. How did the engagement of MSEs affect the quality of the Basha Wolde Chilot condominium?

1.5 Scope of the research

1.5.1 Thematic Scope

The study was fundamentally concerned with how MSEs are engaged in the construction process of housing within the realm of the redevelopment process in the IHDP program. It focuses on how MSEs are involved in the construction sector and their impact on the outcome of housing projects. The study also discusses the context of the construction process, which includes MSEs tasks with other stakeholders. The study does not include other construction sectors and stakeholders' tasks in the IHDP.

1.5.2 Spatial Scope

The spatial scope was limited to Addis Ababa, Ethiopia; in Arada Sub-city, Wordea 9 and it covers one of the inner-city redeveloped areas called the Basha Wolde Chilot condominium I.

1.6 Significance of the study

The IHDP has constructed 175,000 finished units so far and 132,000 units were under construction in 2019 (Larsen, et al. 2019). Various studies elaborate that the quality of condominium housing in Addis Ababa is low. The condominium houses expected lifespan is 100 years, although local professionals and residents argue that the life span is much less than expected due to the poor construction quality (UN-HABITAT 2010). On a project of such vast coverage, quality improvement plays a crucial role in the growth of the housing program by providing sustainable and repayable living conditions for the residents. Additionally improving the construction process will benefit the government by minimizing construction and maintenance costs.

As MSEs are the largest stakeholders among the actors involved in the construction of the IHDP, studying the engagement of MSEs in the construction process could be a logical approach to see how the construction quality is impacted. This study generally could lead the government to focus on what kind of construction process has been undergone and the impact the process has brought on the condominium housing quality.

The other relevance of this study is that it may open doors for additional research in the same field and others that are related. It provides suggestions to the policymakers, different actors, strategy designers, implementers, and other management bodies to give attention to the problems and find suitable solutions for ongoing quality issues in the construction process. For those academics who are interested, the study will also provide further details regarding the role of micro and small enterprises in the IHDP program.

1.7 Research limitation

The major limitation in conducting this research was allocating data. Construction of the Basha Wolde Chilot condominium I have undergone starting from 2010 - 2015 G.C, but there were issues with the filling out and recording of the overall construction process. The researcher was forced to track down the various actors to find the entire process because the documented files, such as daily activity logs and construction reports, were nowhere to be found. Another limitation of the study was the process of data collection. The Covid 19 pandemic in the country made the process laborious and difficult to freely collect the expected data. Guidelines established by the Ministry of Health were implemented for data collection, but images could not be taken for every household. This was done to safeguard the respondent's health and safety as well as that of the surveyor.

1.8 Organization of the document

Chapter one is the introduction of the study; it covers the problem of the study, the objective of the study, research questions, the scope, limitations, and significance of the study.

Chapter two is a literature review; it discusses the theoretical and conceptual review of the study. The discussion topics are the definition and general overview of housing, redevelopment, MSEs, and construction, the evaluation method of construction, and contextual reviews.

Chapter three is the research methodology; it discusses the study area, the research design, data types, data collection methods, data organization, analysis methods, data validity, and reliability discussed briefly.

Chapter four is the result and discussion; it discusses the result and findings of the research discussed according to the reviewed theories and documents.

Chapter five is the conclusion and recommendation; it discusses the conclusion of the study and recommends a possible implication for MSEs in the construction process of IHDP.

Appendices include the manuscript and the raw data of the study including the questionnaire, survey protocol, questions for key informants, tables, and graphs of the result.

CHAPTER 2: Literature review

2.1 Introduction

The chapter is here to discuss the theoretical and conceptual thematic scope of this study. It briefly explains the definition, types, and other related information of MSEs and construction. It also discusses and reviews the definitions and legal frameworks of the local context.

2.2 Definition of key terms

2.2.1 Urban redevelopment overview

Urban redevelopment is a systematic task performed on planning and building of the social, economic, cultural, and environmental standards of living to preserve, repair, improve, and restructure, or clear built-up areas (Vanclay 2017). In this case, urban redevelopment does not only encompass the classic fields like physical planning, housing policy, and building activities. It depicts an integral background with multi-disciplinary participation.

According to Slachetka (2011), urban redevelopment is defined as a process to rebuild or restore an area in a measurable state of decline, disinvestment, or abandonment. It could be operated publicly or privately but mostly it is organized and governed by the local government sector mainly to transform a specific area into an economically viable and productive part of the community.

2.2.2 Housing and urbanization

The concept of urbanization is a social process that leads to the creation of different cities by becoming urban, moving to urban, and increasing urban areas of population. Urbanization means a change in social, economic, and cultural aspects of society; it is a process of becoming urban, together in the city (Manzoor Hussain and Iram Imitiyaz 2018). This dense population creates a different livelihood with a degree of contact and different social, economic, and spatial complexity. Where the complexity of livelihood is that contemporary urbanized societies have attained such a gigantic size and have received such a substantial degree of the population in its ambit, which has been unknown to human history. Urbanization refers to an increase in the proportion or share of the population residing in urban areas as opposed to rural areas whereas urban growth refers to an increase in the absolute number of people inhabiting urban areas (Davis 1965, Brockerhoff 1999).

2.2.3 Housing

It is entirely reasonable to speak about the market value of houses. It is also entirely reasonable to speak about the human and social value of housing action or housing processes, but it is absurd to mix these sets of terms and their meanings. As a noun, the word housing means both the stock of dwelling units and as a verb, housing means the process by which that stock is created and maintained. As a noun, it describes the physical outcomes or the product; while as a verb it describes the overall activities and interaction held on the physical component (Turner 1976).

As Ruonavaraa (2018) defined; housing could be manufactured, produced and demolished, consumed and experienced, bought and sold which can refer to the physical part of the house. Simultaneously housing can refer to people getting access to different indoor activities.

2.2.4 MSEs in Addis Ababa

Since 1991, the government has tried to support the micro and small enterprises' development strategy and growth in different ways. MoUDH defined MSEs in two ways.

A. The 1997 G.C(2005E.C) Micro and small strategy

The basic definition of MSE was based upon a paid-up capital which was adapted from other countries like South Africa which do not consider the realities on the ground. Most importantly as the years goes this currency was increasing since it was created for MSEs whose paid-up capital is less than or equal to 20,000 ETB. Similarly, an enterprise is considered small when its paid-up capital is less than or equal to 500,000ETB. There are limitations to the 1997(2005E.C) definition in which one of the objectives MSEs in the country is employment creation but the absence of criteria related to employment creation limited the definition. (ii)The paid-up capital definition of MSEs is incompatible with the current foreign exchange and does not take the realities on the ground and despite the usage of small enterprises, high-tech, and consulting enterprises the definition did not include them this led to reconsideration for the current significance of the sector (MoUDH 2016).

B. the Central Agency adapted the definition of MSEs

Based on the type of technology they used and manpower (limited to up to 10 people) focusing on the manufacturing sector and avoided the paid-up capital as a criterion. Large and medium-scale manufacturing enterprises are classified as establishments with more than 10 employees using automated machinery while small enterprises are establishments that engage less than 10 persons using power-driven machinery. The limitation was its focus on the manufacturing sector. It does not consider the other sector and the amount of capital is not classified as a criterion (MoUDH 2016).

B. The revised definition of MSEs

After the above definition, the revised definition was by dividing into the industrial sector and the service sector, and in addition, the legal establishment of MSE was formulated. Micro and small enterprises are enterprises employing up to five persons including the enterprise owners and family members, with total assets of not more than ETB 100,000 (USD 4, 630) at that time.

- Industrial sector (this includes construction, manufacturing, and mining) with a workforce of not more than five people and an asset of 100,000birr.
- Service sector (this includes retail trade, transport, hotel, tourism, and information technology and maintenance services) with a workforce of not more than five people and an asset of not more than 50,000birr.

However, after the division of the two sectors, there is social support from the government for the enterprise that was engaged in manufacturing items for export. Particular attention has been given to subsectors, activities, and enterprises to be established in the manufacturing, construction, trade, services, and agricultural sectors that have a propensity to create large-scale employment (MoUDH 2016).

2.3 Theoretical review

The theoretical approach serves as the structure, support, and ground base for the rationale for the study. There are different theories on the construction process this theory is part of managerial theories and modern management theories that could help to formulate the conceptual framework.

These are the systems theory, contingency, complexity, and institutional theories that are the contemporary theories of management (Desta 2015).

Contingency theory argues that there is no one best method/technique to organize and manage, instead the organizational structures and the control systems should not be chosen that managers choose. It should be liable to the nature of the work to be executed and the features of the external setting in which the organization operates (Lawerence and Lorsch 1967).

The institutional view assumes individuals do not exist independently and do not make a purely rational choice to maximize their benefit rather individuals make choices based on the relationship they have with other actors this led to the institutional view as less rational.

Complexity theory focuses on how the smallest parts in a complex system affect developing behavior and the general outcome at the largest level. An organization accepts that the world is complex and nothing could be certain in approaching a given system or organization, as a result as the system becomes more complex adaptation to the altering environment becomes more difficult (Amagoh 2008).

2.3.1 The systems theory

This study uses systems theory as a theoretical approach and considers an organization as a set of dynamic, interconnected parts. Every part of a system represents a given department, each department has its subsystem, and thus the effective interaction of every subsystem helps to attain the goals of the larger system.

It provides a holistic view to provide a framework for effective interaction of parts of the organization in a specific arrangement focusing on the relations between the parts instead of reducing an entity. For example: if we take the human body where different small parts (organs or cells) are arranged and organized to work together and create a bigger thing. The effectiveness of small cells or organs determines the properties of that system. Just like the human body as a given organization starts to have multiple actors they develop complex subsystems that must coordinate with each other in the process of transforming inputs into outputs. These interdependencies can easily become so complex that a minor event in one subsystem may amplify into serious unintended consequences elsewhere in the organization (Howes 1996).

Similarly, as Michael and Jackson (1992) explain a system is a complex and highly interlinked net of parts presenting synergistic properties in which the whole is greater than the sum of its parts. It

is a collection of interrelated parts working together to achieve some goal that exists in the environment. It examines the system at different levels, inter-relates, and incorporates it into a cohesive set of paths. Starting from individual goals, it focuses on overall organizational goals, synthesizes the two, and converges them into the global economy. As a result, every small element of an organization has a big impact on the success of a given project.

The general interpretation of the system approach is that a given construction has dynamic and interrelated sets of parts. The different actors in the process are part of the subsystem this general interrelation could lead to an output for a given project. As a result, the interrelated parts of the project with different actors within the subsystem have a great impact on creating the bigger system. This approach explains how the effectiveness of the smallest task affects the actual system and that the integration of a given complex system affects the output of an organization.

Bertalaffy (1956) defines a system as a complex of interacting elements that is the main element of systems theory is the interaction between elements and other elements. It is classified into open, closed, and isolated systems theory. In open systems, there are exchanges of energy, matter, people, and information with the external environment. In closed systems, there are no exchanges of information and matter, just exchanges of energy. In an isolated system, there is no exchange of elements.

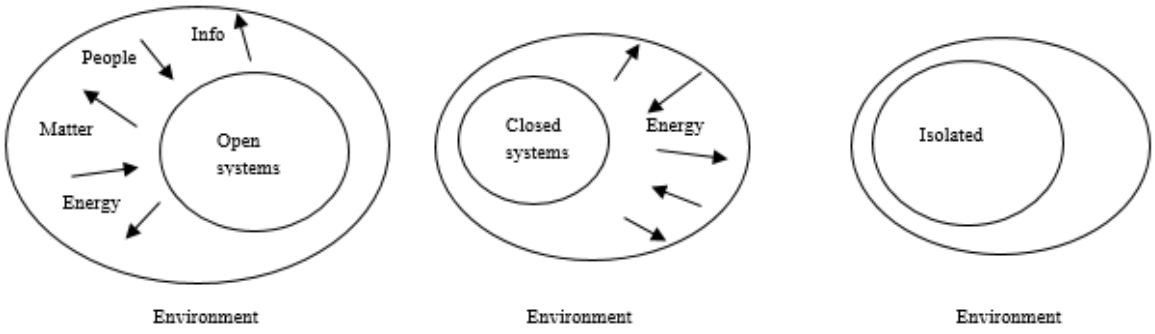

Figure 2-1 Classification of Systems theory

2.3.2 The open systems theory

The open systems theory (OST) explains the relationships between organizations and the environment. It emphasizes organizations' ability to adapt to changes in environmental conditions (with or without the need for information processing). This theory assumes that entities able of

processing information about their specific environment show more adaptation skills to shifts in contextual conditions (Mele, Pels and Polesa 2010). It exchanges different elements where the number of variables included makes it more complex. For instance, quality and cost should be seen as externally driven variables that should be considered along with environmental influences. In regulating a given phenomenon/ error controlling before an error happened is one part of the feedback system. It reflects the outcome of an act or a series by an individual, group, or organization (Jude and Harcourt 2015).

One of the characteristics of the open system model is that complexity is described as three factors. Variety is the possible variance that a phenomenon may present to the observer/indeterminacy is the ability to understand a phenomenon whereas variability is the variety observed over time (Daniel and Robert 1978).

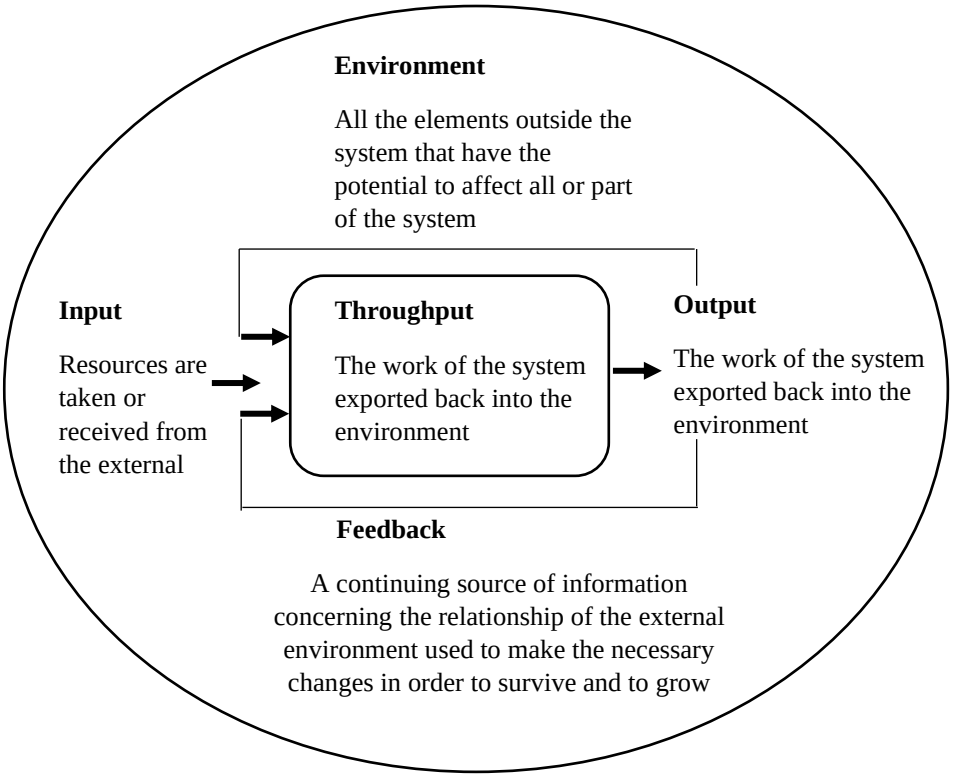

Figure 2-2Open system model (Daniel and Robert 1978)

1. **Energy inputs into the organizations**: Includes tangible resources such as employees, raw materials, and capital. Intangible external influences, such as status, recognition, satisfaction, or other personal rewards.

2. **The transformation of those inputs within the system**: It is a transformation process that involves using energies, or inputs, to create products or services.
3. **Energy outputs**: Products or services
4. **Feedback**: Recycling refers to the fact that outputs are indirectly recycled back into the organization. (Daniel and Robert 1978)

2.3.3 Environment influences

The environment is one of the external factors in a given system it is affected by different conditions. (A), cultural conditions are environmental factors influenced and conditioned by different factors that differ from country to country according to the context. It determines what is right and wrong, good or bad, and significant or trivial in a given system. (B), the economic conditions encompass economic upswings, recessions, regional unemployment, and many other factors that affect an organization's ability to grow and thrive. (C), the political condition of a given environment influences and directly affects the organization permanently by giving a defined legal and political system to operate. Thus, as a result, it can affect the organization's success by burdening it with regulations, taxes, employee rights laws, and other rules. In general, the larger and more powerful the local, regional, or national government, the less attractive will be the general environment to nongovernment organizations. The educational condition of the environment eventually affects the system directly or indirectly, an environment with a high level of education will have a better operation than a lower level of education environment (Daniel and Robert 1978).

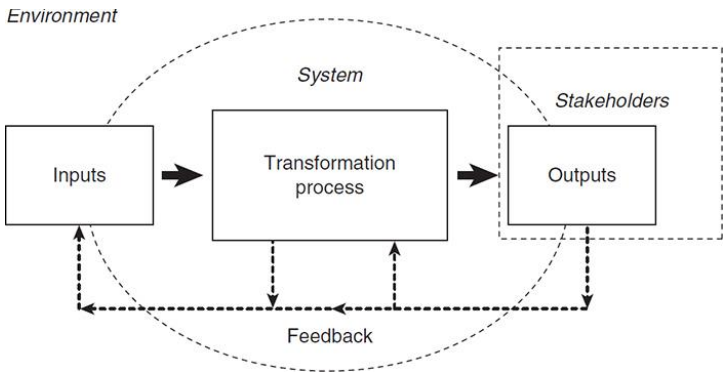

Figure 2-3Organization flow of systems theory (Wagner 1977)

The organization and structure of a given system are essential in affecting the outcome. The concepts of structure and organization become interesting in large systems by considering more

than just one or two possible structures or organizations, the effect can be seen throughout the whole system (Jude and Harcourt 2015). The organization of construction is an open system when there is continual interaction with the broader external environment. Figure 2-3Organization flow of systems theory shows how the systems approach views the organization as a whole. It involves the study of the organization in terms of the relationship between the different variables within the system, explaining whether altering a single variable affects the system directly or indirectly (Thinking 2018).

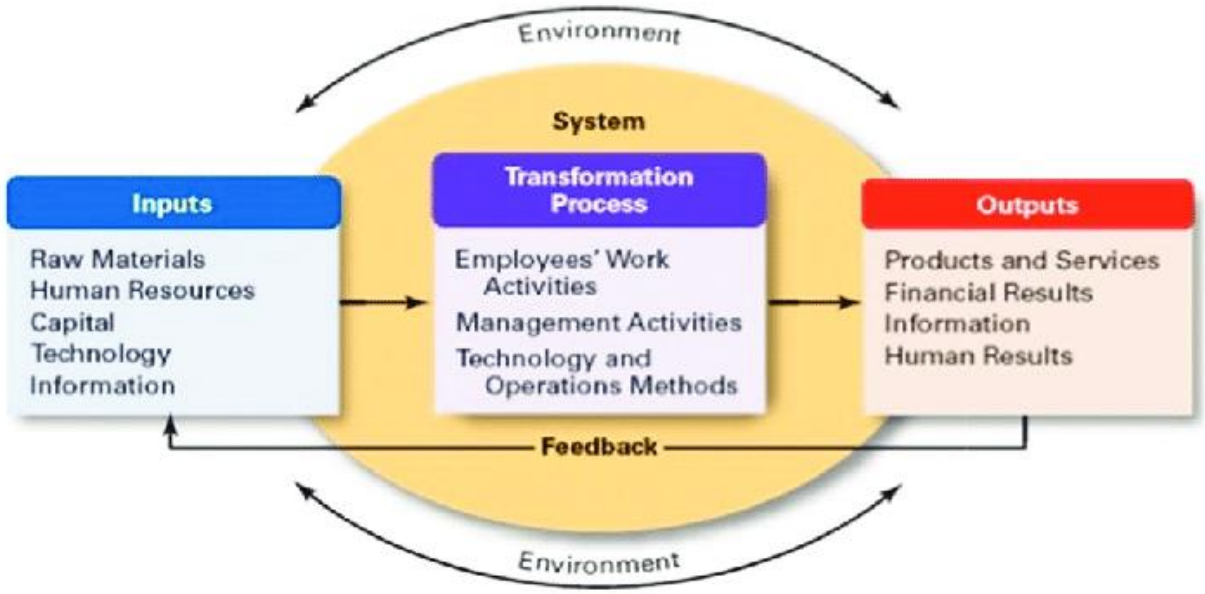

Figure 2-4Input-Transformation-Output Model (Robbins and Coulter M. 2005)

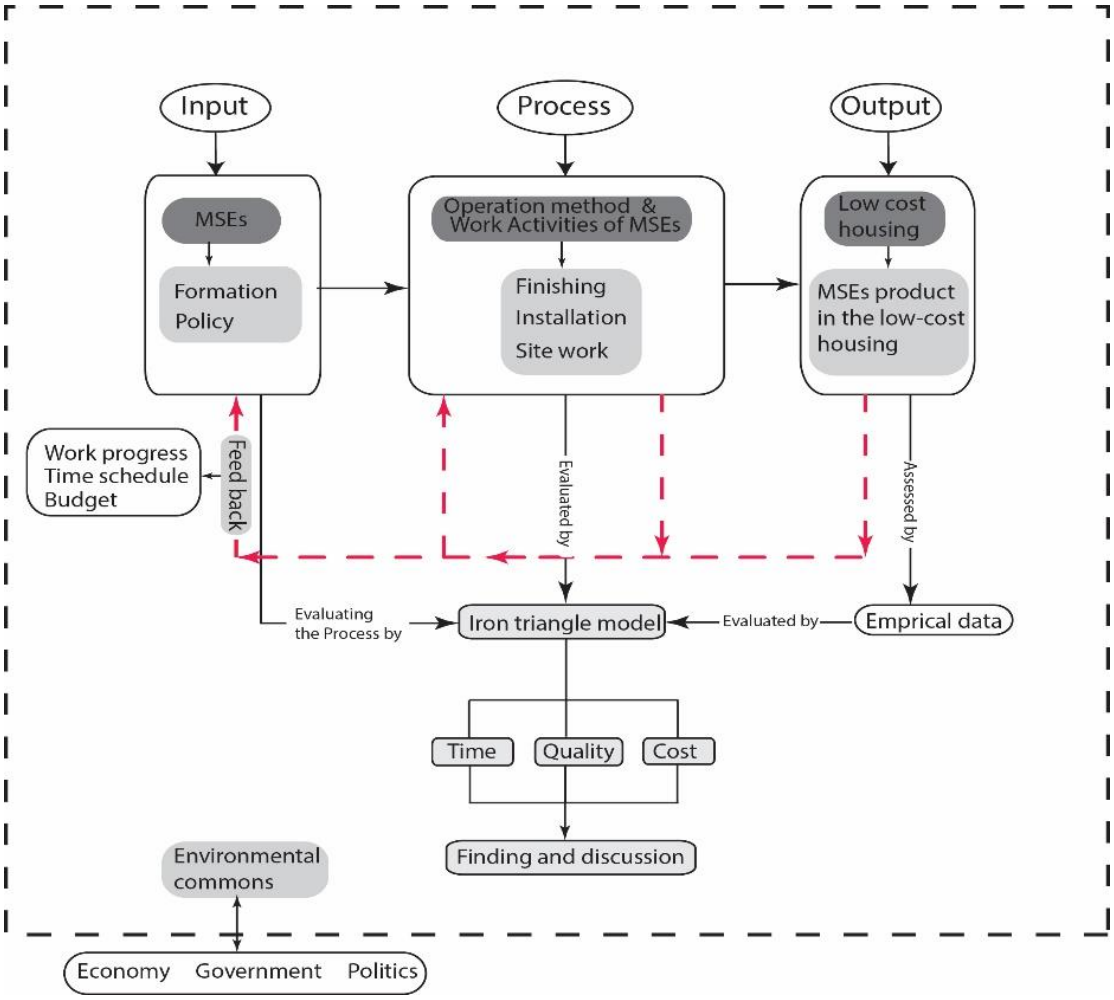

Figure 2-5 Conceptual framework of the study

The conceptual framework illustrates the study based on the theoretical aspect. The given resource defines and relates to the characteristics of the input (MSEs) leading to the formation of policy. This process relates to the work activities and the operational method (Finishing, installation, and site work). This method could be affected directly by the different actors in the process. As a result, the outcome (the low-cost housing) could be affected as well. The above process might be altered or affected by work progress, schedule, and budget. Thus, the outcome forces the given system to change the outlined operation method to progress. All the above components can be affected by environmental elements.

2.4 Conceptual review

2.4.1 MSEs and Construction

According to the World Bank, micro and small enterprises (MSEs) are defined as enterprises with few employees 1–9 but the local definition of MSEs varies from country to country (DESA 2020). The definition of MSE could be defined based on the country's policy, finance number of employees, and other purposes. The shared definition internationally is employing fewer people to support themselves and their families by having a turnover of less than a certain amount and it is called a small business enterprise because it is financed by microcredit (MoUDH 2016). In general, the MSEs internationally use three basic criteria the number of full-time employed persons, the total asset, net asset, paid-up capital, and the total annual sales turnover.

By adding up the above, three basic criteria depending on the country's economy the criteria vary from country to country. Each country defines micro and small enterprise in their economic condition and their current development for instance countries like China, the U.S.A, and South Africa applies different MSE definition for different types of working sectors. Other countries like India and Japan defined it as manufacturing and services while in European Union revise its definition by selecting different country experiences and revising for their productivity (MoUDH 2016).

The basic concept of microenterprise programs is that the unique ideas and skills of entrepreneurs should be appreciated in creating a system for entrepreneurs. It provides business assistance and small amounts of credit to support the development of a small business. This mostly will help people who are minorities, recent immigrants, women, disabled, or other special challenge areas. This led to helping the economy of a country including governmental or non-governmental organizations to focus their services on micro-enterprises (Nasrullah 2012).

As Nasrullah (2012) explains, micro and small enterprises should consist of every possible opportunity to overcome poverty by building and maintaining the smallest possible economic unit in a country. Even though there are many strategies, theories, and policies in different countries. Because of the flexibility of MSEs there is no single successful model which can explain MSEs (Nasrullah 2012).

2.4.2 Characteristics of MSEs in construction

The characteristic of MSE is the unstructured procedures with the informal statement, oral instead of the written document. As Flanagan and Kamal (2014) stated this kind of characteristic is derived because MSE is usually derived from either friends or family. This also makes it so that many MSEs use their profit to reduce their debt instead of expanding their business. MSEs in the construction industry mostly suffer from affordability as a result affording for a specific team to generate their background to act on product development and technologies is rare (Flanagan and Kamal 2014).

The MSEs have a large portion of the construction process the lack of growth in the MSEs center will directly or indirectly impact the economy they exit the market after some time in operation. In addition, these construction MSEs firms are mostly family-owned business with self-styled managerial structures that targets profits predominantly without any mechanism to ensure their growth (Arthur-Aidoo 2015). Construction is dominated by the MSEs, for instance, if we take the EU construction industry 93% of construction enterprises are controlled by MSE. These are highly significant for the growth of Europe while in the UK construction industry constitutes about 21% of the total enterprises which is more than two million employees (Dick and Payne 2005). The main characteristics of MSEs are job creation we took developing countries like Botswana, Kenya, and Zimbabwe and Asian countries have higher job creation than large firms but the durability increases with the firm size. It is also known for labor intensity in boosting employment but also has critics MSEs Work are more locally based and are not experienced.

2.4.3 The Role of MSEs in the construction process

It is estimated that more than 70 percent of the workforce in developing countries operates in the informal economy either through self-employment or from work enterprises that are not legally registered businesses and different informal earning jobs. In regards, it allows the poor, which lack social protection, rights at work, and decent working conditions to uplift their livelihood (Tshikhudo 2016).

According to DESA (2020) the data over the past 30 years the private sector has helped increase job opportunities and contributed to decreasing the poverty line from 52% to 22% that is 4 out of 5 new positions were created by micro, small and medium enterprises which are 90% of total employment. This implies the role of enterprise on every scale (micro, small and medium) is higher

for the creation of employment (DESA 2020). Additionally, it has an important role in a wider ecosystem they are the source of startups, young firms, and the creation of new jobs, innovation, and sustainability. There are about 365-445 million MSEs in emerging markets: 55-70 million are formal micro, and 285-345 million are informal enterprises.

Micro and small enterprises have a key role in manufacturing and construction in developing countries and one of the biggest challenges faced is the financial service. Providing financial services is a key to creating micro and small enterprises for innovation and expanding into new firms and creating a platform for exploration (DESA 2020).

2.4.4 Evaluating the Model of MSEs in the construction process

There are different ways of evaluating the construction process starting from client satisfaction, client changes, business performance, health and safety, and others. The three major indicators affecting the performance of a project are time, quality, and cost which are known as the "iron triangle" (Iyer and Jha 2006). It is a known model which has been used since 1950; it is a fundamental aspect of understanding and measuring a given project. It is used to evaluate whether the project is delivered by the due date, within budget, and to some agreed level of quality performance or scope (Pollack, et al. 2018). It is a model of the constraint of the project by relating the above-stated elements of time, quality, and cost.

As studies indicated the iron triangle is the primary way of project success. The iron triangle framework is mostly used because of its simplicity. It is most visible, as the project gets more complicated as it offers a simple, unambiguous, and reassuring measure of performance. Since the middle of the 1990s, studies on the iron triangle have tended to focus on issues related to project complexity and uncertainty. This is in response to calls to regard projects as complex social systems and look at how people experience projects (Pollack, et al. 2018).

2.4.4.1 Cost, time, and quality

The cost of managing and serving through the development of the process is an inevitable requirement for an effective and efficient implementation process starting from the project inception to implementation and delivery. Controlling the cost in the process is the heart of management. It depends on several variables including resources, work packages such as labor rates, and mitigating or controlling influencing factors that create cost alterations. To control these variables for cost alteration there are different tools used risk management, cost contingency, cost

escalation, and indirect costs. Most approaches to the project process do not consider the labor work skill and productivity this gap in the process leads the project to off-putting costs i.e. hire contract employees or outsourcing work (Pollack, et al. 2018). If the cost managing process is poor, the third party (Client) will cost the poor outcome or implementation.

In the case of the construction process, time and cost are factors affecting the implementation process. As Flanagan and Tate (1997) explained in their book four main elements make the cost and time more difficult to control. (I) The on-time delivery project (ii) increasing the organization involved in the construction process starting from the client, (iii) stakeholders to the different employees (iv) updating of design, materials, and technique (iv) complexity of the client requirement.

Only 16 percent of the world's construction projects are successfully implemented in terms of time and cost. This suggests that time and money play a significant role in the construction process. There are major factors that affect the time and cost of the construction process. One of the first stages is the design and documentation stage, which is due to different ideas and updating of the design. It inhibits the success of the construction process which is commonly practiced in the process of construction. The other factor that significantly affects process duration is the time lag in cash flow. It affects various organizational levels, which is a primary impact by project management and contract administration (Memon, et al. 2012).

Quality in construction includes ensuring the project undergoes all the processes to satisfy the needs for which is undertaken (Project Management Institute 2000). Quality identifies in different three ways, quality planning means identifying which quality standards are relevant to the project. Quality assurance means evaluating how the project is performing on the given quality. Quality control means monitoring how it has been performing after evaluating then the project might be eliminated if it is not on a given standard.

Even though these are the way to control and approve quality the way of determining a given project as poor or great is by using the international standardization method of quality assurance. To qualify a given project such as the ISO 9000 and 10000 series of standards (Project Management Institute 2000). The quality status of a given project has a given principle of quality management and evaluation some of these are: leadership, commitment, total customer

satisfaction, continuous improvement, total involvement, training, ownership, recognition, error prevention, cooperation, and teamwork.

In construction projects, quality of work is associated with different conditions starting from the specification of materials to construct the project. The first one is by measuring and testing construction materials forming the element of the work product in situ or the materials laboratory against a standard measure or specification these materials must fulfill the prescribed characteristic in the contract documents for them to be incorporated into the construction process (Project Management Institute 2000).

As Chileshe and Watson (2004) explained their successful way to lead total quality management in the construction process is by developing a detailed implementation strategy is one of the keys to a quality outcome. Implementation of a project should be designed with attention to prevention rather than corrective actions. The assigned quantifying person should understand the philosophy and necessities of total quality management to create and implement a quality-focused project. There should be a shared vision which is essential for all employees of the organization in considering different strategies. Such as creating awareness sessions on what should be considered for a good quality outcome, customer surveys, and providing different workshops which support the vision (Chileshe and Watson 2004).

2.4.4.2 The Time and Cost overrun and control in the construction process

Time overrun is the difference between the actual completion time and the estimated completion time. It is also defined as an extension of time beyond the contractual time agreed upon during the tender (Amusan, Dolapo and Joshua 2017). Applying proper control cost and time overrun is one of the problems challenging the construction industry. In some cases, factors can arise from the nature of the project and various other sources. Rising material prices and wages, and shortages of building materials (mainly when materials are imported). Delayed construction and poor estimates, organizations struggling to pay monthly, poor contract management, and material procurement prices can be reasons for overtime.

Sometimes the factors could be from the nature of the project or other different sources such as an increase in material prices and salaries, or scarce construction material (especially if the materials are imported). Construction delay and deficiency in cost estimates monthly payment difficulties

from the organization, poor contract management, materials procurement, and escalation of material prices could be the reason for time cost overruns (Amusan, Dolapo and Joshua 2017).

Time and cost are usually dependent factors when time overruns caused cost will follow that is as the duration of a project is extended different factors will be affected such as the price of materials will increase which consequently leads to additional costs (Memon, et al. 2012). This is not only to the project owner but also to the contractor and to the consultant, which has been participating in that project until the finishing point.

The cost overruns have a major effect on the construction process for the client; it implies added costs over and above those initially agreed upon at the onset, resulting in fewer returns on investment. While for contractors, it denotes loss of profit for non-completion and slander that could affect the chances of winning further jobs. Generally, cost overrun could get a project in rejection and a drop in construction activities, a bad reputation, and failure to secure project finance or securing it at higher costs due to added risks, indolent labor, and equipment (Amusan, Dolapo and Joshua 2017).

2.4.4.3 Post occupancy evaluation in construction

The post-occupancy evaluation (POE) is the authority term for the process of obtaining feedback on the performance of a recently completed new building or refurbishment. Over time the value of POE has been recognized not only as a one-off evaluation of a recently completed project but as an ongoing assessment process for any building in use that should be conducted at fixed intervals over the building's life cycle.

Post occupancy evaluation can be used to evaluate to determine a constructed house: (i) if the project is delivered according to time, cost, and quality. (ii) If the project is fully completed according to the design and contract. (iii) If the project has a potential for further improvement, (iv) what lessons can be learned for future projects?

The process of post-occupancy evaluation can be visualized as part of the building lifecycle, where information learned from an operational project can be used to inform decisions at all stages. Post-occupancy evaluation can be particularly valuable to repeat developers and may be a requirement of some funding bodies. It may be carried out by a consultant, independent client advisers, individuals, or an in-house team established by the client. It may also be part of a wider aftercare service such as that outlined by the soft-landings framework (Hadjri Karim and Carl 2009).

However, post-occupancy evaluation is likely to take place after the main construction contract has been completed. Ideally, the client should commit to carrying out a post-occupancy evaluation at the beginning of the project. Appointment agreements and briefing documents include requirements to test whether objectives were achieved according to time, quality, and cost. If not occupants should participate to evaluate the construction through a post-project review to evaluate the project delivery process and an assessment of performance in use (Brioso, et al. 2017).

A post-project review is undertaken to evaluate the effectiveness and efficiency of the project delivery process. To undertake a post-project review, it is important to seek the views of contractors, designers, suppliers, and the client about how well the project was managed. This may include assessments of how well the delivery of the project performed against key performance indicators. Such as the quality of briefing documents, the effectiveness of communications, the performance of the project team, and quality issues. Health and safety issues. Certification, variations, claims and disputes, and collaborative practices. An evaluation can then be made of what lessons could be learned from the approach taken and an assessment and lessons-learned report prepared.

2.4.5 Construction quality assessment in labor work

There is a different ways of assessing a given construction but mainly have five methods statistical methods, visual methods, feedback/ questioning methods, use of records, and automated methods.

2.4.5.1 Visual Method

The visual method depends on physical observation (inspection) of labor work to review and judge the ongoing work (precision of work), and quality of material. This method is cheaper and faster, it is more common in construction than the other two methods. The method can be used to assess materials, processes, and outcomes. Even though these assessments are highly subjective evaluation and judgment are made based on the assessor's competence, experiences, taste, view distance, view duration, view activities, and personal preferences. They can be more workable by specifying and detailing items that should be rated and procedures for developing estimates (Shawn and Michael 2012).

2.4.5.2 Statistical method

It is more accurate than any other quality assessment this method is used to analyze data. Nevertheless, it requires more time, money, and technical skills to implement majorly work sampling. It is a statistical technique widely used to measure performance.

The technique brings about assessing the amount of productive, non-productive, and supportive time that laborers spent in the workstation. This observation was undertaken at the site randomly without noticing the workers that they have anticipated. This method generally helps to see the major impacts on labor productivity despite the needing for time and cost of the assessment.

It is mostly used and applied in the Indian construction industry to measure labor performance. There are also some countries in Africa like Zimbabwe which use a statistical technique for measuring labor performance. A country like Japan does not use the statistical method because of the absence of inventory personal data for assessing and recording personal data (Okoye, Okolie and Agu 2019).

2.4.5.3 Questioning/ Feedback methods

This method is assessing the quality of the construction by questioning and interviewing the different stakeholders and key informants to provide their views on the quality of the construction. The excellent known standard for the quality of building and construction is the construction owners association of America (COAA) questionnaire and the building quality assessment (BQA). Even though questionnaires are preferred to collect a large amount of data in a short time but also interviewing could give a different view and more information and clarification of the issue (Okoye, Okolie and Agu 2019). Questioning/feedback methods and visual methods are easier and more applicable for assessing quality. A distortion of data or respondents may not provide an accurate answer because of different reasons, either one-sided memory by overstating or understating because of the complex structure of the labor working system in construction.

2.4.5.4 Use of records

Using different records and documenting is also another type of assessment, documents such as daily activity logs, project reports, daily construction reports, track project logs, general work scheduling, and flow of the project (Hojjat and Sina 2014). These records and documents mainly help in providing data-based information based on quality performance. Even though it is a more

accurate way of assessment than another way of acquiring information the use of records could be time-consuming and bulky for assessing a given construction (Okoye, Okolie and Agu 2019). The accuracy of the use record method is better but it is hard to accept all the secondary data as an accurate assessing technique.

2.5.3.5 Automated methods

This method used automatic computerized techniques to assess collect and analyze quality data. This includes the use of SD laser, sensors, thermal imaging analysis, mobile robots, and infrared thermographs are some of the computerized techniques used for analysis and quality assessment. For example, cracks in walls and floors, the structural flow of a given building, and the different surfaces of the materials determine the quality of the material. Even though this method is précised of all quality assessment methods for the workmanship of labor work but it is also the most expensive technique that is used for large construction (Okoye, Okolie and Agu 2019).

Box 2-1 Malaysia case

Malaysia Case

Malaysia is one of the developing countries in the world. The 2012 data suggest that despite the global economic crisis Malaysia has been growing at a pace of 5.1% and one of the major sectors playing this role is the construction sector by creating different job opportunities and socio-economic development. The employment generation of the construction industry in Malaysia has been approximately 1.2 million. These construction industries consist of different types of the field on different scales such as the manufacturing, engineering, contractors, architects, clients, surveyors, suppliers, labor workers, and the private sector (Tshikhudo 2016). Small and medium enterprises contribute 31% of the nation's GDP and share 56% of the total employment control the 99% of the Malaysian construction sector.

Box 2-2 Ghana case

Ghana

It is a country found at the western end of Africa continent even though the construction industry is a vibrant sector the growth of the sector is not different from other developing countries. Two major bodies control and oversee the construction industry of the country. The housing construction is controlled ministry of works, water resources, and housing while the other infrastructures such as roads and transport are controlled by the ministry of roads and transport. The MSEs apply to realize that the two major sectors of the construction industry but the specific products on the project. It has a huge contribution to the economic growth of 70% GDP and provide job opportunities. MSEs are defined in Ghana as any enterprises that employ less than 10 employees and with a fixed asset 100,000$. It has a great representation of the construction by taking over the 90% of the construction in Ghana but still different factors affect the MSEs. i.e. low managerial skill, inadequate infrastructure, low technology level, inadequate institutional framework, financing, and access to the credit facility, lack of construction professionals (Asare 2014).

Different organizations still tried to support the enterprises by providing training and skill-based development programs and different policies. Even though there are different policies and sectors, which supports innovation technology and different skill training the credit limit in providing the raw material led for poor quality construction (Muhammad, et al. 2010). Despite the support for innovation and technology, there is a basic challenge like many other African countries such as lack of electricity, internet connection, and other platforms to connect with developed countries' technologies and management issues that are most owners have little or no knowledge.

2.5 Contextual review

Addis Ababa is a central city of Ethiopia located at 902’N latitude and 3845’E longitude. Its average altitude is 2,400 meters above sea level with the highest elevations at Entoto hill to the north reaching 3,200 meters. It occupies a total of 540 sq. km land area surrounded by a mountainous landscape. It has 10 sub-cities called life teams and 116 Woredas, which are the lowest administrative units of the city (UN-HABITAT 2008). Emperor Menelik II (1844–1913) establishes it in 1886 with a consolidation of new territories and settlements centering on the palace keeping it at a strategic high altitude and loyalties down to the terrain in hierarchical positions.

2.5.1 Overview of redevelopment and resettlement in Addis Ababa

Figure 2-6 Photograph of Addis Ababa in 1897, showing the scattered distribution of houses (Fasil and Denis Gerard 2007, P. 55)

During the first half of the twentieth century, few individuals controlled land and housing which were less than 1% of the population by owning more than 70% of their land. There were no clear approaches to land and housing provision therefore this led to an informal and unauthorized settlement in the city (UN-HABITAT 2010). This resulted in the building of unplanned houses and most of them were without any permit. This led to a quarter of the housing units having municipal permits though this somehow helped the reduction of the housing shortage (UN-HABITAT 2007). However, during the five years stay of Italian occupations, there was a different attempt at structuring the settlement in the different inner cities currently known as Arada, Kazanchis, Mercato, and Addis Ketema (Soressa and Hassen 2018). Meanwhile, in 1974 the government started to own land and extra houses for the fair distribution of wealth throughout the country this led to the introduction of the kebele house which was a rental accommodation. Even though the housing supply was controlled by the centralized government but it was radically insufficient to meet the large demand (UN-HABITAT 2010). This led to the formation of squatter settlements. Despite the failure of the housing policy, different strategies were provided in the provision of housing (UN-HABITAT 2007).

Even though the 1991 administration advocated different private sector involvement in housing provision, unfortunately, they failed in delivering affordable housing to the low-income population in which the private sector-main clients were upper, middle, and diaspora members (UN-HABITAT 2010). In the early 1990s, there were different resettlement processes because of different infrastructure redevelopments: roads, and buildings such as the Sheraton hotel (1993-1998), and the Dembel building complex (1998-2002).

Besides the above resettlement, process there was not any major urban development. Starting from 2004 G.C. major changes were brought to the city by giving attention to urban development which led to the reform of the first urban development policy, and legal frameworks, and the establishment of urban development offices (Soressa and Hassen 2018). All of this is directed to massive urban renewal and urban development in the city. This led to the involvement of the government in the low-cost housing provision by providing different subsidy systems.

2.5.2 Integrated housing and development program (IHDP)

The program was launched in 2005 to solve the shortage of housing problems in the country. The market's inability to provide affordable homes was a major factor in the program's development. The IHDP vision is to improve the living standard of Addis Ababa residents targeting creating 192,500 houses, 80000 job opportunities, and 1000 new MSEs for the program, and supporting more than 1300 MSEs. A housing development project office (HDPO) manages the overall program, starting from preparing the property and ensuring the availability of infrastructure facilities to carrying out design work, purchasing, and allocating key construction inputs. Additionally, it aids in the coordination and oversight of project activity as well as human resource management, and financial management (Ministry of Urban Development and Housing 2013).

The launching of the program to upgrade the slum and inner parts of the city in 2004/2005 was one of the contributing elements to reducing slums. This massive urban renewal program aimed to upgrade the inner part of the city by building condominium housing projects. Accordingly, the MoUDH developed strategies for reducing urban unemployment by developing TVET programs linked to the provision of shelter and basic services that will create sustainable jobs. Designing and implementing community-based and labor-intensive urban works programs in expanding micro-finance institutions majorly focused on the needs of the urban poor by supporting these enterprises for their sustainability (MoFED 2006).

2.5.2.1 Design, construction, and introduction of low-cost technology in the IHDP

Different parties contributed to the construction of low-cost housing, ranging from the ministry to the local laborers, who helped with skill development, employment, and income generation. The laborers were trained at the beginning and introduced to the new technology, and they typically numbered between 100 and 200 (GTZ 2005). A general method of IHDP construction is in which the ministry of construction acquires and distributes building supplies reinforcing bars, sanitary equipment, electrical equipment, cement, etc. at a central location. The Consultant oversees and controls the quality of the products, which may need employing new contractors

The condominium blocks range in density from G+4 to G+7 and are made of a reinforced concrete frame which is a combination of in-situ and pre-cast, masonry infill walls, plastered on the inside and outside, and screed concrete on the floors to reduce construction costs. In the redeveloped condominiums, the metal window and doorframes were replaced with plastic, but both were employed in the glazing and installation systems. Some units had a metal staircase, while others had a concrete one. In particular, the proportions of the hollow brick are maintained and not reduced in size. A prefabricated wall was there to put over the windows.

The low-cost housing technologies have used different techniques to reduce costs, which resulted in a construction cost of 500-800 ETB per square meter, a 40% average reduction of building costs in Ethiopia at that time (GTZ 2005). Introducing different new technology like the new hollow block size which is easier to handle for construction that could be placed up with the closed bottom facing upwards for the reduction of loss of mortar and to increase the bond between them. The U-shaped block which is the same size as the HCB, is used for the prefabrication of lintels the no formwork requirement in placing reinforcement for the columns inside of the hollow blocks or U-shaped blocks. For any type of soil, a combined strip and slab foundation is used. To adapt their designs for environmental considerations, such as "no wooden formworks" and the use of local materials, they also developed a modular architectural system. This system was free for major maintenance and repair work for 10 years (GTZ 2005).

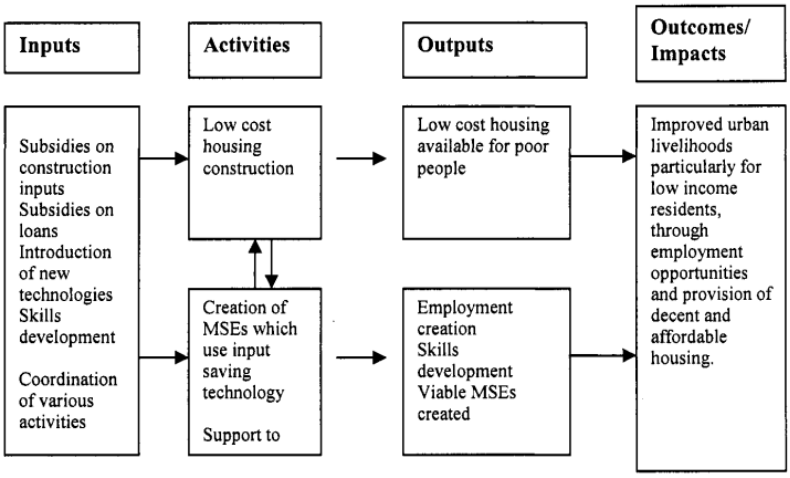

Figure 2-7 Representation rational for IHDP; Source (World Bank 2009, P. 3)

2.5.2.2 IHDP Policy and Legal frame work

As a first intervention of the integrated housing and development program in the country legalization is the first way of executing the program. For instance, the proclamation (FDRE 2002) states that specifies that land is provided free of lease charge for the low-cost housing program. Urban land has been transferred by lease for a fair price with a principle of a free market for the economic development of the country. The land is provided free of lease charge for the low-cost housing program.

The introduction of the condominium proclamation (FDRE 2003) identifies the federal condominium proclamation which pertains to condominium housing. It defines a condominium as *"*a building for residential or another purpose with five or more separately owned units and common elements in a high rise or a row of houses and includes the landholding of the building*"*.

The proclamation outlines the registration, certification, ownership, unit owners' association, sale, lease of a unit, common expense, surplus, amalgamation, and association briefly outlined. It helps to improve the supply of residential land by instituting alternative modalities to plot-based allocation. This helps to narrow the imbalance between the demand for any supply of housing and encouraging vertical development and maintaining the aesthetic quality of urban areas. Specifically on regulation, no. 15/2004 to enforce the proclamation (FDRE 2003) outlines the establishment of the AAHDPO. Its duties and responsibilities of the office in land acquisition for housing and infrastructural provision in collaboration with concerned bodies. The entire

process from the planning and construction process to delivering finished houses is the responsibility of AAHDPO, and enhancing MSEs is another crucial responsibility.
Regarding the guiding principle and strategies, the MOUDH created guidelines for the program for the country's unsettled fundamental problems in the shortage of housing. This led the government to provide different low-cost housing strategies to tackle the housing problem.

The program should consist of low-cost principles for building, land usage, infrastructure, and the utilization of alternative construction materials by contributing to creating a great city image (Ministry of Urban Development and Housing 2013). It is based on the interest and capacity of the people, the region, and other related organizations which makes the program fairly creating job opportunities, entrepreneurial, appreciation of the saving culture, and supporting credit and financing service system. The program should have a mixed-use permit by combining both residential and commercial units in considering social mix design.

2.5.2.3 MSEs Policy and Institutional frame work

Regarding the establishment of MSEs, the proclamation (FDRE 2016) outlines the council of ministers in providing the establishment of small and medium manufacturing industries. It helps in accelerating the expansion to lay a broad base for the development of the large-scale industry. This framework was established to maintain an equitable distribution of wealth and accelerate the transformation of the agriculture economy to an industrial-led economy (Ministry of Urban Development and Housing 2013). For MSEs to be eligible for the support they should have legal status and the modalities of MSEs are based on the choice of the individuals, the trade law, and cooperative associations. Information gathered on national MSEs shall be compatible with the sector’s definition.

The system is put in place by the Central Statistical Agency and trade license grids. Enterprises intending to participate in the specified sectors are governed by the national trade and registration sectorial organization procedures in practice when applying for a trade license to be registered. To establish a strong implementation of the above strategies executing sector should develop continuous attitude change, knowledge, and skill improvement training. This helps to develop plans to prepare and implement the support frameworks included in the strategy, to grasp knowledge and skills based on best practices of other countries. To this end, a capacity-building program was designed and implemented (FDRE 2013). The main executive bodies of the MSE

development strategy are (I) MSE development agencies (ii) Microcredit and saving institutions (iii) TVET institutes (IV) leadership at different levels. The executive bodies organized where policies and strategies were established to benefit the young unemployed people.

I. The MSEs Policy and Rationales

The development of micro and small enterprises will save capital in a short period and ensure rapid development for the benefit of the people at the highest level. Playing an important role in alleviating the unemployment problem in our country and creating future industries, creating a broad-based development investor, and building a political economy in cities. Therefore, the government will give priority to the development of these enterprises in the field of industry and urban development. Young people graduating from universities and TVET training institutions will be engaged in the sector by developing the skills and entrepreneurial attitudes of the youth. TVET shall provide industrial extension services to ensure human resource development and technological development following the direction set by the industrial development strategy. The sector will grow in support of agriculture, and medium and large-scale industries (Ministry of Urban Development and Housing 2013).

II. Institutional support for MSEs

A. Support at the start-up level

The start-up stage includes citizens who are interested in setting up MSEs. Those who have completed their education at various levels are organized into associations, individuals in their own right, and borrowed from various financial institutions. The start-up stage is where the enterprise takes a legal position to start production and service by creating initial capital. Encouraging those interested in setting up MSEs to have their savings first and implement their savings. Prioritize loans for young people graduating from TVET institutions and universities (Ministry of Urban Development and Housing 2013).

Legalizing the establishment of MSEs at the founding level to obtain legal taxpayer identification that encourages MSEs to operate legal business licenses and registrations. As a skill to improve the enterprises by enabling them to have basic business management / entrepreneurial skills /provide basic accounting training / develop accounting manuals / provide skills and technical training to start and increase their productivity and product quality.

B. Support at growth

A growth level is when an enterprise is competitive in price, quality, and productivity with the support of an enterprise and its profitability continues to be guaranteed. At this stage, there will be an increase in the workforce and total resources of an enterprise without the level of employment. In addition, the enterprise may have started using an accounting system. Supporting by facilitating a series of lending to small and micro enterprises to be competitive in the market.

Encouraging the enterprises to make good use of their loans and have a good credit history. Strengthening skills and technology support by the expansion of manufacturing and marketing centers. Facilitating workplaces based on the working characteristics of the enterprises using ensuring that enterprises pay reasonable service rent for the facilities. Support the enterprises to operate within the framework of the legal business system to facilitate the enterprises to start paying taxes on time (FDRE 2013).

2.1 Summary of literature review

As the concept of urbanization means changing the social, economic, and cultural aspects of society. It is also a process of becoming urban, together in the city. The complexity of urban redevelopment does not only encompass the classic fields like physical planning, housing policy, and building activities. It depicts an integral background with multi-disciplinary participation. Micro and small enterprises are one of the major inputs in the field of construction.

The MSEs have a large portion of the construction process, and the lack of growth in the MSEs center will directly or indirectly affect the economy (Arthur-Aidoo 2015). Construction is dominated by the MSEs, for instance, if we take the EU construction industry 93% of construction enterprises are controlled by MSEs which are highly significant for the growth of Europe. Whereas the UK construction industry constitutes about 21% of the total enterprises and more than two million people employees (Dick and Payne 2005). The main characteristics of MSEs are job creation we take developing countries like Botswana, Kenya, Zimbabwe, and Asian countries have higher job creation than large firms but the durability increases with the firm size. It is known for labor intensity in boosting employment but in contradiction, it is criticized, as it is more locally based and is not experienced.

As the system or organization of the construction process complexity, it seeks the right way of evaluating a given project. Evaluating the performance of a project that is if the project is delivered by the due date, within budget, and to some agreed level of quality performance or scope (Pollack, et al. 2018). It is a model of the constraint of the project by relating the above-stated elements to the time, quality, and cost (Memon, et al. 2012). Even though these are the way of evaluation, they came along with their specific evaluation in the construction world. The construction projects the quality of work is associated with different conditions starting from the specification of materials to construct the project (Amusan, Dolapo and Joshua 2017). Time and cost vary from one place to the other sometimes the factors could be from the nature of the project or other different sources. Such as an increase in material prices and salaries, scarce construction materials, construction delay and deficiency in cost estimates and poor contract management could be the reason for time and cost overruns. The other aspect of evaluation is the post-occupancy obtaining feedback on the performance of a recently completed new building or refurbishment. (Hadjri Karim and Carl 2009). It may be carried out by a consultant, independent client advisers, individuals, or an in-house team established by the client. If not occupant should participate to evaluate the construction through a post-project review to evaluate the project delivery process and an assessment of performance in use. A post-project review is undertaken to evaluate the effectiveness and efficiency of the project delivery process (Amusan, Dolapo and Joshua 2017). To undertake a post-project review, it is important to seek the views of contractors, designers, suppliers, and the client about how well the project was managed. This may include assessments of how well the delivery of the project performed against key performance indicators of the construction process (Brioso, et al. 2017).

As finding and assessing are part of the evaluating process the quality of a given project can be assessed and evaluated through different methods and techniques (Okoye, Okolie and Agu 2019). Starting from visualizing, questioning, and feedback, using different records, and using the automatic computerized technique to assess, collect and analyze construction quality (Shawn and Michael 2012).

From the modern management theories, the systems theory explains the right framework for the study by providing a holistic view. Within a systems theory, the open system is one of the elements of systems theory. It has an exchange of energy, matter, people, and information with the external

environment. It explains the relationships between the organizations and the environment emphasizing the organization's ability to adapt to changes in environmental conditions (with or without the need for information processing). It also relates and explains it with different environmental (external) factors such as economic, social, cultural, and political factors (Mele, Pels and Polesa 2010).

The organization and structure of a given system are essential in influencing results. The organizational/structural effects of construction can be seen throughout the system as an open system with continuous interaction with the wider external environment (Jude and Harcourt 2015). This includes examining the organization in terms of the relationships between the various variables in the system and explaining whether changing a single variable has a direct or indirect effect on the system.

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CHAPTER 3: Research Methodology

3.1 Introduction

This chapter briefly describes how the research was conducted. It encompasses the entire approach used to conduct the research. Describe the study area, research design, data types, source of data, sampling design, method of data collection, method of data analysis, validity, reliability, and research ethics.

3.2 Study area

3.2.1 Description of the case

The study area is located at the Arada Sub-City, known as Basha Wolde Chilot condominium I site which is one of the inner-city areas that have been redeveloped. It was the latest redevelopment area after the Lideta project and was started in 2015. The chosen site helps to compare the linkage between how the MSEs in condominium housing started and how it is going by studying the process and the impact of MSEs.

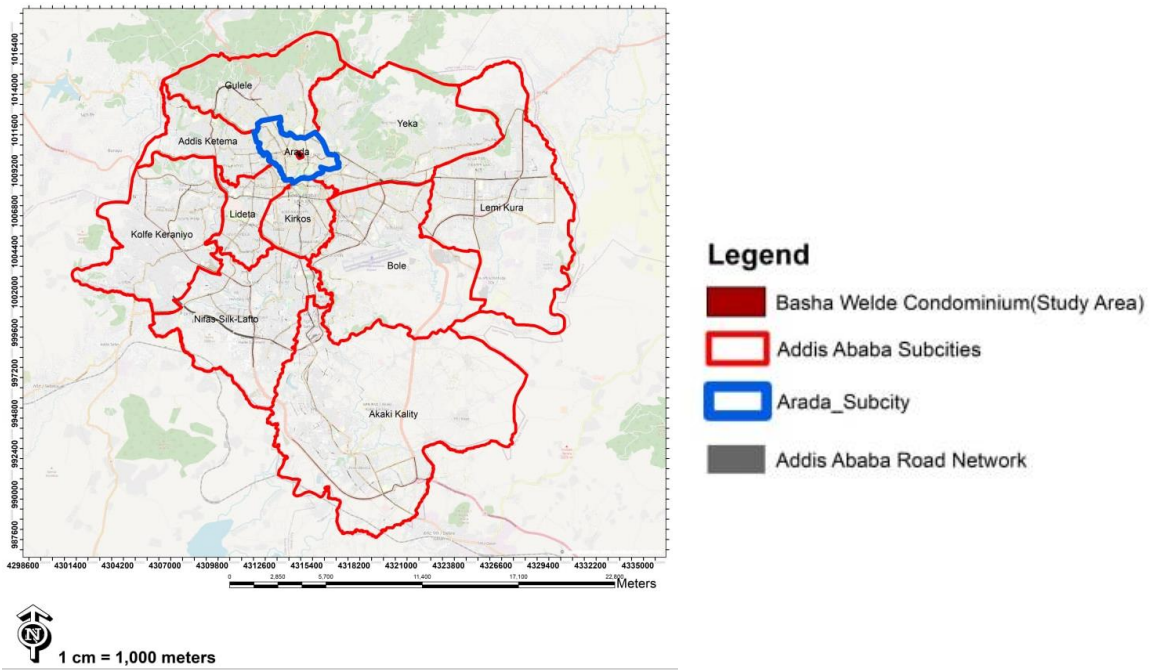

Figure 3-1 Location map of Arada Sub-City in Addis Ababa (Source Open Street Map-Esri Gis (2021)

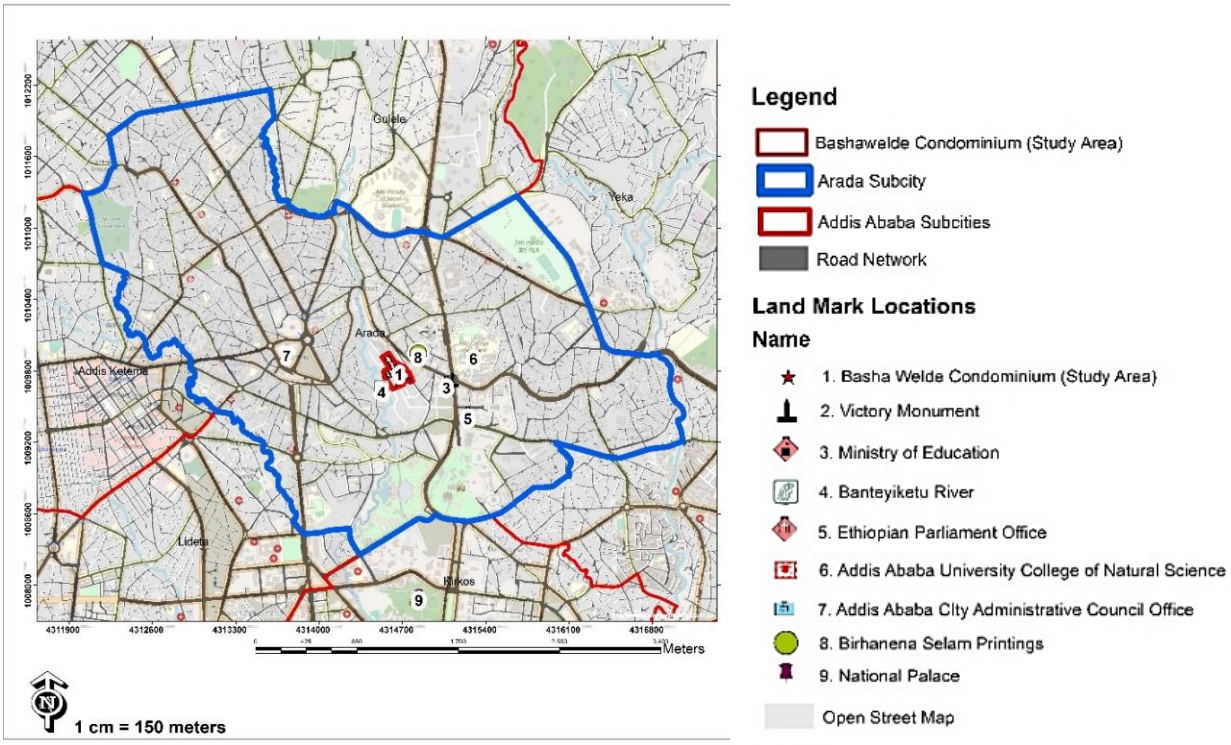

Figure 3-2 Arada Sub-City (Source Open Street Map-Esri Gis (2021)

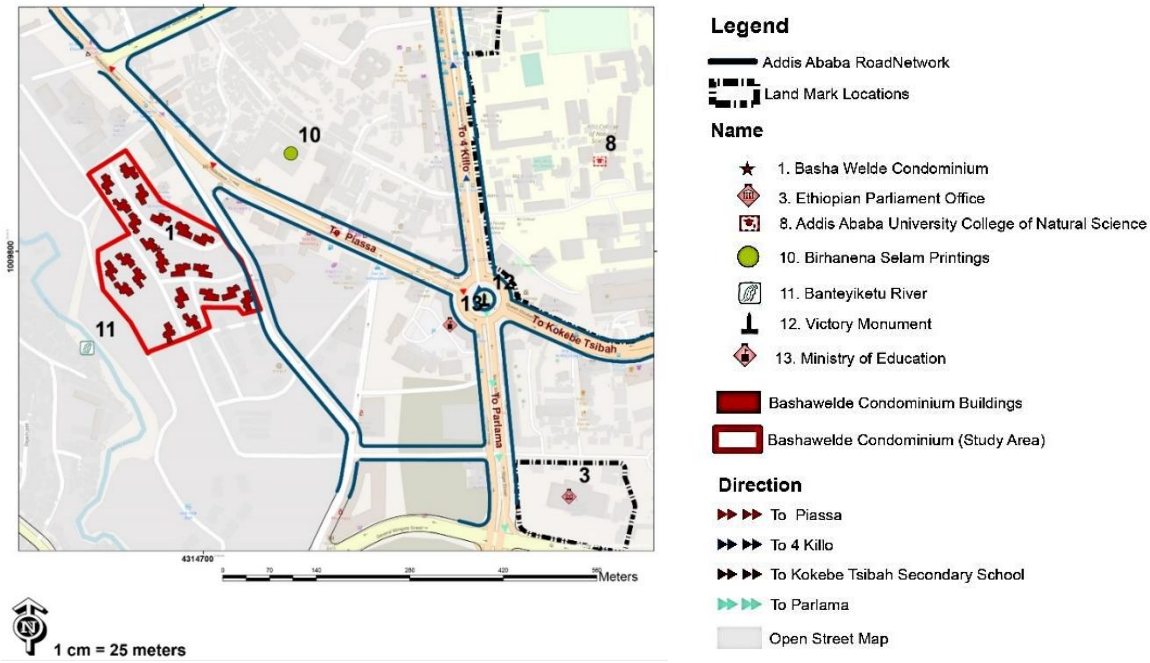

Figure 3-3 Basha Wolde Chilot Condominium (Source Open Street Map-Esri Gis (2021)

3.2.2 Site selection criteria

A. **Location of condominium sites from inner city areas:** The study is part of the research in the chair of housing (EIABC) held by the main advisor as an overarching theme “urban redevelopment, displacement and resettlement in Addis Ababa”. This led to narrow the condominium housing on the redeveloped sites of condominium housing. Basha Wolde Chilot Condominium I is one of the redeveloped sites in the inner city of Addis Ababa.
B. **The construction status of condominiums in the redevelopment program:** To fully understand the procedure and the effects of condominium housing, it is crucial to examine the period and phase of development. Selecting a recently developed area should enable us to observe the consequences of construction in IHDP.
C. **Relevance of selected cases as representative for future projects:** It will be relevant in representing the redevelopment projects in inner cities for future study.

3.2.3 Description of Basha Wolde Chilot redevelopment project

Basha Wolde Chilot which has the literal translation of the court of Basha Wolde Chilot is found around Arat kilo (4 Killo) in the Arada Sub-City. It covers about 39 hectares of land bordering a river to the west, the national parliament premises to the east, the Arat kilo area to the North, and an old settlement to the south. The area was built around the end of the 19th century during the reign of Emperor Menelik II. It was used as a servant district and is considered the center of the historical foundation of the city, which is formerly called *“Irri Bekentu”*.

During the reign of Emperor Haile Selassie who reigned after Emperor Menelik II, the area became a residential area and a center for gathering. According to the residents, they rented mud houses which now could be considered slum landlords. With the demise of Emperor Haile Selassie and the arrival of Dergue, The land ownership law was one of the primary reforms implemented by the Dergue dictatorship (Ambaye 2013). The majority of privately owned rural lands were distributed to peasants or transferred to state control because of the new slogan "Land to the Tiller" declared in March 1975. Renters who previously rented houses in Basha Wolde Chilot's neighborhood were forced to rent from the state Kebeles at a very low price. They continued to rent from kebeles under the subsequent EPRDF. According to the Addis Ababa master plan, studying an urban renewal program is considered crucial for the rehabilitation and development of

the Arada Sub-City. As part of the master plan, revised local development plans (LDPs) were prepared to assist the development of the sub-city.

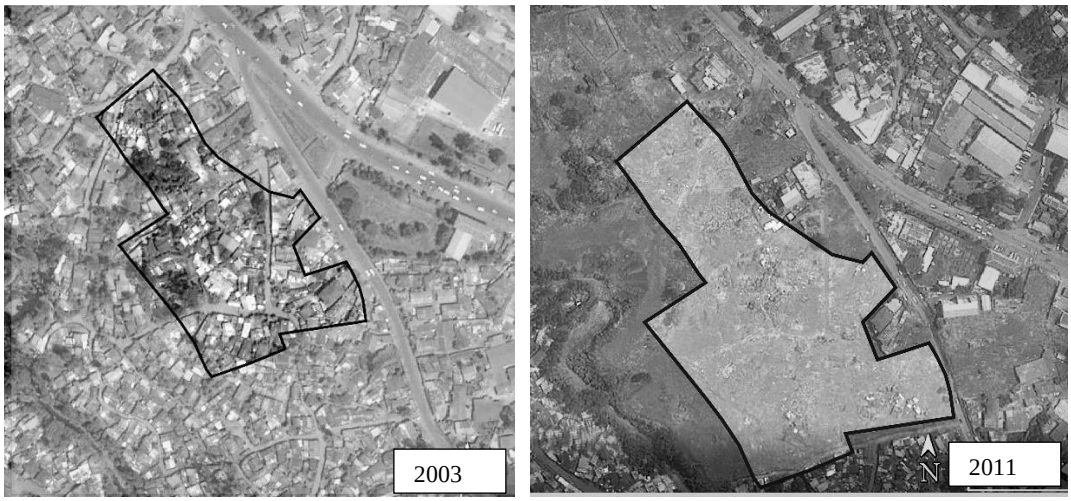

Figure 3.3-4 2003 before redevelopment and 2011 Site clearance; Source Google Earth

Figure 3.3-5 2013 under construction and 2016 after construction; source Google Earth

The execution of the redevelopment program required the active participation and involvement of different groups of society including residents, investors, and other stakeholders for a better outcome. The need for such an integrated program was incepted in 2010, orientation and training programs were conducted for residents and employees of the sub-city. Important steps and decisions are taken in the preparatory and pre-implementation phases to make the program successful.

The urban redevelopment includes the current Basha Wolde Chilot condominium and the parliament area that approximately covers 25 hectares of land. Because of the clearance of rights-

of-way for the arterial road from Parliament to Merkato through Irri Bekentu, many businesses were evicted (mainly butcheries, bars, and restaurants). In total 1,295 housing units (953 public and 342 private) have been demolished. Compensation, demolition of houses and preparation of new plots of land, and other related activities have taken afterward. Due to the redevelopment process, approximately more than 5309 people have evicted from their places afterward the image of "Irri Bekentu" has drastically changed with new private buildings. Even though there were residents there before the renovation and more moved in after the creation of the condominium, they couldn't maintain their prior way of life and historical reputation. Following demolition and compensation, the area was cleared, and construction was completed in 2011. See Figure 3.3-4 to Figure 3.3-5 for the aerial view of construction.

3.3 Research design

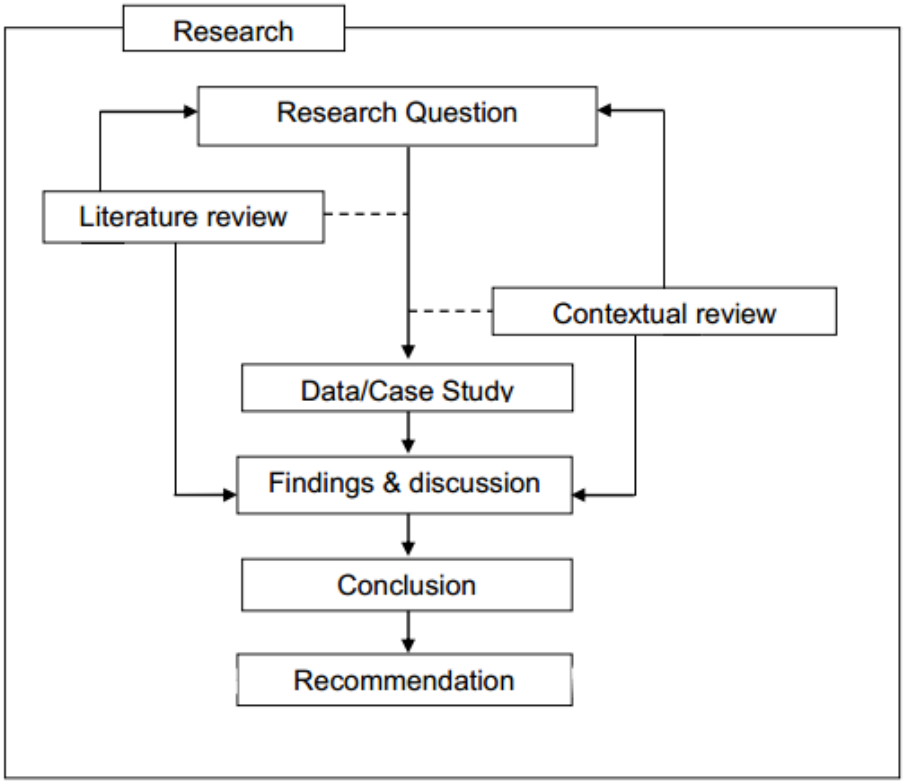

Figure 3-6 Research design diagram

3.3.1 Choice of research methods

Choosing the right research method is a crucial part of the research. There is a different way of classifying research instead of classifying a method some researchers prefer to treat it separately as a subdivision of a broad category. Different research methods overlap one another in which one method can be included in another creating an ambiguity for selecting a specific research method. Others classify research as a theoretical category and applied research, descriptive and explanatory research, quantitative and qualitative research, conceptual and empirical research, and other types of research (Zegeye, et al. 2009).

As Yin (2018) states there are five ways of classifying research methodologies: experiments, surveys, archival analysis, histories, and case studies. Selecting from each type of method should be rational and convincing. In selecting the research type the few things that should be considered are “the types of questions to be answered or the research content for example the Who, What, Why. This specific type led us to the specification of the research methodology the other one is the extent of control over behavioral events that is where the researchers control (the analysis, the survey data) and could not control (histories, archrivals, and case studies), and the last one is the degree of focus on contemporary. As opposed to historical events or the period that is when the contribution of historical events is dead past in the researcher rather than depending on current data (Yin 2018).

3.3.2 Research method

The research method chosen for this research is a single (holistic) case study Yin defined case study research as “case studies are the preferred strategy when "how" or "why" questions are being posed when the investigator has little control over events.” It helps to take a detailed look at the issues raised on the topic by the selection of specific cases (Yin 2018). In other words, the basic aim of a case study is to provide an in-depth, accurate, and complete description of the case.

3.4 Data types

The research used both qualitative and quantitative data. The qualitative data of the research data are descriptive and conceptual findings collected through interviews, observation, and questionnaires. The quantitative data are quantifiable data extracted from the survey questionnaire.

3.5 Source of data

The research used two types of data sources: primary and secondary data sources. Primary data was collected through interviews with different households living in the Basha Wolde Chilot condominium, individuals, and organization, which has contributed to or is part of the construction process. Secondary data included information that was collected from books, journals, articles, and documented files from the organization of AAHDPO, AAHDPO branch office, MoUDH, and Arada Sub City.

3.6 Sampling design

3.6.1 Sampling techniques

The targeted population of the study is residents who live in the Basha Wolde Chilot condominium. The sampling technique used for the study is stratified random sampling; this type of sample is used when a given population is divided into strata (subgroups).

3.6.2 Sample population

To see the impacts of MSEs work on the construction of condominium housing a survey questionnaire was taken from the household of Basha Wolde Chilot condominium. Generally, there are 22 blocks in the Basha Wolde Chilot condominium, from those three blocks are optimized and used for commercial purposes. The total population for the study was 450 households primarily used as residential housing including studio, one-bedroom, two-bedroom, and three-bedroom.

3.6.3 Sample size:

The Kothari formula (2004) was used to determine the sample size

$$n = \frac{N}{1 + Ne^2} \qquad n_s = \frac{N_s}{N} * n$$

n= sample size

N =total population

e= error margin (5%)

$n_s = \ studio\ proportion$

$n_{1b} = \ one\ bed\ room\ proportion$

$n_{2b} = Two\ bed\ room\ proportion$

$n_{3b} = \ Three\ bed\ room\ proportion$

$N_s = Household\ type\ \ population$

$n = \frac{450}{1+450(0.05)^2}$

Sample size = 215 households

Household type proportion

$n_s = \frac{95}{465} * \ 215$ = 44 studio households

$n_{1b} = \frac{95}{465} * \ 215$ = 44 one-bedroom households

$n_{2b} = \frac{180}{465} * \ 215$ = 83 two-bedroom households

$n_{3b} = \frac{95}{465} * \ 215$ = 44 three-bedroom households

The strata were determined by the MSEs sectors, explicitly participated in, and given areas after the sample size and sample proportion that is drawn from households.

A. By Block: The block stratum was chosen since each block is responsible for allocating micro and small businesses to the locations where they operate.
B. By Floor (ground and fourth floor): The ground floor was selected to evaluate the impact of leaks, pavement, and leveling. On the ground level, other waste systems' effects on the sanitary and electrical systems can be assessed. The roof and sanitary impact of the housing unit were viewed on the fourth floor.

C. By ownership**:-** To see the effect of the construction on how it is delivered and how it is going there should be at least two people in one block who preferably should be the owner of the house.

3.7 Method of data collection

3.7.1 Desk review

The study also looked at secondary sources of data, which were examined through desk reviewing various published and unpublished data. Books (monographs, textbooks, and reference books), journal articles, newspaper articles, commercial reports, government reports, thesis, and dissertations were all reviewed.

3.7.2 Interview

To understand the deep construction process of condominium housing, the researcher conducted an in-depth interview with various individuals who actively participated in the process. A semi-structured interview was used to obtain a description of the life world of the interviewee concerning interpreting the meaning of the described phenomena (Kvale 1996). The semi-structured interview was conducted in a way of flexibility to change the form of questions according to the respondent's response to grasp the full information of the respondent.

After asking permission to record the interviews, all interviews were tape-recorded and later translated and transcribed. For respondents who are not willing to be recorded notes were taken and expanded in full version. Generally, 21 individuals interviewed for the study, the selection criteria were according to the task of individuals who were actively participated in the Basha Wolde Chilot condominium See appendix Table 0.14 Key informant interview details.

Table 3.1 Types of Interviewees

Type of interview	Types of interviewee	No. of informants
Semi-structured and in-depth interview	AAHDPO officials	5
	Sub-city officials	2
	MSEs	7
	Contractors	6

Type of interview	Types of interviewee	No. of informants
Semi-structured, in-depth interviews and informal discussion	Consultant	1

3.7.3 Direct Observation

The study used non-participant observation, in which the researcher observed and recorded data without taking part by using photography. These helped to find out the qualitative data and, most importantly, the physical features of the study in terms of the quality of the study. The direct observation was done in parallel with the questionnaires. Furthermore, photographs were taken to support the observation as evidence for available and permitted households.

3.7.4 Questionnaire

The study used a semi-structured questionnaire, it had both close-ended and open-ended questions. For the respondent's convenience, the questionnaire is written in their local language, Amharic. It has its subsection with 81 questions and is primarily organized into three areas. The main elements of the questionnaire are respondent profile, house perception, present house quality, time and cost, and general house modification. After the questionnaire was prepared a pilot questionnaire was disseminated to 22 households: 10% of the total sample. When the feasibility was assured, the questionnaire was disseminated to 215 Basha Wolde Chilot Condominium residents.

3.8 Method of data analysis

The analysis method of this research was based on the Creswell and Creswell (2018) mixed-method approach that involves combining and integrating both qualitative and quantitative data in response to the research question. Out of three types of mixed-method analysis approaches, the convergent mixed-method approach was used for this study. In the convergent mixed method, quantitative and qualitative data are collected and analyzed separately. A complete analysis of the research is found by integration of the quantitative and qualitative results. The overall intent of the convergent mixed method is to review the results when divergent findings exist between the qualitative and quantitative data. As a result, additional qualitative data was gathered for divergent findings to resolve the dissimilarities for further analysis.

Accordingly, qualitative data was gathered through desk review, interviews with key informants, direct observation, and photography. The qualitative results are interpreted and presented in a narrative approach along with reviewed literature. The quantitative data is obtained from a questionnaire. Then the data was analyzed by *IBM SPSS (version 20) software.* These results were interpreted and presented *statistically* by categorizing the different key variables of the questionnaire and rationalizing them into different segments. The final integration of results is done by relating the qualitative findings side-by-side with the quantitative statistical results.

3.9 Method of data presentation

The data were presented according to the theoretical framework of the study. After choosing the right framework for the study, the conceptual framework was formulated accordingly. Therefore, the data presented from the elements of the framework (see Figure 2-5) (i) The input of the study explains MSEs in the construction process by discussing the formation of MSEs and the training of MSEs in the IHDP. (ii) The process of the framework explains MSEs in Basha Wolde Chilot condominium: discussing the construction process of the case (iii) The output explains the outcome of MSEs in Basha Wolde Chilot condominium: (iv) The feedback relates to the process undergone with the product it brought and is discussed according to quality, time, and cost aspects.

3.10 Validity and Reliability

After the data is collected from a different source as mentioned above, data triangulation was done to check the validity and reliability of the collected data. The response from the respondents was crosschecked by observing and spending more time in the field and developing an in-depth understanding of the phenomenon under study. The response from the key informant interview was crosschecked by referring to other data sources (documents, another key informant, and respondents of the case) during the interviewing period and asking them again if there is any ambiguity in the data. The reliability was checked with multiple sources of evidence and triangulation.

3.11 Research ethics

The Institute of EIABC provided the researcher with a letter for key informants, several government offices, and survey approval. The study's objectives were explained to the participants, with a focus on how the data would only be utilized for its intended academic use. With the study

participants' permission, the data was gathered using a variety of techniques. The study subjects' rights, needs, and values were carefully considered, and the confidentiality of the data was upheld along with the acknowledgment of information sources. Only the researcher has permanent access to the acquired data.

CHAPTER 4: Result and Discussion

4.1 Introduction

This chapter presents the findings of the analysis and discusses the meanings and implications of the study. It is organized according to the research question and objective of the study and divided into three categories: MSEs engagement in the condominium housing: formation, training, privilege, and challenges faced. MSEs Engagement in the Basha Wolde Chilot condominium: operation management and working activities. MSEs impact the quality of the Basha Wolde Chilot condominium through the construction process undergone.

4.2 Respondent profile

The respondent profile includes information about the respondents' training, employment, financial situation, experience with modifications, and the entirety of the building of their homes. The several perspective questions were easier to answer if the respondents are familiar with the technical details behind the building and renovation of the Basha Wolde Chilot condominium.

According to the survey, 43.5% of the respondent are owners, 56.1% are renters and 1 % is the custodian. Most homeowners either live in their homes permanently or rent them out because they cannot afford to make the last mortgage payment. Owners who have lived in their properties for less than four years include respondents who either rented it out for a while or made a deal with the tenants to alter it first, with the renter afterward being responsible for the whole cost of the change.

According to the survey, about 45% of respondents are in secondary school, 71% have a first degree, 45% have a diploma, 16% have a second degree or higher, 14% are in TVET and have no formal education, and the remaining 10% are in primary school. In terms of training, 90% of the respondents had no experience in construction or any related fields. On the other hand, respondents who work in construction and associated fields make up about 6% of respondents; 3.3% of respondents are unemployed, and the remaining 90.7% of respondents are working in other fields. The quality and cost of the modification are better for the respondent who underwent training or worked in construction.

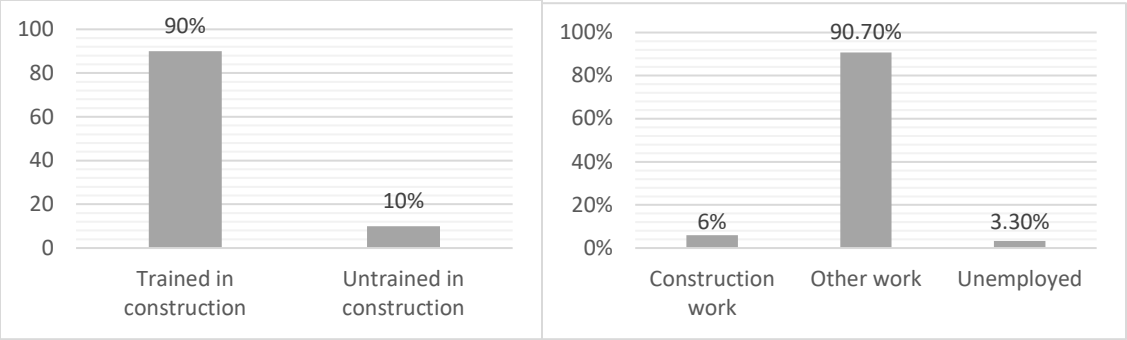

Figure 4-1 Respondent training and work in the construction sector

4.2.1 The economic status of the respondent

According to survey results, the respondent's financial situation varies depending on whether they are homeowners or renters. The lowest monthly income for homeowners is 5,000 Birr, while the maximum is 40,000 Birr. While expenses are on average 18,000 birr per month, the average monthly income is 12,950 Birr. More than half of the respondents had a salary as their primary source of income, with the majority coming from family support, pensions, and private businesses.

Figure 4-2Basha Wolde Chilot condominium

Basha Wolde Chilot condominium is one of the redeveloped areas in the sub-city of Woreda with a total area of 3.16 hectares. It has 22 blocks with a 5-floor multistory housing the blocks are mostly linearly placed.[1] From the 22 blocks, the pilot survey was taken on each floor.

[1] Even though the housing designed more spacious than previous IHDP projects but the general site design is different from the other condominium approaches. Communal buildings and other public spaces such as parking areas, playing areas for the kids and areas for social activities were not part of their design.

Table 4.1 Floor house type cross tabulation with floor level

Floor House type Cross tabulation			House type			Total
		Studio	1-bedroom	2-bedroom	3-bedroom	
Floor	Ground	20	17	35	17	89
	First	6	4	26	19	55
	Second	1	1	6	10	18
	Third	1	1	3	4	9
	Fourth	1	7	16	20	44
Total		28	30	86	70	215

Figure 4-3 Open space usage in Basha Wolde Chilot condominium

Open space has been a precious element for Basha Wolde Chilot condominium dwellers. The only open space with multiple activities such as (parking, social activities, and playing area for the kids during the day) can be seen in Figure 4-3. As one key informant (committee) of the Basha Welde Chilot condominium explains how the lack of public spaces affected the living condition of society. Dwellers could not undertake any social activities: funerals, weddings, or any gathering condition even they could not have a place to keep their Idir[2] material instead they have to rent a

[2] Idir is an association of people that have the objective of providing social and economic insurance for the members in the events of death, accident, damages to property, among others. In the case of funeral, Idir serves as funeral insurance where community members elect their leaders, contribute resources either in kind or in cash and support the mourning member.

house nearby to place their materials. Similarly, the lack of playing areas for the kids affected them in different aspects.

4.2.2 Perception of the respondent on house usage and modification

The respondents' previous house conditions, living style, modifications made, and adjustments of their house helps to perceive their insight regarding their current condominium houses. As an indicator of understanding their previous house building material type, finishing material, quality of material, and material usage for example sink, WC, and other apartments, high story usage of the house is used.

When asked about the building materials of their previous houses, 43.3 percent of the respondents said their houses were made of mud and 51.6 percent of them said they were made of blocks.

As for the wall finishing, plaster was reported by 71%, gypsum by 7.4%, and mud by 5.6% of the respondents. More than 85% of the respondents reported their walls were of acceptable or good standards while 9% of them reported it to fall short of such standards.

The flooring materials of their previous houses were reported to be screed by 73.5%, timber by 4.2%, and ceramic, plastic tiles, or mud by 0.5% of the respondents. For 67% of the respondents, their houses' flooring materials were of acceptable or good quality. The rest 30% of the respondent were of poor quality. When 199 respondents were asked about the roofing of their previous houses, 92 % said it was a corrugated iron sheet while 7.4 % said, it was made of slab, as they lived in condominium houses. In addition, had cheap wood material for the cornice. The roofing materials were of acceptable condition for 67% of the respondents.

Lavatories are one of the main fixtures of condominium housing and when respondents were asked questions related to toilets like if they have ever used toilet flush before, 57% responded in affirmation while the remaining 43% responded in negation.

Concerning the experience of modification and construction, 47% have gone through the roof, window, or door modification and repair process, while more than 35% of respondents have had to modify an electric or water line. Fifty-nine percent of the respondents have had sewerage clogging problems, including in the bathroom and sink. Respondents who have faced water sewage problems, such as leaking, were more than 35% *(See appendix D for a detailed respondent profile.)*

Overall, most of the respondents had familiarity with house modifications and common household items, which helped them to respond to the qualitative questionnaires based on their perceptions.

4.3 MSEs engagement in the condominium housing

4.3.1 Formation of MSEs

The registration for the formation of MSEs starts by announcing in each sub-city if any individual is interested to participate in the program. The program includes different sectors such as textiles, leather, construction, and food processing. The formation of the MSEs process starts by registering at their nearby Wereda[3]. The eligibility of the registration are: (i) must have a resident ID card; (ii) must be over 18 years of age, (iii) must not be self-employed or employed by a permanent employee. (iv) Evidence must be if he/she has nothing to do with public organization, (vi) if the candidates are a university and TVET graduates they can officially register for a job, (vii) the original and a copy of the credentials must be provided.

Following registration, candidates will be put through theoretical and practical examinations to see if they meet the requirements. There is a chance given to people who fail these exams to retake them. The theoretical portion of the exam may account for up to 20 to 30 percent of the final score, and the practical portion could account for 70 to 80 percent with a passing rate of 50% and 68% consecutively. It is organized at the sub-city level by small and medium-sized businesses with the assistance of the project office, which assisted in covering the cost test.

After filtering the ones who passed the exam, orientations on the operation of the program, contracts, and other legal procedures proceed. The candidate forms their group and decides among a cooperative, a trade association (sharing company, PLC, or partnership), or a sole proprietorship. Candidates pick a cooperative where at least 10 people share ownership of the business and share in its profits to ensure financial stability and risk management.

Following the one-stop shops for the promotion of micro and small-scale enterprises, they obtain their certifications which detail shows how they completed the previous project. This enables them to work on multiple projects and submit requests to the project office for their specific sub-city. After the office gathered the various certificates for more projects based on the availability of employment in their region. The MSEs for the construction sector submit straight to the Housing

[3] Administratively divided district of Addis Ababa sub-city

corporation office once Wereda confirms and transfers it to the Sub-City, this subsequently orders the various enterprises.

The MSEs selected from the list are provided with projects based on their specialized sectors in manufacturing and construction. A detailed assigning process takes place in the HDPO branch office. After learning about the given project, the office assigns the job to certified MSEs, priority is given to those who are located in the project's sub-city. It is given by the sub-city administration under the supervision of engineers, and a supervisor from the project office.

According to the statements of various key informants, awarding projects is biased and unfair, and some MSEs who have relatives are more favored and are given work despite their poor performance. On the contrary, MSEs who are experienced the better they perform on a previous project, the better the chance they have to earn another work contract.

4.3.2 Training of MSEs

To increase the quality and productivity of MSEs, it is necessary to provide training for their effectiveness, consistency, and relevant professional skills. Accordingly, MSEs through TVETs institutions are given the training to develop productivity and quality of service based on their needs. Provide market-based product development and production process, improvement training, and obtain a certificate of competency assessment in production and service.

This provides them with the necessary training, advice, and support to implement an ISO-based quality management system that will enable them to compete. For firms that engage in pre-cast beams and/or hollow block production, training is given before disposition. The program also intends to provide training for firms that engage in other activities which are common training (FDRE 2013).

On the contrary, according to various key informants, training is done in different sectors, but the training is short-term and recaps prior knowledge. Despite the budgets and areas provided by the government most training usually lasts for 10 days and MSEs barely remember the training they received. As one of the key informant's statements, who has been in the enterprise for 13 years, explained it is given to bureaucracy that *"both sides (the government and the trainers) know it is not that feasible."* For this reason, the ability to work usually comes during the construction phase,

through trial and error. It comes from experience, not education. Once the MSE identifies the sector, MSEs candidates are offered different types of training see Figure 4-4.

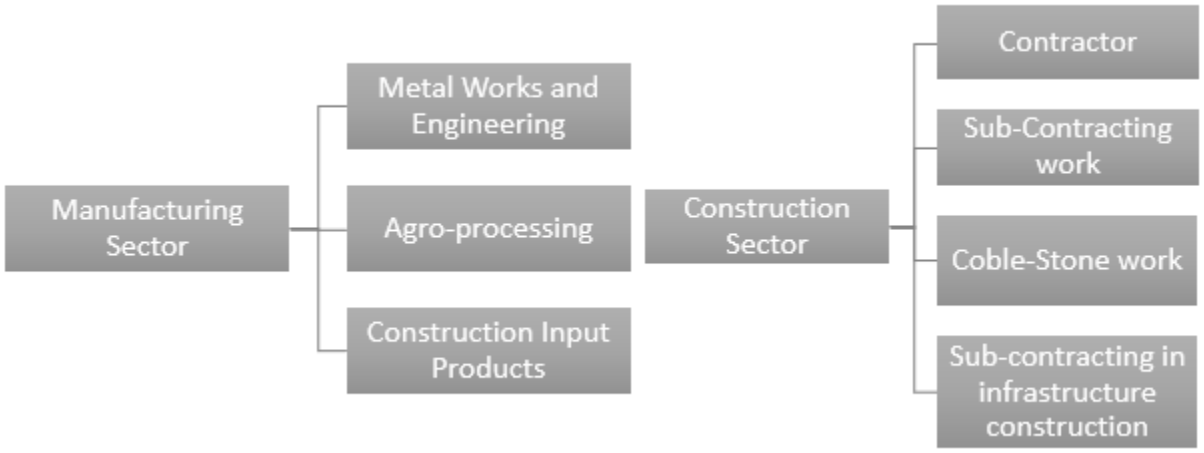

Figure 4-4 MSEs Sector in the construction area

Table 4.2 MSEs training types

MSEs sectors	Training types	Common training
Construction sector	Metalwork	• Quality and Safety • Ethics (anti-corruption), financial management, how to prepare payment documents • Kaizen philosophy and implementation
	Sanitary & Electrical installation works	
	PVC window & agro stone fixing	
	Reading of designs	
	Painting and finishing works	
Manufacturing/Production sector	Precast beam and HCB Production	
	Quality production procedure	
	Aggregate production	

4.3.2.1 The Areas of Training Provision

TVET or technical vocational educational training provides training in accounting and helps MSEs carry out basic accounting calculations required for their workflow and bidding process. The candidate will gain from this course by developing better work habits and workplace discipline (Ministry of Urban Development and Housing 2013).

There will not be any evaluation or assessment following the aforementioned training. However, as the HDPO office explained there is a retraining session if any applicants have concerns or questions regarding the procedure (FDRE 2013). According to the key informant, after organizing and training, they had to wait for the HDPO to allocate them to the specific project. The MSEs had to visit Wereda every three months to sign, confirming to the HDPO that they are still anticipating and awaiting employment.

The abovementioned training is reportedly provided to applicants without a license or formal academic training in construction according to several key informants. Before being allocated to their work, the trainees are given the chance to train and gain expertise in the field. However, MSEs receive training while they are employed, and most of them are assigned a specific task without any prior knowledge.

Figure 4-6 Bar production onsite

Figure 4-5 production of metal doors on site photo

Es: Source

Figure 4-8 Agro stone production by MSEs: Source (Arada sub city)

icated building material processed from organic agriculture byproducts.
% as filler the other raw materials are pumice and red ash as binder and
hereas fiberglass is used as reinforcement material. It is known for its
ation resistance, and no health impact. MSEs produce it at a standard
n 60cm width with a 10cm thickness in Addis Ababa by a state-owned
is used as construction material substituting for hollow concrete block
ed as a partition for the interior of condominium housing units.

Box 4-1 Agro stone definition

4.3.3 MSEs Privilege and Challenge in IHDP

4.3.3.1 MSEs Privilege in the IHDP

The IHDP program offers broad-based support to various program sectors, but most importantly it creates jobs for MSEs by offering funding, a place to work, facilitating access to credit, providing training, providing access to inputs (on credit), and subsidizing machinery for firms that make hollow blocks or re-bars.

A. Provision of land

The IHDP works to guarantee MSEs have a place to operate by granting access to land and subsidizing specific certain types of land, such as TVET compounds and sheds. There are two types of sheds: wooden and metal. More than 80% of compounds have a wooden shed, which is free of rent. In contrast, plots supplied by the Bureau of Trade & Industry are not subsidized if the shed is constructed with metal. Service centers are set up to coordinate and support willing MSEs operating in the close-by service or manufacturing sectors of towns. Since these centers provide a variety of training, market, technology, and consulting services, MSEs have the opportunity to develop throughout their time there. They support infrastructure, develop buildings and structures, and make these available for rent to the production and service sectors.

MSEs joining these centers are chosen using standardized criteria, organization, and working methods that guarantee MSE participation. The centers are built in a way that prevents the use of unused land for production and services, as well as one that lowers the high operational costs and capital requirements of beneficiaries. Even though the construction of the center is planned for, industry standards but none of the centers were constructed accordingly.

B. Access to credit

Access to credit implies that the program does not give the money but rather connects participants with one or more local microfinance organizations. Organizations participating in the program can open a bank account with the IHDP without issuing the collateral that is typically required, thus the collateral requirements for participating and non-participating organizations are different. The requisite collateral is provided by the program office's signature, even though the project office is

not liable for payment in the event of default. The MSEs are still subjected to the same loan terms about interest rates and repayment schedules periods.

Most MSEs are not very knowledgeable about saving and money management. Hence, saving awareness is implemented as one major task in schools as well as TVET institutes. When the young graduate intends to be self-employed and get credit, saving is one pre-condition. To this end, micro-credit and finance institutions conduct awareness-creation activities. The credit institutions cover up to 50 % of the loan from saving and the MSEs are expected to pay 80% of the loan in 5 years. Credit and saving institutions give priority to enterprises that operate legally, are registered taxpayers, which save regularly, which utilize their capacity fully, and which remain competitive in the market. To be eligible for insurance coverage registration, borrowers save up to 20 percent of the credit requested. Saving 15 percent of the credit requested serves export-oriented enterprises and enterprises in growth-oriented sectors. A system is put in place to ensure that enterprises utilize the borrowed money for the stated aims.

C. Provision of material inputs on Credit

The IHDP provides different material credits when they are not available on the market such as re-bars, iron, and cement on credit. The costs of inputs are deducted from future payments for the outputs. The material provision was to ensure that MSEs work in the same cluster center and produce similar quality raw materials at fair prices and at the required volume and time. A marketing contract system is prepared for medium and higher enterprises giving this service and making sure that the raw materials are imported in a coordinated and foreign currency-saving manner. Regarding the provision and support, it provides raw materials supplied by cooperative unions, MSE associations, and government development enterprises.

D. Subsidized machinery-Lease

This subsidy helps the production sector for MSEs in producing re-bars and/or hollow blocks that can purchase machinery with leases below or market rates by which the IHDP. Communicates with the microfinance institution to purchase and lease them once all payments have been made. The program firms then own the device that allows the IHDP to take payments from the MSEs.

Investment machinery saving programs aid MSEs in overcoming capital constraints and gaining access to financing without security. MSEs obtain credit for 60% of the projected cost of the machinery and a savings of 40%. While the program beneficiaries return on their savings based on

the yearly national inflation rate, their interest is 7.5 percent. The MSEs save for two years and have three years to repay the borrowed money.

It is intended to enhance the function of MSEs, which deal with a collateral problems. MSEs access machinery on a lease basis with the support of the Ethiopian Commercial Bank and small financial institutions. It is conventional for saving and microcredit institutions to collaborate with Ethiopian Commercial Bank to undertake the machinery lease program. The initiative supporting the MSEs included participation from the Metal and Engineering Corporation and other private manufacturing entities.

E. Awarding works

Prioritizing MSEs in the awarding of a specific task. This allows the firms to develop themselves and open the door for another job opportunity.

4.3.3.2 The challenge faced by MSEs in the IHDP

Despite the government's continuous support for the MSEs, they still faced major challenges while working on projects. Material provision was one of the main problems they faced. As per MSEs workers' statements, waiting for construction supplies to arrive on site took longer than the actual construction itself. They have submitted complaints to the client, AAHDPO, but no action was taken to alleviate the problem, which in turn degraded the quality of the outcome. The MSEs that participated needed to buy other materials for construction manufacturing in addition to the provided materials like block-making equipment. They were disposed to prices increasing during the waiting of the delayed provision and the contract they signed with the client did not include any compensation for any price increase or inflation.

As mentioned above, the MSEs were required to buy equipment for manufacturing, and the money for the purchase was gained from small credit and saving institutions. The failure of small credit and saving institutions to provide a complete, effective, and successful service was another challenge faced by the MSEs. One of the main problems with these institutions is that they struggle to encourage saving and have a poor culture of making timely loan payments. This is because small credit and saving banks did not perform high-quality training or awareness for enterprises (MoUDH 2016). As per key informants' statements, the loan agreed upon was delayed in payment which was a challenge for MSEs. This affected the outcome of the construction.

The manufacturing sectors were not provided with basic services like electricity and water which were extremely necessary for the manufacturing. They were just provided with a cleared space, which was not formally designed, with no implication for area usage work nor were they enough size-wise. Key informants also mentioned these as problems.

The MSEs who were chosen to participate in the construction projects took training before beginning their work. TVET institutions gave this training. As a challenge, MSEs have mentioned the lack of knowledge of the trainers on how technology transfer works and the lack of expertise in development and dissemination. There exists an ingrained awareness and attitude problem with trainers of TVET institutions on creating the initiative and attitude of job creation and work initiative. The lack of an incentive structure to put appropriate technologies created by educators and other professionals of TVET institutes into practice was a challenge as well. In addition, MSEs did not develop a self-reliant attitude and job creation culture instead; they show high dependency and a rent-seeking spirit. The approximately 10 days of training were not enough for the production and construction of mass housing as various MSEs have noted. As a result, this training phase played a significant part in the production of unskilled labor and the manufacturing of low-quality materials, and poor installation and finishing.

4.4 MSEs Engagement in the Basha Wolde Chilot condominium

4.4.1 Working activities and operation management of MSEs in the construction process

Contribution of individual performance in the implementation of the task is required in completing a given construction project. The performance of each member should be measured, evaluated, and prioritized at every stage of the project phases to decide the extent to which a project has been effective (Roshana and Akin 2002). The effectiveness of a given project is impacted by the engagement of different actors either directly or indirectly.

Different governmental and non-governmental bodies have participated in the construction of the Basha Wolde Chilot condominium where preparation of land, access to infrastructures (access to roads, water system, and electric supply), soil test, and design preparation AAHDPO's task, land acquisition, consultation, and relocation were the responsibility of the Arada Sub-City. Supervisions and quality approval were the responsibilities of the PACE consulting engineers'

company. The general construction and delivery of the project were responsible for AAHDPO.

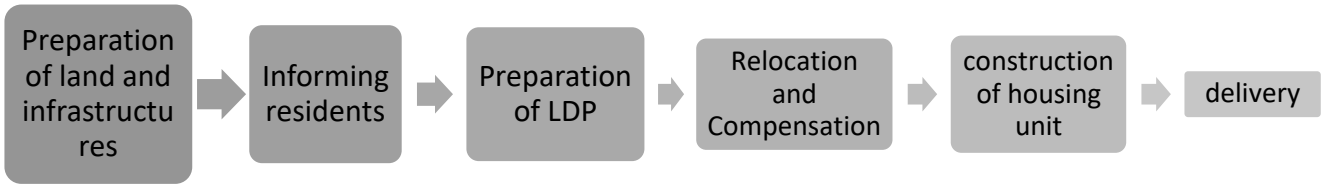

Figure 4-9 Redevelopment process of Basha Wolde Chilot condominium

The Basha Wolde Chilot condominium's redevelopment procedure is similar to the first government-led redevelopment project known as "The Lideta redevelopment project." The material provision method and labor force assigning were similar, which were done by AAHDPO and the contractors in charge respectively.

Several actors have played diverse roles throughout the construction process, from the inception stage through the housing unit delivery. The major participants here are MSEs, contractors, consultants, and the client (AAHDPO). The secondary actors include engineers (on-site and resident engineers), supervisors, laborers, and branch project offices under AAHDPO.

Following AAHDPO's announcement of the redevelopment project, each stakeholder undertook their obligations by signing a contract with the client. The shortlisted contractors were instructed and given access to the respective sites, by the AAHDPO, once the site was cleared and basic infrastructure was provided. The MSEs, who have made it, began working alongside the contractors on their designated site and in an area that is jointly monitored by the AAHDPO and consultant.

Figure 4-10Basha Wolde Chilot site under construction photo /Imam Mahmoud Hassen (consultant of Basha Wolde Chilot condominium) 2013/

Table 4.3 Assigned MSEs in Basha Wolde Chilot condominium

	Assigned work in Basha Wolde Chilot condominium	Assigned MSE per block ratio
1	Electrical work	1:2
2	Sanitary work	1:4
3	Window, door, roof, and handrail	1:2
4	Common corridor, floor tiles, stairs, and production	Random assignment
5	Total MSEs	50 MSEs

MSEs participated in the Basha Wolde Chilot condominium starting from the construction process to production. Construction: includes block work or wall construction, electrical installation, sanitary installation, finishing, tile laying, and painting. The production activities include pre-cast beam production, hollow block production, metalwork, woodwork, stonework, and gravel production the latter known as aggregate production.

Even though more than 50 MSEs were assigned, MSEs who participated were few. MSEs who failed to complete have a variety of excuses. (I) The various members of a specific MSE who, after becoming organized, were unable to get along with one another due to various personal reasons. As a result, there was a gap in the construction workers' progress. Some of them split apart, while others packed up their tools and left the job site. (ii) Members with different work ethics, such as when some members participate in the project while others contribute to the financing; this resulted in the addition of additional MSEs in the building phase, which led to the project's termination or split at the conclusion. (iii) MSEs Members were required to assign to other MSEs if they acted in a very irresponsible, unreliable, or unskilled manner during the working process. Even though the appropriate action could not be taken, this is unusual but occurred. For the reasons mentioned above, numerous enterprises were involved in the construction process.

4.4.1.1 General construction process undergone

The client (AAHDPO) was responsible for carrying out the majority of the building processes and its various departments, through their branch offices, have contributed to the carrying out of the processes. The construction processes began with the signing of an agreement with the stakeholders. After, the designated supervisors (from the client side) supplied the contractors with materials following the schedule and timeframe of their work.

Following the provision of materials, site preparation, and foundation work began and when the construction works reached 40–50 percent, or when the structural components of a structured slab, the columns, and the foundation's works were completed, the remaining 60 percent of the job was assigned to the MSEs.

In theory, the contractors were put as the primary party responsible for the construction works and as key collaborators to MSEs, but in practice, they have assigned either a foreman or low-cost subcontractors before the construction started and went unseen but some did the assigning work after the completion of main parts of the construction. Some even were specifically hired from governmental offices but they prioritized their private projects over the given site. As a result, MSEs were left without guides, and working gaps resulted. The MSEs did all of the work by themselves, which greatly affected the outcomes.

Figure 4-11 Basha Wolde Site under construction photo /Imam Mahmoud Hassen (consultant of Basha Wolde Chilot condominium) 2013/

According to the contractors, all materials were provided by the government aside from gravel but the hiring labor forces were the responsibility of the chosen contractors. The construction proceeded according to the times specified on the work schedule and timetable after orientations and agreements were made with the branch project office of the HDPO. Then the consultant and HDPO handed over the site to the contractors.

Before the MSEs joined the construction process, the foundation stage began by orienting and presenting a general site overview. This occurred once blocks have been produced. The electrical division of MSEs began assisting the contractors with the installation once a building reaches the

first story. The installation and fixing were done after the project was finished. The MSEs in the sanitary sector joined the construction at the beginning, even if their major work was supposed to start after the building structure is completed. They had to mark and work alongside the contractors.

The MSEs began producing and installing doors, windows, roofs, and handrails after the work reached a 75 percent of completion rate. The contractors were jointly responsible for the MSEs' output and delivery of results. Several key informants discussed their issues with MSEs' performances undesirably. According to the contractors, these issues included MSEs' lack of accountability, incompetence, and recklessness. The client's response to their complaints about MSEs was, "You are the responsible people; you have to train them and make them qualified for their given work instead of complaining to us." In general, the construction process was affected by the disorganized system and the contradictory work ethics of different professionals.

When comes to acquiring materials, HDPO first quantifies and specifies the material appropriately. The Ethiopian conformity assessment organization next tests the material in a lab to determine its quality, and the consultant[4] provide the final clearance.

According to one key informant, even though the consultants approved the material, on paper, the materials delivered were not the same as approved, especially in terms of quality. A very good example is the wall ceramic tiles of the bathrooms and the HBC provided. The consultants refused to accept them, claiming they were of poor quality, but the client representative assigned responded by saying," These materials were used for the previous condominium projects and this condominium is no different, so work with what you have been provided". This led the MSEs to blame/defend themselves by claiming it has affected their workmanship and is the reason for leakages, concrete cracks, sudden dropping of ceilings and inadequately functioning structures during construction and manufacturing.

4.4.2 MSEs engagement with other stakeholders

One of the aspects of construction where a specific performance assessment system is necessary to expose the demands and expectations of all the stakeholders is claims and disagreements between stakeholders. To confirm that conflicts, disagreements, and blaming situations existed by

the time the project's completion stage arrived; stakeholders' performances must be reviewed and analyzed throughout the project's phases (Roshana and Akin 2002).

One supervisor was assigned to the 33 blocks under the terms of the IHDP's on-site supervision agreement. The 22 blocks of the Basha Welde Chilot condominium are overseen by one structural engineer, one electrical engineer, and one sanitary engineer. This prevented the supervisors from overseeing every aspect of MSEs' work. The supervisors claimed that it was vast and bulk to be done by just one supervisor. This led them to request to hire more supervisors to aid them, even though they were denied by the client, AAHDPO. Instead, they were loaded with more than 11 blocks from another site because that was part of the agreement with the consultant supervisors.

One of the characteristics of quality work is meeting the requirements listed in the contract agreements for them to incorporate into the construction process (PMBOK 2000, Song, Lee and Park 2006). To meet the qualities on the contract, the experts from consultant offices, requested improved supervision as well as guidance of the MSEs, but the IHDP neglected their requests. This made the MSEs in charge of 60% of the construction work.

These same consultant offices were also perceived as exploiters of the government's finance; hence, they were prevented from disapproving of low-quality materials made by MSEs and modifying the designs, and the site works. For instance, three blocks needed leveling because they were designed on a terrain site. The contractors did the leveling and built the blocks, but the sanitary designs were not modified accordingly even though the consultants requested modification. This was reported by the consultants as a very discouraging event that made them reserved from making further modifications or suggestions as such.

4.5 MSEs impact on the quality of Basha Wolde Chilot condominium on the construction process undergone.

The questionnaire and survey conducted regarding the MSEs' tasks are mainly divided into two. The finishing & installation included the electric, sanitary, door, window, and roof. The manufacturing sector included the wall screed, manufacturing blocks, floor screed, and agro-stone manufacturing and mixing. The particular indicators used for specific construction projects will depend on the overall program of work the procurement method, and the local situation. In

contrast, users may elect to add more indicators to various projects to suit particular project demands (Sohail and Baldwin 2010).

4.5.1 The quality aspect of the construction process

Quality, time, and cost are the three main KPIs used in construction theories. Whereas productivity, quality performance, financial, innovation, employee learning, customer performance, customer satisfaction, and delivery for the customer are used to measure the performance of MSEs in various European countries. One of the metrics that aid in analyzing the

Box 4-2 the Electrical Installation Process

The electrical installation of two blocks was assigned for a single MSE. The installation work was executed by assigned MSEs and it began after the slab of the first floor was filed. The first stage of the installation work was conduit installation which was done by chiseling the slab. It accounted for 30% of the entire work. After the second stage of the work; wiring which accounted for 40% of the work, a supervisor from AAHDPO did an inspection work. The inspection work included checking if any clogging existed or if conduits were broken. Then the first phase payment was made. Connection work, which made up 20% of the overall project is the third stage in the installation work. The final and concluding work was fixture installation which included the installation of switches, outlets, and sockets, making up the final 10% of the job. Following this, another inspection and approval took place and the second and final payment phase was made.

The aforementioned process has gone through a fair amount of challenges. According to key informants' statements, the MSEs who executed the installation work were not skilled enough, under-trained, and unaccountable. Also have mentioned that when the first two stages; conduit installation and wiring, took place there was a period where the electric wires were uncovered and exposed. This may have led other MSE workers to steal it, exchange it or damage it accidentally. This is caused due to lack of supervision, ownership feeling, and accountability. Another key informant has mentioned the supervision that took place was very superficial. The supervisor's inspection method was to take sample blocks and inspect them.

The other problem that was mentioned by the key informants is that some MSEs left the job after they received their first phase payment. This made the work vulnerable to different errors, damages, and theft. Usually, when the assigned MSE leaves in the middle of the work, the workers either have exchanged the materials provided by the AAHDPO or have stolen them. The replacement MSEs claimed that wires were missing when they took over the work, but in reality, the missing cables may have been stolen by themselves, previous MSEs, or other workers on the project site. On top of this, the next two steps; connection and fixture installation, became harder as the new MSEs employed are not aware of how well the works are done, which made the installation vulnerable to faults and defects. Inspections took place after the rest two stages; connection work and fixtures installation, are completed. However, as per one key informant statement fixtures may have been stolen after the inspection took place.

A survey of 215 participants revealed that 27.1 percent had an electrical problem. The two main causes for these problems are installation problems and poor-quality materials that are used. Lack of training and irresponsible members of MSEs are mentioned as causes for installation defects and poor-quality materials were used because the workers of the MSEs who have switched the new and good-quality materials provided by the IHDP with faulty ones.

A total of ten (10) electrical installation problems are encountered by the respondents five are caused by defective electric installation and the rest five were caused by poor-quality material used.

Among the five (5) problems caused by defective electric installation, the first to be mentioned is the presence of uncovered wires. It is the most frequent problem encountered by the respondents and about 48% reported to have encountered it. The wires were exposed and damaged by the weathering and the finishing materials used for the building.

Table 4.4 Not correctly installed electric line

Not correctly installed electric line	Frequency	Percent
Yes, the electric line was not installed correctly	51	23.7

No, the electric line was installed correctly	162	75.3
Total	215	100.0

The second problem is reported to be a loose connection at switches and outlets incorrectly installed electric switches reported to be a problem by 23 percent of respondents. The third problem is defective electric wire lining which is also reported by 23 percent of respondents as a problem. The fourth problem mentioned is electric contact problems that are caused by loose connections during installation were encountered by 14 percent of the respondents. It was said that it resulted in arcing and overheating. Hanging wires were observed and are the fifth one.

Table 4.5 Uninstalled socket or switches

Uninstalled sockets or switches	Frequency	Percent
Yes, I have uninstalled sockets or switches	48	22.3
No, I don't have uninstalled sockets or switches	165	76.7
Total	213	99.1

Among the other five (5) problems caused by the usage of poor quality materials, the first problem encountered is the burning of outlets and breakers which was encountered by 40 percent of the respondents have reported that they only use them for three months before having to replace them with new ones.

Table 4.6 Burning of breaker

Burning of breaker	Frequency	Percent
Yes, I had a burning of the breaker	87	40.5
No, I didn't have any burning of the breaker	127	59.1
Total	214	99.5

Figure 4-12 Uninstalled sockets and switch.

The second problem encountered is the sockets that do not work, specifically caused by loose wires in circuit breakers, and was reported to be a problem by 28% of respondents. The third problem reported by 25% of respondents is socket breakage and burning.

Figure 4-13 Not properly installed lamp and breaker

These sockets are reported to be made of fragile materials and quickly shatter when plugged in. The fourth problem is overheating and melting as the wire could not withstand electric load and due to this reason, 23 percent of the respondents experienced wire-melting problems. The fifth problem is the circuit box melting and fuses burning.

Table 4.7 Sockets that do not work

Sockets which does not work	Frequency	Percent
Yes, I had sockets which do not work	62	28
No, I didn’t have any sockets which doesn’t work	152	70.7
Total	215	100.0

Generally, 17% of respondents had modified their electrical installation and fixtures before moving into the house, explaining that they had received advice from various neighbors and professionals that it is preferable to change the entire electrical installation and fixtures. As two respondents pointed out, people even borrow money to entirely fix the installation process. Another respondent explained that since finishing and installation work is always necessary when you move in, it would be cost-effective to complete the work with the same labor and time. While the rest 7.9% of respondents explained they did not modify rather they did some on-the-spot repairs, whereas the remaining respondents modified the installation once after moving into the house.

4.5.1.3 Sanitary Fittings and Fixtures

Box 4-3 Sanitary installation process

The sanitary works done had 4 phases: sewerage line installation, water line installation, installation of a water tanker, and fixture installation. They were done by MSEs assigned one for every four blocks of Basha Wolde Chilot Condominium. Through AAHPO branch offices, the MSEs signed a contract of agreement prior to doing the installation works which was a prerequisite for involvement in the construction.

Once the contractors finished slab construction of the first-floor MSEs assigned also proceeded with the first phase of sanitary installation; sewerage line pipeline (PVC) installation, by first marking a place for installation as per the design and afterward chiseled down the slab and burying the pipes. The second phase of installation water line installation was done after the screed was formed on the walls. The third phase which was water tanker installation was done after the roof of the last whole block was built. The last phase was sanitary fitting installation. It was after the occupants moved in into the houses. This was due to the lessons learned from the previous redevelopment condominium project. The fittings were installed prior to the occupants moving in and they were stolen, hence the client decided that the fitting installation should be done after the moving in of the occupants.

Among the 22 blocks of the condominium, four blocks: 4, 5, 6, and 7 faced special challenges as the three MSEs assigned left the project after only completing the first phase: sewerage line installation, as per a key informant's statement. This resulted in assigning of one more MSE for all four of them. By this time, the 4 blocks along with the rest were done with 90% of their construction, hence consultants who supervised them were told to leave the project. This resulted in the assigned MSE being supervised by the branch office supervisors and was rushed into finishing them as quickly as possible. Because of the rushing, the enterprise assigned was forced to buy materials like anchoring different angle bolts, in order not to wait for material supply from the client for usage of substandard materials.

Another sanitary problem still existing is, the upper side of the ground floors of two blocks not getting water. This was created because a leveling was done to the level differences that existed in the site, but the sanitary designs were not redesigned accordingly. The contractors requested the client for a new sanitary design but were rejected and were also told to assist the MSEs to do sanitary works using the old design. Moreover, because the old design was not made the new levels considered, some houses on the ground floor could not get water supply from the water tankers installed.

Sanitary fittings and fixtures problems were encountered by 29% of the total 215 respondents. These reported problems were caused mainly due to poor installation of the fixtures, attributable to poor workmanship, and the usage of poor quality materials. Other than these, an exceptional case of the ground floors of the three blocks that do not get water from the tank was caused by the client's neglect.

Problems like incorrect pipe laying and bathroom fixture installation were caused by poor workmanship. Incorrect pipe laying problem has caused water pipeline leakage in the kitchens and bathrooms of 48% of the respondents. Dampness was evident on the walls of most of these respondents. Among the respondents, 33% have fixed their problem but the remaining 63% are renters; they said they were unable to spend extra money on the house. Other 13% of respondents have reported facing leakage through the upper floor. To solve this; they have informed the dwellers of the upper floor. Among the upper floor dwellers, 6% of them have fixed it by replacing the sanitary fixtures.

When it comes to defective bathroom fixture installation, 19% of respondents reported encountering it. They described the problem as the WC was just hanging and seated without any adjustments and proper installation. Half of these respondents have fixed it by reinstalling the WCs.

Table 4.8 Water pipeline leakage

Water pipeline leakage	Frequency	Percent
Yes, I had a water pipeline leakage problem	103	47.9
No, I didn't have a water pipeline leakage problem	109	50.7
Total	215	100.0

The usage of poor-quality materials has caused problems including, sanitary fixture problems and water line problems. Water line fixture problems were encountered by 32.1% of respondents. This includes water taps defects after the time of use, hence to fix it the taps were changed. Other 10% of respondents reported having changed sanitary line fixtures before even using them, saying it was obvious there were installation issues that needed modification.

Other three (3) problems like Rustiness in the bathroom, toilet flash problem, and sewerage line clogging problems were caused by the combination of the two causes.

Table 4.9 Water line fixtures problem

Water line fixtures problem	Frequency	Percent
Yes, I had a waterline fixture problem	69	32.1
No, I didn’t have any waterline fixture problem	142	66
Total	215	100.0

Water sewerage line clogging problems in the bathroom and kitchen were another problem mentioned by 12.6% of the respondents. When stating the specific causes, they stated poor quality type of sink and washing basin used, and sewerage fixture were used. The diameter and the angle of the sewerage lines installed to the walls were also defective; the diameters are small and the installation to the wall has an angle that led to semi-liquid sewerage being trapped. To fix this, 10% had to change the sewerage line material.

Table 4.10 Water sewerage clogging

Water sewerage Clogging	Frequency	Percent
Yes, I had a water sewerage clogging problem	27	12.6
No, I didn’t have any water sewerage clogging problem	186	86.5
Total	215	100.0

The toilet flash problem is a common problem that 40% of the residents have experienced; half of them had this problem because of their improper usage, whereas the other half people have this problem because of the quality of material and installation problems. Related to this problem damaged fill valves and tubes are the common problems reported by the respondents. These problems in particular are caused either by the user's improper usage or poor material quality. Of the 40% of respondents, 20% have fixed the toilet flash problem while the rest 20% have tried to fix it but malfunctioning was frequent after repair, hence were using manual flash

Table 4.11 Uninstalled bathroom fixtures

Uninstalled bathroom fixtures	Frequency	Percent
Yes, I had uninstalled bathroom fixtures	8	36.4
No, I didn’t have uninstalled bathroom fixtures	14	63.6
Total	22	100.0

Rustiness and yellow stain on the bathroom and kitchen fixtures was common problem as well. This was again caused by the poor quality of the materials used and continuous leakage on the surface of the material led to the problems. More than 20% of the respondents have had such problems both in the bathroom and kitchen sink. Thirteen percent of the respondent fixed this by changing the material as they explained the poor quality of the material made it rustier as time goes, despite their usage of different detergents to wash the yellow stains.

Table 4.12 Rustiness and yellow stain on bathroom fixtures

Rusty bathroom fixtures	Frequency	Percent
Yes, I have rusty bathroom fixtures	44	20.5
No, I don’t have rusty bathroom fixtures	168	78.1
Total	215	100.0

When it comes to the satisfaction of respondents regarding the installation of the sanitary fittings, 77% of the respondents rated it as average, 16% rated it as poor (unacceptable), and only 2.3% rated it as very good. Of the total respondents, 38% have responded to modification questionnaires. Nineteen percent of them reported modifying it several times while the rest 19% of respondents were not able to do so as most of the respondents are renters.

4.5.1.4 Door, Window, Handrail, and Roof Installation

Box 4-4 door, window and roof installation process

The door installation was different from the other installations because there was on-site door production before the installation took place. One MSE was assigned to produce and install doors for two blocks of Basha Wolde Condominium. The on-site production started by requesting raw materials from AAHDPO and went on to production. After production, the doors were placed by the size of the hinge once the contractor has completed 70% of the building. The windows, on the other hand, were manufactured by local companies and provided by AAHDPO to the MSEs.

Handrails and the metal stairs of the condominium were produced on the site by MSEs the stair installation was done along with the finishing. The roof installation for the blocks was the last to take place and was done when the construction was completed.

The door and window installations along with roof and handrail installation problems resulted due to faulty construction procedures applied by the constructors and due to unskilled, trained, and unaccountable MSEs. Due to contractors' faulty procedure, unfitting door space was left and happened to be one of the major problems. To correct this, the assigned MSEs had to chisel down the edges of the walls or had to insert fillers. However, because of the lack of accountability of the MSEs, the modified walls were left as they were without proper finishing. One key informant stated the reason behind this is, as "they are not responsible for it they left it as it is and pointed the finger at the contractor."

Of the 215 respondents, 23% reported having door, window, and roof installation problems. Doors of the condominium were installed in a given typology in three places: the main gate, the balcony door, and the bathroom door. The bedroom doors are not installed for any typology as a result the residents install all bedroom doors. The doors installed were not found to be satisfactory by 215 respondents hence 10% have modified and the rest 90% have completely changed them. To further support these figures, one of the dwellers stated, *"They (MSEs) installed the door for the sake of covering; everything about the door was not satisfactory, every dweller had to modify or change the doors again."* One of the main causes for the door installation problems and dissatisfaction faced by the dwellers was faulty MSEs workers. These workers were unskilled and under-trained. Because of their defective skills in the precision of metal works and installation, 20% of the respondents reported that their doors did not properly open and close. The doors of the

condominium were changed due to personal preferences by 25% of the respondents. However, the rest 70% changed their doors because the doors did not allow direct lights to the living room in all types of typologies. As a result, they were obligated to change the doors to semitransparent ones. Seventy-three percent of the respondent have changed door handles and keys for safety reasons for the house but 27% changed it due to malfunctioning keys and handles that inhibited the doors from opening and closing. The MSEs workers' lack of skill has caused this problem as well.

Table 4.13 Doors properly not closed and opened

The door which is not properly closed and opened	Frequency	Percent
Yes, doors were properly not closed and opened	42	19.5
No, the doors were properly opened and closed	172	80
Total	214	99.5

Table 4.14 Not properly installed door handle and key

Not properly installed door handle and key	Frequency	Percent
Yes, the door handle and key were not properly installed	59	27.4
No, the door handle and key were properly installed	155	72.1
Total	214	99.5

Other problems like improper framing, misaligned bottom plates, an un-level floor, or a door that is not aligned with a wall were caused by the lack of skill of the MSEs workers. The gap was created because, for the sake of space, widening was filled by using gypsum, concrete or dwellers took out the whole doorframe and installed it again.

Windows installed are made up of plastic materials which made them hard for precise installation. MSEs' workers were not skilled enough that some installed windows fall and 2% have reported encountering this problem which resulted in the reinstallation of the windows by the dwellers. Because some wall edge gaps were, neglected 37% of the respondents have experienced water leakage and this shows the MSESs workers' lack of skill regarding alignment.

Table 4.15 Door and window openings that have water leakage

Does the door and window opening have water leakage	Frequency	Percent
Yes, the door and window openings have water leakage	81	37.7
No, the door and window openings don't have water leakage	133	61.9
Total	214	99.5

Other window installation problems include improper framing, misaligned bottom plates, and un-level walls these lead to dwellers installing aluminum or steel frame for support.

The total respondents for roof satisfaction were 44, who happened to live on the fourth and last floor. Of the total, 25% reported having roof leakage problems and required repair every year before rainy seasons. The exact problem was reported as cracked corrugated sheet metal because the installation/repair did not follow the right precaution and improper alignment of the valleys.

Table 4.16 Roof leakage problem

Roof leakage problem	Frequency	Percent
Yes, I have a roof leakage problem	25	62.5
No, I don't have a roof leakage problem	15	37.5
Total	215	100.0

Table 4.17 Roof door and window installation and modification

Roof, door, and window installation and modification	Frequency	Percent
I modified it one time before started living	23	10.7
I haven't modified it	34	15.8
Total	215	100.0

Regarding the quality of the roof, door, and window, 76% have rated it as good quality and above while the other 19% have rated poor quality. Forty-four percent of the respondent explained that the condition of the door, window, and roof is still the same whereas 36% stated the condition was poor due to poor workmanship during installation; while 10% of the respondent could not compare the condition on how it has been and how it is since they are renters.

4.5.1.5 Common Corridor, Stair, and Manhole Work

The corridors have two-meter width, and the stairs have 90 cm concrete exterior handles whereas the interior handles are made of steel. Ninety-three percent of respondents had no problems regarding corridors and stairs all respondents stated that the stairs are good space-wise and safe for the users. As a main problem, 20% of the respondents mentioned the common corridor water level problem. Of the 20%, only 2 % have solved it by changing to a different tile while the rest 18% mentioned using temporary solutions like mopping the water away after it rained. The other problem mentioned by 5.6% of respondents was level difference defects on corridor floors. Even though this problem was not caused by MSEs' fault but rather by contractors' procedures, it was worth mentioning because respondents mentioned it as one of the main problems when asked about the flaw in the corridor.

Terrazzo finishing materials were used for the common corridor and stairs and the finishing works were done by MSEs assigned. During the finishing work process, the MSEs workers' lack of skill resulted in the peeling off and breaking down of terrazzo tiles and 8.4% of respondents reported encountering this problem. 3.3% of them have reported changing the defective terrazzo. More than 88% of the respondents have reported to have not encountered such problems so far.

Manhole problems were caused either by improper usage or manhole cover installation. According to the survey, 11% of the respondent had this problem as a block because of improper usage of sewerage lines; throwing of different solid waste materials which should not be in a sewerage. From observation, there were manholes left unclosed, semi-closed, or improperly closed that allowed waste materials like plastic bags and others to get in the manholes and clog the sewerage pipeline. This manhole installation problem was caused by the MSEs who were in charge; they were unskilled, trained, and were not held accountable.

Figure 4-14 Site work and modified corridor by residents

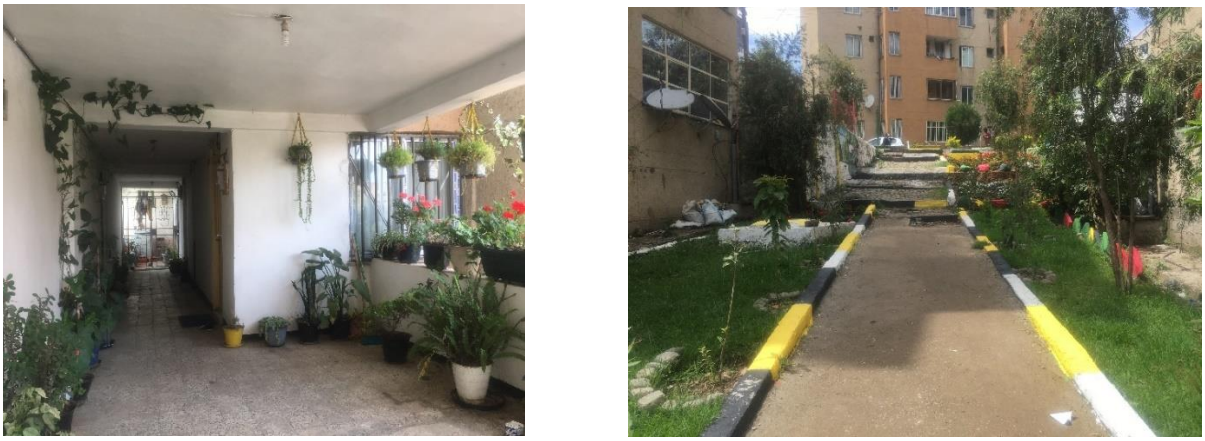

Figure 4-15 Modified corridor and walkways by the residents

4.5.1.6 Plastering and floor screed finishing, Hollow block, and Agro stone production

Among 215 respondents, 45 % of the respondents reported seeing wall dampness and molding mostly in the summer season. These problems were reported to be found on all floors. They were caused by different scenarios such as leakage from the upper floor, the rain on the wall during the summer season, water drainpipes, and other related sanitary problems. These problems were created by the MSEs poor skills at drainpipe installation and other installation problems.

For partition wall purposes, agro-stone materials were commonly used for the first three floors. On the fourth and last floor, hollow block partition walls were used because it was thought that the last floors are vulnerable to water from the roof. The implication here is that the roof installed by the MSEs will likely malfunction hence a better-proof material, hollow blocks, should be used to prevent wall dampness and molding.

Even though numerous pieces of evidence show that agro stones could be used efficiently, the experience and opinions of the respondents were found to be different. More than 13 % have demolished the agro-stone partitions first built by the MSEs. Eight percent of them did so, because of recommendations by professionals to replace them with hollow blocks because they easily crack. The rest 3% stated to have replaced it because their neighbors had an issue regarding the agro stone. These agro stones built were not trustworthily constructed due to poor workmanship of the MSEs.

Regarding the quality of the walls built, more than 85% of the respondent reported it to be acceptable. The rest 15% reported dissatisfaction and are of poor quality. The quality problems mentioned were wall screeds that were unleveled and caused by poor workmanship. This has made 23% of respondents modify their walls with gypsum chuck. Sixty percent of the users did not modify because of the cost despite the cracked and unleveled wall screed whereas the rest 17% of respondents could not explain how it was because they were renters.

Figure 4-16 decayed Agro stone partition

Figure 4-17 Dampness on the wall

Table 4.18 Demolishing of agro stone

Demolishing agro stone	Frequency	Percent
Yes, I demolished agro stone	29	13.5
No, I didn't demolish agro stone	184	85.6
Total	215	100.0

Table 4.19 Condition of finishing walls

Condition of finishing walls	Frequency	Percent
Since we are renters, it is still the same until now.	6	2.8
Modified because the level of screed is poor.	50	23.3
It is still the same nothing has changed	139	64.7
Total	215	100.0

4.5.2 The time aspect of the construction process

A delay in a project could directly or indirectly affect the cost, stakeholder satisfaction, and other elements of the success of a given project. Despite the quality of the project delivery of the project on time is one of the main requirements of a client in the construction contract (Leong, et al. 2014, para 12.). MSEs have a key role in the delay of Basha Wolde Chilot condominium construction stated as (i) Withdrawal of MSEs during the construction phase; according to a key informant, some of them disappear without warning. An example to mention is the MSEs that went missing without adequate prior notification, causing delays in four blocks of the Basha Wolde Chilot condominium, which ultimately forced the Client (AAHDPO) to allocate other sanitary MSEs. (ii) Unskilled MSEs' workers in the construction process. As a key informant statement operating with unskilled MSEs led the task to being reworked again in a trial and error way. This eventually led to a construction delay. (iii) Compromising the deadlines and tolerating work delay of MSEs output by the client, AADHPO, led the MSEs to prioritize their private work and give subsequent time for the condominium's work.

When assessing the time aspect of an outcome process, the time spent by occupants on modification and maintenance is taken into account. According to the survey from 58% percent of the respondent, 23% of them took less than a month to finish modification. Thirteen percent of the respondent took 2-5 months, and the rest 10% of respondents took 6 months to a year. Whereas 9% of the respondents were renters who usually spent a week or two weeks for modification and maintenance.

4.5.3 The cost aspect of the construction process

The time and cost factors are the interchangeable factors in which the impact of one factor affects the other. The cost of managing and serving through the development of the construction process is an inevitable requirement for an effective and efficient implementation process. Starting from the project inception to implementation and delivery controlling the cost in the process is the heart of construction management. Cost does not only include a project budget from inception to completion but also considers different costs that come from variation and modification in the construction period, and after completion (Albert 2001).

The cost overruns in the Basha Wolde Chilot condominium are stated as (i) the training of the MSESs on different specific tasks. The involved MSEs do not understand the complexity of the

project. The working system of one sector of MSEs damages the other's outcome either intentionally or unintentionally. This eventually has cost the contractors or the users. (ii) The usage of materials was not counted nor managed, which resulted in the wastage of materials. If used properly the wasted materials could have been used for other consecutive constructions or projects. This happened because one supervisor was assigned to 22 blocks, and hence it was difficult to supervise each block. (iii) The exchange of good quality materials with a poor one. This deed resulted in modification costs for the occupants. (iv) The loss of supplied materials during the construction was also another major issue; as per one key informant's statement, this usually happened between MSEs; when one left, the other took over and materials were missing in great numbers. It even has led the government to install sanitary equipment (WC and washbasin) in the presence of the dwellers.

In the post-occupancy assessment, according to the survey,14.5% of the respondent spent 1000-5000 birr, 12% of the respondent spent 6,000-20,000, 27% of respondents are from spent 25,000-100,000 birr, 12.6% of the respondent spent 110,000-200,000 Birr, 8% of the respondent 250,000-900,000 birr on painting and other simple modification. One exceptional respondent spent 2,000,000 birr on whole house modification including partition and interior adjustments. Thus, the modifications made did not only affect dwellers (modifiers) but also the government as well. By demolishing and changing materials fixtures, electrical equipment, sanitary equipment, doors, and windows, what the government bought was wasted and became for nothing. Even though personal preference and status of the dwellers were one circumstance for modification, more than 60% of the respondents modified their houses because of the poor installation and finishing works.

4.5.3.1 User satisfaction with the outcome of the project

Basha Wolde Condominium residents' previous living conditions are said to have an impact on how satisfied they are with their current residences. As mentioned in the previous section, most of the occupants reported their previous house conditions to be good or acceptable. Hence, their current response could be validated assuming it was not biased by their previous condition. As Toor & Stephen (2010) Stakeholder satisfaction and user satisfaction is an important aspect that helps to measure the performance and the outcome of construction outcome (Toor and Stephen 2010). Satisfaction has been defined as the ability to compare an individual's impression of an outcome to their anticipation of the outcome (Leong, et al. 2014, para 12.).

When gauging the satisfaction of occupants, questions related to construction outcomes produced by MSEs were asked. This includes satisfaction regarding the finishing and installation of materials, fixture installation and finishing, and general quality of the construction was asked. In addition, they were asked, if their participation would have changed the outcome of the construction, which could be used as feed for future projects.

Occupants' satisfaction regarding the finishing and installation of materials, seemed to be below satisfactory for 29% of the respondents who reported believing that tasks were performed by MSEs just for the sake of completion, with no notion of quality in mind.

In the case of fixture installation and finishing, 67% of the respondents explained that they would rather finish and install materials themselves. As a result, more than 40% of the respondents had done reinstallation. While 21% of the respondents reported, they wish for the government to reinstall and do the finishing works again, because it is costly for them to do it themselves. Overall, the respondents would want a way for affordable reinstallation and modification or if the government could sponsor them.

While analyzing data regarding the outcome of the construction and evaluating, knowing about the houses' modification and maintenance is crucial, but knowing when modification and maintenance took place is as important. In the analysis process, modification could be defined and understood in a different context. For instance, a house could have been modified after several years of moving in and could still be acceptable in quality or it also could have been modified after a few months after completion where there is an implication that the outcome was of poor quality. Modification to adapt the house to personal preferences, even when the outcome is of good quality, is also another possibility for modification to take place.

According to the survey, 60% of the respondents had to modify the house due to poor workmanship. Twenty-seven percent of the respondents said that they only adjusted the wall painting because they could not afford to fix other defects. When they modify, they also take into account their personal preferences.

When it comes to construction quality, 60% reported it to be average while 4% were satisfied with the quality, installation, and actual output. In the case of participation, more than 80% stated they would have been interested in participating in the construction process of the condominium. As a respondent suggested that "*there wouldn't be any of these issues, and the construction would be satisfactory and cost-effective if the government had included residents in the process."*

There might be different reasons for user dissatisfaction. The above-mentioned aspects including poor quality, time delay, overspending on project cost, and quality performance of the product and service are some that resulted in user dissatisfaction.

Table 4.20 House modification on personal preference

House modification on personal preference	Frequency	Percent
I modified paintings and water pipelines for laundry usage	86	40.0
I modified gypsum, painted, electric installation, sanitary fixtures, and door installation	83	38.6
I modified wall paintings only	27	12.6
Total	215	100.0

4.6 Summary of findings

One vision of the IHDP is creating job opportunities and supporting MSEs. The formation of MSEs starts by registering interested applicants from each sub-city. The candidates take theoretical and practical tests to determine whether they qualify for the job. Training is provided by TVET for the selected candidate. The MSEs work contracts were given by AAHDPO after they were organized as an enterprise. The MSEs training, which only takes seven to ten days, is not adequate to qualify them; as a result, contractors were obligated to train the MSEs during construction, which led to most training and skill development being performed during the construction process.

The IHDP program provides various supports to different sectors by (i) providing funds and a place to work; (ii) facilitating access to credit; (iii) providing training; (iv) subsidizing machinery for firms; and (v) legalizing and creating guidelines. Despite the support provided, MSEs face different challenges in the IHDP, namely: (i) financial challenges (paying back the loan); (ii) not having a consistent central administration system, (iii) not having adequate skill, (iv) poor awareness of how technology transfer works in TVET institutes; and (v) the skill gap of the educators and MSEs.

MSEs in the IHDP are broadly divided into two sectors: the construction sector and the manufacturing sector. The construction sector includes sanitary and electrical installation, PVC window and agro stone fixing, and metalwork. The manufacturing sector includes precast beam production, HCB production, and aggregate production. The construction method of the Basha Wolde Chilot condominium is a material supply method, in which the AAHDPO supplies the materials and the contractor supplies the labor. Fifty MSEs participated in the Basha Wolde Chilot condominium; despite their large number, only thirty MSEs finished and delivered their work. MSEs were unable to complete the project for a variety of reasons, the most common being (i) personal disputes between members of the enterprise (ii) members' lack of work ethic and accountability (iii) members who are not skilled enough to operate on the project, causing the construction to rely on a small number of hands.

The construction process begins with the signing of an agreement with the key parties, and then the designated supervisors (from the client side) supply material for the contractor following the schedule and timeframe of their work. When the work reaches forty to fifty percent or the structural

components (the slab, the columns, and the foundations) are finished, the remaining 60 percent of the job is assigned to the MSEs. The contractors are the major actors responsible for MSEs work, but from the statements of key informants, the contractor assigns either a foreman or subcontractor after the construction of the main structure is completed. This led to the work being fully performed by MSEs with little guidance from the contractors.

The electric installation works; two blocks of the condominium were assigned to a single MSE. The installation had four stages: conduit installation, wiring, connecting, and fixture installation, respectively. During the installation, the major problems stated were the involvement of unskilled MSEs, damaged and exchanged materials, faulty inspection, and approval of work. Among the 215 participants, 27.1% reported encountering problems related to electric installation. Some respondents modified their electrical installation and fixtures before moving into the house because their neighbors advised them. Among the electric installation problems, burning of outlets and breakers, sockets that do not work, and socket breakage were the top three most encountered problems. Other problems encountered include overheating and melting of wires, electric contact problems, loose connections at switches and outlets, wires left hanging, and circuit boxes melting and fuses burning.

The sanitary works done had 4 phases: sewerage line installation, water line installation, installation of a water tanker, and fixture installation. They were done by MSEs assigned one for every four blocks of the Basha Wolde Chilot Condominium. During installation, the problems encountered included leaving the assigned project of four blocks without notice, which led to the delay of the project and a compromise in the quality of the work. There was no on-site sanitary modification, which led to two blocks not having permanent water. More than 29% have sanitary issues. The problems reported are water pipeline leakage, waterline fixture problems, sewerage line clogging in both the bathroom and kitchen, toilet flash problems, damaged fill valves and tubes, uninstalled bathroom fixtures, and rustiness in the materials of the bathroom and kitchen. More than 77% of the respondents rated it average, 16% rated it poor, and 2.3% rated it very good.

More than 23% of the respondents have door, window, and roof problems such as improper framing, misaligned bottom plates, doors that are not aligned with the floor and wall, doors that do not properly open and close, door handle and key problems, and water leakage through windows

and roofs. The most common corridor and floor finish problems reported are breakdown and peeling off terrazzo tile, water level problems, and manhole problems. Forty-five percent of the respondents have wall (agro stone) dampness and molding problems.

Even though there are several reasons for a cost overrun in the construction of the Basha Wolde Chilot condominium, from different key informant statements, the most important factors are: (i) the foreign currency exchange, (ii) resource constraints; (iii) the increase in materials prices and workmen's wages; (iv) difficulties in obtaining construction materials, (v) construction delays and the unexpected site conditions, (vi) the incomplete (poor) planning, (vii) the designing, poor material, and cost estimation stages, (vii) the lack of timely decisions, and (vii) excessive change orders.

The cost overrun because of MSEs engagement was a result of (i) the fact that the MSEs are trained to work on a specific task, i.e., they do not know the complexity of the construction effects. The training was given to the MSEs only on a specific sector of construction instead of all areas of construction. This led to the product of MSEs work being damaged by another's MSE, either intentionally or unintentionally, which eventually costs the contractors or the end users. (ii) Poor inspection and supervision of materials resulted in several wasted materials that could have been used during the construction period. This happened because only one supervisor was assigned for each sector of the 22 blocks, which is inadequate to supervise. (iii) The exchange and usage of low-quality materials in place of the good quality ones, which added the cost of replacement of installed materials to the user or inhabitant. (iv) The loss of supplied material during the construction was a major issue; as the key informant stated, this usually happens within the different sectors, which even led the government to install sanitary equipment (WC and washing basin) in the presence of the dwellers. (v) Resource constraints: as the modality of Basha Wolde Chilot condominium is material supply, the limitation of resources from the client led for MSEs to finish on specific materials, for a few enterprises, they were obliged to buy their materials even though the materials would later be added to their labor payment quality.

The other reason for cost overruns is user modification of finishing and installation because of poor quality and workmanship. Thus, the modification does not only affect the respondent but also the government's cost, of demolishing and changing the installed materials and fixtures. Even

though personal preference and status are also circumstances for modification, more than 60% of the respondents had to modify because of poor installation and finishing.

MSEs have also a role in the delay of Basha Wolde Chilot condominium construction. (i) With the drawl of MSEs during the construction period; as key informants stated, some of them get lost without any notice, and these issues hold up other sector work. E.g., four blocks were delayed because the sanitary MSEs disappeared without proper notice, which finally led the client (AAHDPO) to assign another sanitary MSEs. (ii) Unskilled MSEs during installation and finishing; as a key informant stated, operating with unskilled MSEs led the task to be reworked again as a result of trial and error, which eventually led to a construction delay. (iii) Compromising deadlines and work delays of MSEs output by the client led the MSEs to prioritize their private work and give subsequent time for their task on the program. Assessing the time aspect according to the post-occupancy refers to the time spent by the user for modification and maintenance. According to the survey from 58% percent of the respondent, 23% of the respondent took less than a month to finish modification. Thirteen percent of the respondent took 2-5 months the rest respondent took 6 months to a year while 9% of the respondent are renters who usually spend a week or two weeks for modification and maintenance but frequently modify it than other respondents.

CHAPTER 5: Conclusion and Recommendation

5.1 Conclusion

The objective of this study was to assess how the construction process undergone by MSEs affected the quality of condominium houses in the case of Basha Wolde Chilot Condominium I. The study focused on evaluating a relationship between the process of construction and the outcome of the construction. The results of this study help the government to focus on what kind of construction process has been undergone in condominium housing and the impact on the condominium housing quality. It also opens doors for additional research in the same field and others that are related.

The result indicates that the amount of work performed by MSEs during the condominium housing process is greater than that of other sectors that participated in the program, accounting for 60% of the total work. Including; finishing and installation, and production of construction material. The general construction system and organization of IHDP in Basha Wolde Chilot are substandard. This starts with the candidate formation process, the training phase given a maximum of 15 days in the program; MSEs members trained seven to ten days in Basha Wolde Chilot condominium which is inadequate to qualify them. As a result, contractors were required to train the MSEs during the construction process which led to most of the training and skill development to take place during the construction process.

The findings on the implementation stage show that the client (HDPO) advocates for MSEs without considering the opinions of other stakeholders. The grievance is returned to the stakeholder with no corrective action. This working system led to several disputes between stakeholders, which had significant negative impacts on the construction process.

The impact of MSEs engagement on the quality of Basha Wolde Chilot construction is as follows.

- Skill and workmanship: the inadequate training, and inspection of MSEs during the construction stage of the program
- Defective materials: the usage of low-quality in place of good-quality materials.

- Constructing by damaged material: Damages on working material occurred knowingly or unknowingly either during installation by MSEs or after by MSEs from other sectors but the repair was infrequent.
- The engagement of unskilled MSEs in the construction process led to many tasks needing rework and a trial and error process that eventually led to a construction delay.
- MSEs leaving the work contract without any notice caused work delays during the construction.
- The MSEs are trained to perform a certain task, thus they are unaware of how construction complexity affects the job. Damage to one sector of an MSE's operating system may result in costs for the contractor or the user.
- Usage of supplied material irresponsibly.
- Inadequate inspection and approval of work led to subpar work reaching the end user.
- Exchanged material with low standard material during installation has led the end user to reparation and replacement of material.

The creation of MSEs in the IHDP has indeed increased the wage of unskilled labor, created job opportunities, provided finances, and facilitated a safety net. This creates a positive image of the program. However, it is unsuccessful for it lacked consideration: the lack of a well-trained labor force and the effect of engaging an unskilled labor force on the program. The engagement of MSEs in the IHDP decreases unemployment but it is at the expense of the quality of condominium housing. Because of that, the MSEs' work in the condominium resulted in 80% of the respondents doing from simple to entire house modification and replacement.

5.2 Recommendation

5.2.1 For policymakers and planners

1. Selection of MSEs candidates in the IHDP should be based on the qualification of their working sector upon the decision of contractors.
2. One supervisor was assigned to 22 blocks of condominium houses. This workload led to poor inspection and approval of work during the construction. As a result, for the supervision to be effective, the worker should consider the nature of the work, and workload of the supervisor, and update the strategies accordingly. This will help majorly decrease onsite problems such as the usage of replaced and damaged materials
3. While the idea of training a large number of MSEs is unquestionable, the issue of whether the program is the most efficient way of training and making qualified MSEs should be considered. The study recommends sufficient time, budget, and standard training should be given. Moreover, training should be given according to the specified sector of their fields.

5.2.2 Construction stage for AAHDPO

4. The MSEs evaluated reports were not found on the concerned sectors, which creates doubt on the system if the evaluation was properly done, or not. Evaluating MSEs reports should be documented to see the defects for future projects.
5. Even though contractors give limited guidance and informal learning to MSEs during construction, however, it is not adequate for a contractor to guide several MSEs during construction. Assigning individuals who can guide MSEs during construction help for a better quality outcome.

5.2.3 For future study

6. The scope of the study was only limited to MSEs engagement in the construction process of condominium housing. However, future studies could be carried out to assess other stakeholders' engagement in the IHDP.

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Appendices

Appendix A- Publishable manuscript

Engagement of micro and small enterprises in the construction process of condominium housing: The case of Basha Wolde Chilot condominium

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June 2023

Abstract

Several studies have indicated the existence of quality problems in condominium houses in the IHDP and to solve these quality issues it is vital to understand the construction process undergone. This study addresses the MSEs which are the largest stakeholders in the IHDP among the actors involved in the construction work by assessing their engagement in the construction of condominium housing using the relation between process and the outcomes. A case study method was conducted to provide an in-depth understanding by taking the Basha Wolde Chilot condominium as a case and both qualitative and quantitative data were used. The study classified its findings into three categories based on quality issues, time delay, and cost overruns. The insufficient training given to MSEs that lasted seven to ten days caused quality issues, moreover, inadequate supervision and approval of MSEs work created a comfortable structure for MSEs to compromise the quality of the work. In addition, the engagement of unskilled MSEs led the task to being reworked again, and MSEs who left the work contract without any notice led to work delay. Moreover, the improper usage of supplied material and usage of damaged and replaced material with low-standard material during installation created cost overrun. Because of that, the MSEs' work in the condominium resulted in 80% of the respondents doing from simple to entire house modification and replacement. The research recommends selection of MSEs candidates in the IHDP should be based on the qualification of their working sector upon the decision of contractors. Furthermore, professionals who can guide MSEs during construction should be assigned for a better quality of the outcome and future studies could be carried out to assess other stakeholder's engagement in the IHDP.

Keywords: Micro and small enterprises, housing construction process, integrated housing development program, urban redevelopment.

1. Introduction

The IHDP has created job opportunities for various youth micro and small enterprises (MSEs) in the construction of housing. A survey done by World Bank (2009) indicates that a greater amount of the tasks in IHDP are done by MSEs in comparison to large contractors and other involved stakeholders. The scale of the program has played a substantial role in the creation of employment opportunities and income generation for a large proportion of the population.

Since the IHDP was started in 2005G.C, it has been indicated that there were different construction problems with water provision, sewerage disposal, and poor quality of the housings (UN-HABITAT 2010). Yet it has not been described which sector of the IHDP is responsible for the construction defects and what kind of construction process has led to these outcomes of the low-cost condominium housings. Despite the short period of occupation, these defects in the condominium have resulted in deteriorated buildings leading to maintenance and replacement of parts (UN-HABITAT 2010). Even though there are different studies on the IHDP but there is little research on the quality of condominium housing. In response, additional studies should be undertaken on the construction process of IHDP for further recommendations and implications. Accordingly, this research is conducted to describe and evaluate the engagement of MSEs in the IHDP and to have an understanding of the construction process by taking specific cases.

Thus, the research aims to assess how the construction process undergone by MSEs affected the quality of condominium houses in the Basha Wolde Chilot condominium I. The study focuses on how MSEs are involved in the construction sector and their impact on the outcome of housing projects. The study also discusses the context of the construction process, which includes MSEs tasks with other stakeholders. The study does not include other construction sectors and stakeholders' tasks in the IHDP. The spatial scope is limited to Addis Ababa, Ethiopia; in Arada sub-city, woreda nine and it covers one of the inner-city redeveloped area called the Basha Welde Chilot condominium.

2. Review of Related Literature

2.1 MSEs in the Construction Process

The MSEs have a large portion in the construction process and the lack of growth in the MSEs center will directly or indirectly impact the economy if they exit the market after some time in operation (Arthur-Aidoo 2015).

Construction is dominated by the MSEs. For instance, if we take the EU construction industry, 93% of construction enterprises are controlled by MSEs which is highly significant for the growth of Europe while in the UK construction industry constitutes about 21% of the total enterprises that amounting to more than two million employees (Dick and Payne 2005). The main characteristic of MSEs is job creation, if we took developing countries like Botswana, Kenya, and Zimbabwe and Asian countries have higher job creation than large firms but the durability increases with the firm size. It is also known for labor intensity in boosting employment but also has critics MSEs work is more locally based and are not experienced.

There are different ways of evaluating the construction process starting from client satisfaction, client changes, business performance, health, safety, and others. The three major indicators affecting the performance of a project are time, quality, and cost which are known as the “iron triangle” (Iyer and Jha 2006). It is a known model which has been used since 1950, it is a fundamental aspect of understanding and measuring a given project. It is used to evaluate whether the project is delivered by the due date, within budget, and to some agreed level of quality performance or scope (Pollack, et al. 2018).

2.2 Construction Quality Assessment in Labor Work

There is a different way of assessing a given construction but mainly it has five methods statistical methods, visual methods, feedback/ questioning methods, use of records, and automated methods.

2.2.1 Visual Method

The visual method depends on physical observation (inspection) of labor work to review and judge the ongoing work (precision of work), and quality of material. This assessment is considered highly subjective, as evaluation and judgment are made based on the assessor’s competence, experiences, taste, view distance, view duration, view activities, and personal preferences. This method can be more workable by specifying and detailing items, which should be rated, and procedures for developing estimates (Shawn and Michael 2012).

2.2.2 Statistical method

The technique brings about assessing the amount of productive, non-productive, and supportive time that laborers spent in the workstation. This observation should be undertaken at the site randomly without prior notice to the workers. This method generally helps to see the major impacts on labor productivity despite the needing for time and cost of the assessment (Okoye, Okolie and Agu 2019).

2.2.3 Questioning/ Feedback Methods

This method includes assessing the quality of the construction by questioning and interviewing different stakeholders and key informants to take their views on the quality of the construction as a feed. Even though questionnaires are preferred to collect a large amount of data in a short time, interviews also could give a different perspective and more information and clarification on issues (Okoye, Okolie and Agu 2019). Questioning/feedback methods and visual methods are easier and more applicable for assessing quality.

2.2.4 Use of records

Using different records and documenting is also another type of assessment. Documents such as daily activity logs, project reports, daily construction reports, track project logs, general work scheduling, and flow of the project could be used (Hojjat and Sina 2014). Even though it is a more accurate way of assessment, it is said to be time-consuming and bulky for assessing a given construction (Okoye, Okolie and Agu 2019).

2.2.5 Automated methods

This method uses automatic computerized techniques to assess, collect and analyze quality data. This includes the use of SD laser, sensors, thermal imaging analysis, mobile robots, and infrared thermographs are some of the computerized techniques used for analysis and quality assessment. For example, cracks in walls and floors, the structural flow of a given building, and the different surfaces of the materials to determine by the automated computerized technique (Okoye, Okolie and Agu 2019).

2.3 Post occupancy Evaluation in Construction

The post-occupancy evaluation (POE) is the authority term for the process of obtaining feedback on the performance of a recently completed new building or refurbishment. Over time the value of

POE has been recognized not only as a one-off evaluation of a recently completed project but as an ongoing assessment process for any building in use that should be conducted at fixed intervals over the building's life cycle.

Post-occupancy evaluation can be used to evaluate a constructed house: (i) if the project is delivered according to time, cost, and quality. (ii) If the project is fully completed according to the design and contract. (iii) If the project has a potential for further improvement, (IV) what lessons can be learned for future projects.

The process of post-occupancy evaluation can be visualized as part of the building lifecycle, where information learned from an operational project can be used to inform decisions at all stages. Post-occupancy evaluation can be particularly valuable to repeat developers and may be a requirement of some funding bodies. It may be carried out by a consultant, independent client advisers, individuals, or an in-house team established by the client. It may also be part of a wider aftercare service such as that outlined by the soft-landings framework (Hadjri Karim and Carl 2009).

However, post-occupancy evaluation is likely to take place after the main construction contract has been completed. Ideally, the client should commit to carrying out a post-occupancy evaluation at the beginning of the project. Appointment agreements and briefing documents include requirements to test whether objectives were achieved according to time, quality, and cost. If not occupants should participate to evaluate the construction through a post-project review to evaluate the project delivery process and an assessment of performance in use (Brioso, et al. 2017).

A post-project review is undertaken to evaluate the effectiveness and efficiency of the project delivery process. To undertake a post-project review, it is important to seek the views of contractors, designers, suppliers, and the client about how well the project was managed. This may include assessments of how well the delivery of the project performed against key performance indicators. Such as the quality of briefing documents, the effectiveness of communications, the performance of the project team, and quality issues. Health and safety issues, certification, variations, claims and disputes, and collaborative practices. An evaluation can then be made of what lessons could be learned from the approach taken and an assessment and lessons-learned report prepared.

2.4 Theoretical framework

The complexity of the construction process seeks managerial theories as a theoretical framework; modern management theories that could help to formulate the conceptual framework is the systems theory that considers an organization as a dynamic and interrelated set of parts. Every part of a system represents a given department, each department has its subsystem and thus the effective interaction of every subsystem helps to attain the goals of the larger system. These interdependencies can easily become so complex that a minor event in one subsystem may amplify into serious unintended consequences elsewhere in the organization (Howes 1996). The open systems theory (OST) explains the relationships between the organizations and the environment; it emphasizes organizations' ability to adapt to changes in environmental conditions (with or without the need for information processing) (Mele, Pels and Polesa 2010).

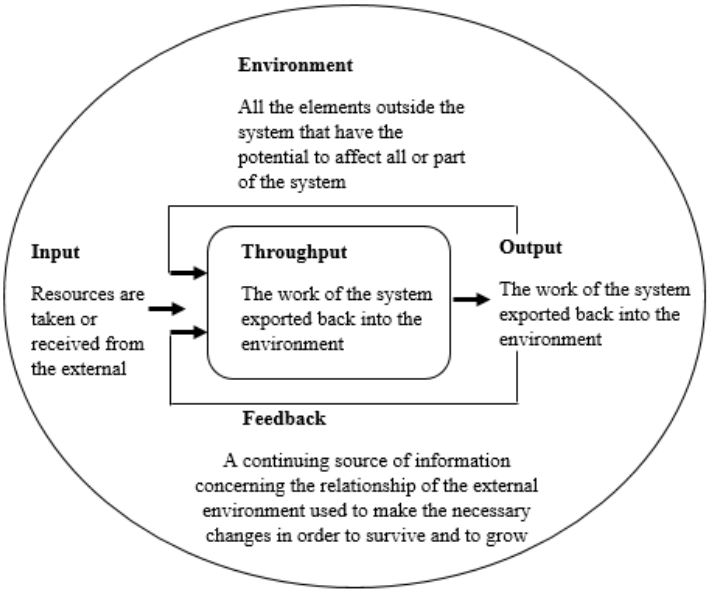

Figure A. 1 1Open system model (Daniel and Robert 1978)

1. **Energy inputs into the organizations**: Includes tangible resources such as employees, raw materials, and capital and intangible external influences, such as status, recognition, satisfaction, or other personal rewards.

2. **The transformation of those inputs within the system**: It is a transformation process, which involves using energies, or inputs, to create products or services.
3. **Energy outputs**: Products or services
4. **Feedback**: Recycling refers to the fact that outputs are indirectly recycled back into the organization (Daniel and Robert 1978).

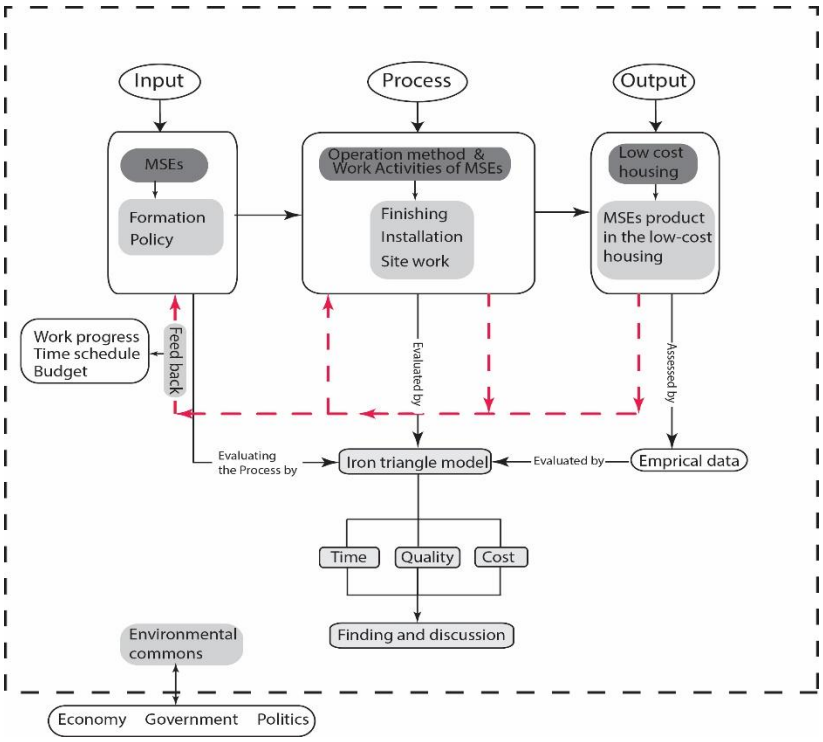

Figure A. 2 Conceptual framework of the study

3. Methods

The research method chosen for this research is a single (holistic) case study Yin defined case study research as *"Case studies are the preferred strategy when "how" or "why" questions are being posed when the investigator has little control over events."* It helps to take a detailed look at the issues raised on the topic by the selection of specific cases (Yin 2018). In other words, the basic aim of a case study is to provide an in-depth, accurate, and complete description of the case. For an appropriate response to this context, the research used both qualitative and quantitative data. The qualitative data of the research data are findings collected through questionnaires, interviews, and observation. The quantitative data are quantifiable data extracted from the survey questionnaires.

The research used two types of data sources. These are the primary and secondary data sources. Primary data through (i) Interview: To understand the deep construction process of IHDP, the researcher has conducted an in-depth interview with various individuals who actively participated in the process. A semi-structured interview was used to obtain a description of the life world of the interviewee concerning interpreting the meaning of the described phenomena (Kvale 1996). Generally, 21 individuals interviewed for the study, and the selection criteria were according to the task of individuals who were actively participated in the Basha Wolde Chilot condominium.

Table A. 1 Not correctly installed electric line

Type of interview	Types of interviewee	No. of informants
Semi-structured and in-depth interview	AAHDPO officials	5
	Sub-city officials	2
Semi-structured, in-depth interviews and informal discussion	MSEs	7
	Contractors	6
	Consultant	1

(ii) Direct Observation and Photography: The researcher used a non-participant observation that is the researcher observed and recorded the ongoing activities without taking part. (iii) Questionnaire: The study used a semi-structured questionnaire, which has both close-ended and open-ended questions. Secondary data through (iv) Desk review: The study has also looked at secondary sources through desk-reviewing; books (monographs, textbooks, and reference books), journal articles, newspaper articles, commercial reports, government reports, thesis, and dissertations were used.

The targeted population of the study is residents who live in the Basha Wolde Chilot condominium. The sampling technique used for the study was stratified random sampling, which is frequently used to ensure that every stratum is sufficiently represented, when there is a big variation within a population and is divided into strata (subgroups) (Taherdoost 2016). The study sample has been taken from each stratum based on different professions and company sizes.

$$n = \frac{N}{1 + Ne^2} \qquad n_s = \frac{N_s}{N} * n$$

n= sample size

N =total population

e= error margin (5%)

$n_s = \ studio\ proportion$

$n_{1b} = \ one\ bed\ room\ proportion$

$n_{2b} = Two\ bed\ room\ proportion$

$n_{3b} = \ Three\ bed\ room\ proportion$

$N_s = Household\ type\ \ population$

(Kothari 2004)

$$n = \frac{450}{1+450(0.05)^2}$$

Sample size = 215 households

Household type proportion

$n_s = \frac{95}{465} * \ 215$ = 44 households

$n_{1b} = \frac{95}{465} * \ 215$ = 44 households

$n_{2b} = \frac{180}{465} * \ 215$ = 83 households

$n_{3b} = \frac{95}{465} * \ 215$ = 44 household

The strata were determined following the MSEs sectors, explicitly participated in, and given areas after the sample size and sample proportion that is drawn from households. Accordingly, it is determined by block, floor, and ownership.

D. By Block: The block stratum was chosen since each block is responsible for allocating micro and small businesses to the locations where they operate.
E. By Floor (ground and fourth floor): The ground floor was selected to evaluate the impact of leaks, pavement, and leveling. On the ground level, other waste systems' effects on the sanitary and electrical systems can be assessed. The roof and sanitary impact of the housing unit were viewed on the fourth floor.
F. By ownership**:-** To see the effect of the construction on how it is delivered and how it is going there should be at least two people in one block who preferably should be the owner of the house.

The analysis method of this research is based on the (Creswell and Creswell 2018) mixed-method approach that involves combining and integrating both qualitative and quantitative data in response to the research question. Out of three types of mixed-method analysis approaches, the convergent mixed-method approach was used for this study. In the convergent mixed method, quantitative and

qualitative data were collected and analyzed separately. A complete analysis of the research was found by integration of the quantitative and qualitative results.

Accordingly, Qualitative data was gathered through desk review, interviews with key informants, direct observation, and photography. The Qualitative results were interpreted and presented in a narrative approach along with reviewed literature. The quantitative data were obtained from questionnaires. Then the data were analyzed using *IBM SPSS Statistics 20 software,* interpreted, and presented *statistically* by categorizing the different key variables of the questionnaire and rationalizing them into different segments. The final integration of results is done by relating the qualitative findings side-by-side with the quantitative statistical results. The data was presented coherently based on the analytic frame in responding to the research questions. Accordingly, the outcome of MSEs in the Basha Wolde Chilot condominium regarding the process according to quality, time, and cost aspects is discussed briefly.

4. Result and discussion

MSEs in the IHDP are broadly divided into two: the construction sector and the manufacturing sector. The construction sector includes sanitary and electrical installation, PVC window and Agro stone fixing, and metalwork. The manufacturing sector includes precast beam production, HCB production, and aggregate production. The AAHDPO implemented a material supply method in the Basha Wolde Chilot condominium's construction, in which the AAHDPO supplies the materials and the contractor supplies the labor. Fifty MSEs have participated in the Basha Wolde Chilot condominium; despite their large number, those who finished and delivered their work were only 30 MSEs. MSEs couldn’t finish the job for various reasons but the general shaded area is (i) personal dispute between members of the enterprise (ii) members with no work ethic and accountability (iii) members who are not skilled and educated this ultimately led the construction to rely on few hands of the enterprises.

The construction process begins with the signing of an agreement with the key parties, and then the designated supervisors (from the client-side) supply material for the contractor following the schedule and timeframe of their work. When the work reaches 40–50 percent, or the structural components (the slab, the columns, and the foundations) are finished, the remaining 60 percent of the job was assigned to the MSEs. The contractors are majorly responsible sector for MSEs work but as from key informants' statements, contractors ended up assigning either foremen or

subcontractors after the main structure construction is completed. This led the work to be fully performed by MSEs without guidance.

4.1 Quality

When it comes to electric installation works, two blocks of the condominium were assigned for a single MSE. The installation has four stages: conduit installation, wiring, and connecting and fixture installation respectively. During the installation, the major problems found were the involvement of unskilled and unaccountable MSEs, damaged and exchanged materials, faulty inspection, and approval of work. Among the 215 participants, 27.1 percent reported encountering problems related to an electric installation problem. Some respondents modified their electrical installation and fixtures before moving into the house because they were advised by their neighbors.

Table A. 2 Not correctly installed electric line

Not correctly installed electric line	Frequency	Percent
Yes, the electric line was not installed correctly	51	23.7
No, the electric line was installed correctly	162	75.3
Total	215	100.0

Among the electric installation problems, burning of outlets and breakers, not working sockets, and socket breakage were the top three most encountered problems. Other problems encountered include overheating and melting of wires, electric contact problems, loose connection at switches and outlets, wires left hanging and circuit boxes melting, and fuses burning.

Table A. 3 Uninstalled sockets or switches

Uninstalled Sockets or switches	Frequency	Percent
Yes, I have uninstalled sockets or switches	48	22.3
No, I don’t have uninstalled sockets or switches	165	76.7
Total	213	99.1

Table A. 4 Burning of breaker

Burning of breaker	Frequency	Percent

Yes, I had a burning of the breaker	87	40.5
No, I didn't have any burning of the breaker	127	59.1
Total	214	99.5

The sanitary works done had 4 phases: sewerage line installation, water line installation, installation of a water tanker, and fixture installation. They were done by MSEs assigned one for every four blocks of Basha Wolde Chilot Condominium. During installation the problems encountered stated as leaving the assigned project of four blocks without notice which led to the delay of the project and compromise on the quality of work, There were no on-site sanitary modifications, which led to two blocks of the condominium not having permanent water.

Sanitary fittings and fixtures problems were encountered by 29% of the total 215 respondents. These reported problems were caused mainly due to poor installation of the fixtures attributed to poor workmanship, and usage of poor-quality materials. Problems like incorrect pipe laying and bathroom fixture installation were caused by poor workmanship. Dampness was evident on the walls of most of these respondents.

When it comes to defective bathroom fixture installation, 19% of respondents reported encountering it. They described the problem as the WC was just hanging and seated without any adjustments and proper installation. Half of these respondents have fixed it by reinstalling the WCs.

Table A. 5 Water pipeline leakage

Water pipeline leakage	Frequency	Percent
Yes, I had a water pipeline leakage problem	103	47.9
No, I didn't have a water pipeline leakage problem	109	50.7
Total	215	100.0

The usage of poor-quality materials has caused problems including, sanitary fixture problems and water line problems. Water line fixture problems were encountered by 32.1% of respondents including water taps. Other three (3) problems like yellow stains in the bathroom,

toilet flash problems, and sewerage line clogging problems caused by the combination of the two causes i.e. defective bathroom fixtures and usage of poor quality materials. Related to the toilet flash problem damaged fill valves and tubes are the common problems reported by the respondents.

Table A. 6 Water pipeline leakage

Water line fixtures problem	Frequency	Percent
Yes, I had a waterline fixture problem	69	32.1
No, I didn't have any waterline fixture problem	142	66
Total	215	100.0

Table A. 7 Water sewerage clogging

Water sewerage Clogging	Frequency	Percent
Yes, I had a water sewerage clogging problem	27	12.6
No, I didn't have any water sewerage clogging problem	186	86.5
Total	215	100.0

Table A. 8 Uninstalled bathroom fixtures

Uninstalled bathroom fixtures	Frequency	Percent
Yes, I had uninstalled bathroom fixtures	8	36.4
No, I didn't have uninstalled bathroom fixtures	14	63.6
Total	22	100.0

Table A. 9 Rusty bathroom fixtures

Rusty bathroom fixtures	Frequency	Percent
Yes, I have rusty bathroom fixtures	44	20.5
No, I don't have rusty bathroom fixtures	168	78.1
Total	215	100.0

When it comes to the satisfaction of respondents regarding the installation of the sanitary fittings, 77% of the respondents rated it as average, 16% rated it as poor (unacceptable), and only 2.3% rated it as very good.

The door installation was different from the other installations because there was on-site door production before the installation took place. One MSE was assigned to produce and install doors for two blocks of the Basha Welde Condominium. The on-site production started by requesting raw materials from AAHDPO and went on to production. After production, the doors were placed following the size of the hinge once the contractor has completed 70% of the building.

The windows, on the other hand, were manufactured by local companies and provided by AAHDPO to the MSEs. Handrails and the metal stairs of the condominium were produced on the site by MSEs. The stair installation was done along with the corridor floor finishing. The roof installation for the blocks was the last to take place and was done when the construction was completed. However, because of the lack of accountability of the MSEs, the modified walls for door and window installation were left as they were without proper finishing.

More than 23% of the respondent have door, window, and roof problems. Including improper framing of doors and windows, misaligned bottom plates, doors which is not aligned with the floor and wall, doors that do not properly open and close, door handle and key problem, and water leakage through windows.

Table A. 10 Doors properly not closed and opened

The door which is not properly closed and opened	Frequency	Percent
Yes, doors were properly not closed and opened	42	19.5
No, the doors were properly opened and closed	172	80
Total	214	99.5

Table A. 11 Not properly installed door handle and key

Not properly installed door handle and key	Frequency	Percent
Yes, the door handle and key were not properly installed	59	27.4
No, the door handle and key were properly installed	155	72.1
Total	214	99.5

Table A. 12 Door and window openings that have water leakage

Does the door and window opening have water leakage	Frequency	Percent
Yes, the door and window openings have water leakage	81	37.7
No, the door and window openings don't have water leakage	133	61.9
Total	214	99.5

The roof leakage was reported as cracked corrugated sheet metal because the installation/repair did not follow the right precaution and improper alignment of the valleys.

Table A. 13 Roof leakage problem

Roof leakage problem	Frequency	Percent
Yes, I have a roof leakage problem	25	62.5
No, I don't have a roof leakage problem	15	37.5
Total	215	100.0

Ninety-three percent of respondents had no problems regarding corridors and stairs all respondents stated that the stairs are good space-wise and safe for the users. As a main problem in the work of MSEs, 20% of the respondents mentioned the common corridor water level problem. The other problem mentioned by 5.6% of respondents was level difference defects on corridor floors.

Terrazzo finishing material was reported peeling off and breaking down of terrazzo tiles and 8.4% of respondents reported encountering this problem. Manhole problems were reported as 11% of

the respondent had this problem as a block because of improper usage of sewerage lines; throwing of different solid waste materials that should not be in sewerage.

Forty-five percent of the respondents have reported seeing wall dampness and molding mostly in the summer season. These problems were reported to be found on all floors. They were caused by different scenarios such as leakage from the upper floor, the rain on the wall during the summer season, water drainpipes, and other related sanitary problems.

For partition wall purposes, agro-stone materials were commonly used for the first three floors. On the fourth and last floor, hollow block partition walls were used because it was thought that the last floors are vulnerable to water from the roof. The implication here is that the roof installed by the MSEs will likely malfunction hence a better-proof material, hallow blocks, should be used to prevent wall dampness and molding.

Even though numerous pieces of evidence show that agro stones could be used efficiently, the experience and opinions of the respondents were found to be different which led 13% of respondents to demolish and replace them with hollow blocks. Whereas the finished wall screed was unleveled and caused by poor workmanship in which more than 80% of the respondent encountered such problems.

Table A. 14 Demolishing of agro stone

Demolishing agro stone	Frequency	Percent
Yes, I demolished agro stone	29	13.5
No, I didn’t demolish agro stone	184	85.6
Total	215	100.0

Table A. 15 Condition of finishing walls

Condition of finishing walls	Frequency	Percent
Since we are renters, it is still the same until now.	6	2.8
Modified because the level of screed is poor.	50	23.3
It is still the same nothing has changed	139	64.7
Total	215	100.0

4.2 Cost

Cost does not only include a project budget from inception to completion but also considers different costs that come from variation and modification in the construction period, and after completion (Albert 2001). The cost overruns stated as (i) the training was given for MSEs only on their specific sector of construction instead of the whole construction. This led to the product of MSEs work being damaged by the other's MSEs member either intentionally or unintentionally which eventually costs the contractors or the end users. (ii) The improper usage of materials which resulted to be considered as wastage of materials. If used properly the wasted materials could have been used for other consecutive constructions or projects. This happened because one supervisor was assigned to 22 blocks, and hence it was difficult to supervise each block. (iii) The availability of provided materials, freely and with no manager, led the MSEs to exchange good quality materials with poor ones. This deed resulted in modification costs for the occupants. (iv) The loss of supplied materials during the construction was also another major issue; as per one key informant's statement, this usually happened between MSEs; when one left, the other took over and materials were missing in great numbers. It even has led the government to install sanitary equipment (WC and washbasin) in the presence of the dwellers.

In the post-occupancy assessment, according to the survey,14.5% of the respondent spent 1000-5000 birr, 12% of the respondent spent 6,000-20,000, 27% of respondents are from spent 25,000-100,000 birr, 12.6% of the respondent spent 110,000-200,000 Birr, 8% of the respondent 250,000-900,000 birr on painting and other simple modification. One exceptional respondent spent 2,000,000 birr on whole house modification including partition and interior adjustments. Thus, the modifications made did not only affect dwellers (modifiers) but also the government as well. By demolishing and changing materials fixtures, electrical equipment, sanitary equipment, doors, and windows, what the government bought was wasted and became for nothing. Even though personal preference and status of the dwellers were one circumstance for modification, more than 60% of the respondents modified their houses because of the poor installation and finishingworks.

4.3 Time

One of project success is on how well the project is implemented and the degree how time achieved (Albert 2001). A project could be successful if it can define a given time with a definite start and specific end most importantly if it is completed within a specific time.

MSEs have a key role in the delay of Basha Welde Chilot condominium construction stated as (i) Withdrawal of MSEs during the construction phase; according to a key informant, some of them disappear without warning. An example to mention is the MSEs that went missing without adequate prior notification, causing delays in four blocks of the Basha Welde Chilot condominium, which ultimately forced the client (AAHDPO) to allocate other sanitary MSEs. (ii) Unskilled MSEs' workers in the construction process. As one key informant stated operating with unskilled MSEs led the task to being reworked again in a trial and error way. This eventually led to a construction delay. (iii) Compromising the deadlines and tolerating work delay of MSEs output by the client, AADHPO, led the MSEs to prioritize their private work and give subsequent time for the condominium's work.

When assessing the time aspect of an outcome process, the time spent by occupants on modification and maintenance is taken into account. According to the survey from 58% percent of the respondent, 23% of them took less than a month to finish modification. Thirteen percent of the respondent took 2-5 months and the rest 10% of respondents took 6 months to a year. Whereas 9% of the respondents were renters who usually spent a week or two weeks for modification and maintenance.

5. Conclusion

The results indicate that the amount of work performed by MSEs during the IHDP process is greater than that of other sectors that participated in the program, accounting for 60% of the total work. These include finishing and installation, and production of construction material. The study has classified its findings into three categories based on quality issues, time delay, and cost overruns. (i) Usage of damaged material and low-quality material in place of good-quality materials. (ii)The engagement of unskilled MSEs in the construction process, led to many tasks needing rework and a trial and error process that eventually led to a construction delay and poor quality. (iii) MSEs leaving the work contract without any notice caused work delay during the construction.. (iv) Inadequate inspection and approval of work led to subpar work reaching the end

user. (v) Exchanged material with low standard material during installation has led the end user to reparation and replacement of material. The engagement of MSEs in the IHDP decreases unemployment but it is at the expense of the quality of condominium housing. Because of that, the MSEs' work in the condominium resulted in 80% of the respondents doing from simple to entire house modification and replacement.

6. Recommendation

- **For policymakers and planners**
  - Selection of MSEs candidates in the IHDP should be based on the qualification of their working sector upon the decision of contractors.
  - One supervisor was assigned to 22 blocks of condominium houses. This workload led to poor inspection and approval of work during the construction. As a result, for the supervision to be effective, the worker should consider the nature of the work, and workload of the supervisor, and update the strategies accordingly. This will help majorly decrease onsite problems such as the usage of replaced and damaged materials.
- **Construction stage for AAHDPO**
  - The MSEs evaluated reports were not found on the concerned sectors, which creates doubt on the system if the evaluation was properly done, or not. Evaluating MSEs reports should be documented to see the defects for future projects.
  - Even though contractors give inadequate guidance and informal learning to MSEs during construction, however, it is not adequate for a contractor to guide several MSEs during construction. Assigning individuals who can guide MSEs during construction help for a better quality outcome.
- **For future study**
  - The scope of the study was only limited to address MSEs engagement in the construction process of IHDP. However, future studies could be carried out to assess other stakeholders' engagement in the IHDP.

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Appendix B- Survey protocol

1. The interviewer must be acknowledged by the compound committee to perform their duty of interviewing if possible must have a badge provided by a committee.
2. At least 4 houses on each block must be interviewed from each block and typology (i.e. studio, one bedroom, two bedroom, and 3 bedroom)
3. The interview shall be done in sequence starting from block 1 to the last block in ascending order; while within the block it should start from the ground floor to the fourth floor, accordingly.
4. The interviewer must interview the households on the ground floor and 4th floor of each block and shall include the other floors
   N.B. it is mandatory to take data on the ground and fourth floor.
5. The interviewer must give priority to the household owner rather than the renters for the interview.
6. If the interviewee happens to be male and female householders then it is preferable to ask both owners for a better survey.
7. It is preferable for the interviewer to interview on a weekend or weekday after work hours for multiple surveys.
8. Please approach households, introduce yourself according to the given Amharic "Introductory Note (የቃለ መጠይቅ መግቢያ), and ask for the willingness of the household head (HH) to participate in the survey. If the HH is not available, you may interview an alternate member of the household (AHH) who can sufficiently respond to the contents of the interview.
9. If the HH / AHH is willing to be interviewed, please proceed with the interview using the given questionnaire.
10. If the HH / AHH is not available for a second visit, he/she should select another HH on the same floor if not on the same block.
11. If a questionnaire is fully completed, a new household should interview to replace it.
    If the respondent HH /AHH is unwilling to respond to a specific question, please circle the question number, write "XXX" to the left of the question number, and skip the question.
    (In such cases, please first make sure that the respondent has understood the intended meaning of the particular question before writing "xxx")

12. After interviewing a given HH/AHH, make sure to close the interview with a good farewell.

Appendix C - Questionnaire

Housing and Sustainable Development (HASD) postgraduate program

ለባሻ ወልዴ ኮንዶሚኒየም ነዋሪዎች የተዘጋጀ መጠይቅ

የመጠይቁ ዓላማ : በአዲስ አበባ ቤቶች ግንባታ የባሻ ወልዴ ሳይት ላይ የሚደረግ ጥናት ሲሆን ጥናቱ ለድህረ ምረቃ መመረቂያ ጽሁፍ የሚውል ጥናት ነው።።
የጥናቱ ውጤት ለከተማችን እናኗሪዎቿ ፋይዳ እንዲኖረው ሲባል በመጠይቆቹ ለተዘጋጁት ጥያቄዎች አስፈላጊዉን ሁሉ መልስ እንድትሰጡኝ በአክብሮት እጠይቃለሁ።።

ብሎክ ቁጥር_____ የወለል ቁጥር_____ የቤት ቁጥር _____

ክፍል ፣

ሀ·የተጠያቂዉ ገጽታ

1. ጾታ

   A) ሴት B) ወንድ

2. ዕድሜ_____

3. አሁን ያሉበት የትምህርት ደረጃዎ ምን ላይ ነው?

   A)የመጀመርያ ደረጃ B)ሁለተኛ ደረጃ C)ዲፕሎማ D)ቴክንክ እና ሙያ E)ድግሪ F) ሁለተኛ ድግሪ እና ከዚያ በላይ

   G) የቀለም ትምህርት አልወሰድኩም

4. የግንባታ ስራ ላይ ሙያ/ስልጠና ወስደው ያቃሉ?

   A· አዎ B· አይ

5. ምን አይነት ስራ ላይ ነው ተሰማርተው የሚገኙት?

   A) የግንባታ ስራ B) የኤሌትሪክ ስራ C) የቧንቧ እና ፍሳሽ ስራ D)የፊኒሺንግ ስራ E) ኮንስትራክሽን እና ተያያዥ ስራዎች

   F _____ G ስራ የለኝም

6. ከዚህ በፊት የራሶ ቤት ወይም የሌላ ሰው ቤት አሰርተው ወይም አሳድሰው ያቃሉ?

   A· አዎ B· አይ

7. ከዚህ በፊት የአፓርትመንት፣የኮንዶሚኒየም ወይም ቪላ ቤት ውስጥ ኖረው ያቃሉ/ የአኗኗር ዘይቤ ልምድ አሎት?

   A· አዎ B· አይ

ለ· የቤተሰብ ገጽታ

8. በቤተሰብ ውስጥ ያለ የነዋሪ ብዛት?

	የቤተሰብ ብዛት	
	ወንድ	ሴት

ብዛት		

9. በቤተሰብ ውስጥ የግንባታ ስራ ላይ ሙያ/ስልጠና ላይ የወሰደ የቤተሰብ አካል አለ ?

A· አዎ B· አይ

10. በቤተሰብ ውስጥ በግንባታ ስራ ወይም ተያያዥ ስራዎች ላይ ተሰማርቶ የሚገኝ የቤተሰብ አካል አለ?

A· አዎ B· አይ

11. አዎ ከሆነ መልሶ ምን አይነት ስራ ላይ ነው ተሰማርተው የሚገኙት?_____

ሐ· ኢኮኖሚያዊ ገጽታ

12. የቤተሰቡ አጠቃላይ ወርሃዊ ገቢ በአማካኝ ምን ያክል ነው? _____

13. የቤተሰቡ የገቢ ምንጭ ምን ምን ናቸው?_____

14. የቤተሰቡ አጠቃላይ ወርሃዊ ወጪ ምን ያክል ነው?_____

ክፍል 2

ሀ· የቀድሞ ቤትን የተመለከቱ ጥያቄዎች

15. ከዚህ በፊት ይኖርበት የነበረው ቤት የግንባታ ቁሳቁስ እና የግንባታ ጥራት ደረጃ በምን መልኩ ይገልጹታል?

አይነት	የቁሳቁስ አይነት		የግንባታ ጥራት			
	የተሰራበት ቁሳቁስ	ያለቀበት ቁሳቁስ	እ·በጣም ጥሩ	በጣም ጥሩ	ጥሩ	መጥፎ
ግድግዳ						
ወለል						
ጣሪያ						
ኮርኒስ						

16. ከዚህ በፊት ይኖርበት የነበረው ቤት ውስጥ ያለው የመጸዳጃ ቤት መቀመጫ አይነት ምን ነበር?

A· ውሃ መልቀቅያ (ፍላሽ) ያለው

B. ውሃ መልቀቅያ (ፍላሽ) የሌለው C. ሁለቱም

17. ከዚህ በፊት ይኖርበት የነበረው ቤት ውስጥ ግድግዳ ላይ የተገጠመ የእቃ ማጠቢያ ይጠቀሙ ነበር?

A· አዎ B· አይ

18. ከዚህ በፊት የቤቶን ጣሪያ አስጠግነውት /አስቀይረው ያቃሉ?

A· አዎ B· አይ

19. ከዚህ በፊት የቤቶን መስኮት አስገጥመው/አስቀይረው ያቃሉ?

A· አዎ B· አይ

20. ከዚህ በፊት የቤቶን በር አስገጥመው/አስቀይረው ያቃሉ?

A· አዎ B· አይ

21. ከዚህ በፊት ይኖርበት የነበረው ቤት ውስጥ ሃይል የሚወስዱ ቁሳቁሶች(ምጣድ፣ስቶቭ ወ.ዘ.ተ) ላይ መስመሩ ወይም ብሬከሩ ተቃጥሎ ያቃል?

A· አዎ B· አይ

22. ከዚህ በፊት ይኖርበት የነበረው ቤት ውስጥ ያለ የውሃ መስመር እቃዎችን በተመለከተ፣ ውሃ የማንጠባጠብ/ማፍሰስ ችግር ያጋጥማቹ ነበር?

A· አዎ B· አይ

23. ከዚህ በፊት ይኖርበት የነበረው ቤት ውስጥ የውሃ ፍሳሽ ማስወገጃ እቃዎችን በተመለከተ፣ ውሃ የማንጠባጠብ/ማፍሰስ ችግር ያጋጥማቹ ነበር?

A· አዎ B· አይ

24. ከዚህ በፊት ይኖርበት የነበረው ቤት ውስጥ ያለ የውሃ ፍሳሽ ማስወገጃ እቃዎችን በተመለከተ፣የመደፈን ችግር ያጋጥማቹ ነበር?

A· አዎ B· አይ

ክፍል 3

አዲሱ ቤትን （ባሻ ወልዴ） የተመለከቱ ጥያቄዎች

ሀ· አሁን ስለሚኖሩበት ቤት የመነሻ ጥያቄዎች

25. የምትኖሩበት ቤት የባለቤትነት ይዞታ አይነት ምንድነው?

A. ባለቤት B.ባላደራ C. ተከራይ

26. ለምን ያክል ጊዜ በዜህ ቤት ውስጥ ኖራችኋል? _____

27. የምትኖሩበት የቤት አይነት ምንድን ነው?

A. ስቱዲዮ B. ባለ አንድ C. ባለ ሁለት D. ባለ ሶስት

ለ· ኤሌክትሪክ ዝርጋታ ላይ የወጡ ጥያቄዎች

28. የኤሌክትሪክ መስመርን ገመዶች የመቅለጥና የመቃጠል ሁኔታ አጋጥሞዎት ያውቃል?

A አዎ B አይ

28.1 መልስዎ አዎ ከሆነ ችግሩ ምን ነበር? _____

28.2 መልስዎ አዎ ከሆነ ችግሩ ፈተውታል?

A አዎ B አይ

28.3 መልስዎ አዎ ከሆነ ችግሩን በምን መልኩ ሊፈቱት ችለዋል?

_____

_____

28.4 ችግሩን ማን እንደፈጠረ ያውቃሉ?/ ከማን ጋር የተያያዘ ነው?_____

28.5 ችግሩን ያስተካከለው አካል ማን ነው?_____

29. የኤሌክትሪክ ማብሪያ ማጥፊያ በትክክል ያለመገጠም ሁኔታ አጋጥሞቷል?

A. አዎ B. አይ

29.1 መልስዎ አዎ ከሆነ ችግሩ ፈተውታል?

A አዎ B አይ

29.2 መልስዎ አዎ ከሆነ እንዴት አስተካከሉት? _____

29.3 ችግሩን ማን እንደፈጠረ ያውቃሉ?/ ከማን ጋር የተያያዘ ነው?_____

29.4 ችግሩን ያስተካከለው አካል ማን ነው?_____

30. የቤቱ የኤሌክትሪክ መቆጣጠሪያ(ብሬከርስ) የመቃጠል ሁኔታ አጋጥሞት ነበር?

A አዎ B አይ

30.1 መልስዎ አዎ ከሆነ ችግሩን ፈተውታል?

A አዎ B አይ

30.2 መልስዎ አዎ ከሆነ እንዴት አስተካከሉት? _____

30.3 ችግሩን ማን እንደፈጠረ ያውቃሉ?/ ከማን ጋር የተያያዘ ነው?_____

30.4 ችግሩን ያስተካከለው አካል ማን ነው?_____

31. የኤሌክትሪክ መስመር በትክክል ያለመገጠም ሁኔታ አጋጥሟቹሃል?

A አዎ B አይ

31.1 መልስዎ አዎ ከሆነ ችግሩን ፈተውታል?

A አዎ B አይ

31.2 መልስዎ አዎ ከሆነ እንዴት አስተካከሉት? _____

31.3 ችግሩን ማን እንደፈጠረ ያውቃሉ?/ ከማን ጋር የተያያዘ ነው?_____

31.4 ችግሩን ያስተካከለው አካል ማን ነው?_____

32. የኤሌክትሪክ ሶኬት/ማብሪያ ማጥፊያ ያለመገጠም/ ያለመኖር ሁኔታ አጋጥሟቹሃል?

A አዎ B አይ

32.1 መልስዎ አዎ ከሆነ ችግሩን ፈተውታል?

A አዎ B አይ

32.2 መልስዎ አዎ ከሆነ እንዴት አስተካከሉት? _____

32.3 ችግሩን ማን እንደፈጠረ ያውቃሉ?/ ከማን ጋር የተያያዘ ነው?_____

32.4 ችግሩን ያስተካከለው አካል ማን ነው?_____

33. የሶኬቶች ያለመስራት ችግር አጋጥሞት ነበር?

A አዎ ነበር B አይ አልነበረም

33.1 መልስዎ አዎ ከሆነ ችግሩን ፈተውታል?

A አዎ B አይ

33.2 መልስዎ አዎ ከሆነ ችግሩን በምን መልኩ ሊፈቱት ችለዋል?

_____

_____

33.3 ችግሩን ማን እንደፈጠረ ያውቃሉ?/ ከማን ጋር የተያያዘ ነው?_____

33.4 ችግሩን ያስተካከለው አካል ማን ነው?_____

34. የሶኬቶች መቅለጥ እንዲሁም መሰበር ችግር አጋጥሞት ነበር ወይ?

A. አዎ ያቃል B. አይ አያቅም

34.1 መልስዎ አዎ ከሆነ ችግሩን ፈተውታል?

A አዎ B አይ

34.2 መልስዎ አዎ ከሆነ በምን መልኩ ሊፈቱት ችለዋል?_____

34.3 ችግሩን ማን እንደፈጠረ ያውቃሉ?/ ከማን ጋር የተያያዘ ነው?_____

34.4 ችግሩን ያስተካከለው አካል ማን ነው?_____

35. ከኤሌትሪክ ጋር የተያያዙ እቃዎችን ወይም እድሳቶችን ለማድረግ ምን ያህል ወጪ

አውጥተዋል?_____

36. ከኤሌትሪክ ጋር የተያያዙ እቃዎችን ወይም እድሳቶችን በምን ያህል ጊዜ

ይለውጣሉ?_____

37. የኤሌትሪክ አገጣጠም እና ቁሳቁሶች ጋር በተያያዘ የጥራቱን ሁኔታ በምን መልኩ

ይገልጹታል?_____

38. የኤሌትሪክ እና ተያያዥ ዝርጋታ እና ገጠማን በተመለከተ ቤቱን ስትረከቡት የነበረበት ሁኔታ እንዴት ነበር?

_____

ሐ. የፍሳሽ እቃዎች እና ገጠማ ላይ የወጡ ጥያቄዎች

39. የማብሰያ/ የመጸዳጃ ክፍል የውሃ ቧንቧ መስመር ላይ በተመለከተ ውሃ የማንጠባጠብ/የማፍሰስ ሁኔታ አጋጥሞት ነበር?

A አዎ ነበር B አይ አልነበረም

39.1 መልስዎ አዎ ከሆነ ችግሩን ፈተውታል?

A አዎ B አይ

39.2 መልስዎ አዎ ከሆነ በምን መልኩ ሊፈቱት ችለዋል?_____

_____

39.3 ችግሩን ማን እንደፈጠረ ያውቃሉ?/ ከማን ጋር የተያያዘ ነው?_____

39.4 ችግሩን ያስተካከለው አካል ማን ነው?_____

40. የማብሰያ/ የመጸዳጃ ክፍል የውሃ መክፈቻ እና መዝጊያ ቁሳቁሶች ላይ የማፍሰስ / የማንጠባጠብ ሁኔታ አጋጥሞት ነበር?

A አዎ ነበር B አይ አልነበረም

40.1 መልስዎ አዎ ከሆነ ችግሩን ፈተውታል?

A አዎ B አይ

40.2 መልስዎ አዎ ከሆነ በምን መልኩ ሊፈቱት ችለዋል?_____

_____

40.3 ችግሩን ማን እንደፈጠረ ያውቃሉ?/ ከማን ጋር የተያያዘ ነው?_____

40.4 ችግሩን ያስተካከለው አካል ማን ነው?_____

41. የማብሰያ/ የመጸዳጃ ክፍል ፍሳሽ ማስወገጃ ትቦዎች የመደፈን ችግር አጋጥሞት ነበር?

A አዎ ነበር B አይ አልነበረም

41.1 መልስዎ አዎ ከሆነ ችግሩን ፈተውታል?

A አዎ B አይ

41.2 መልስዎ አዎ ከሆነ በምን መልኩ ሊፈቱት ችለዋል ?_____

_____

41.3 ችግሩን ማን እንደፈጠረ ያውቃሉ?/ ከማን ጋር የተያያዘ

ነው?_____

41.4 ችግሩን ያስተካከለው አካል ማን ነው?_____

42. የሽንት ቤት መቀመጫ ውሃ መልቀቂያ (ፍላሽ) በአግባቡ ይሰራ ነበር?

A አዎ ነበር B አይ አልነበረም

42.1 መልስዎ አዎ ከሆነ ችግሩን ፈተውታል?

A አዎ B አይ

42.2 መልስዎ አዎ ከሆነ በምን መልኩ ሊፈቱት ችለዋል አዎ ከሆነ ችግሩ ምን ነበር?

_____

_____

42.3 ችግሩን ማን እንደፈጠረ ያውቃሉ?/ ከማን ጋር የተያያዘ ነው?_____

42.4 ችግሩን ያስተካከለው አካል ማን ነው?_____

43. የመጸዳጃ ቤት እቃዎች ላይ በተያያዘ በትክክል ያልተገጠመ የባኞ ቤት እቃ ወይም ቁሳቁስ አጋጥሞት ነበር?

A አዎ ነበር B አይ አልነበረም

43.1 መልስዎ አዎ ከሆነ ችግሩን ፈተውታል?

A አዎ B አይ

43.2 መልስዎ አዎ ከሆነ በምን መልኩ ሊፈቱት ችለዋል?_____

_____

43.3 ችግሩን ማን እንደፈጠረ ያውቃሉ?/ ከማን ጋር የተያያዘ ነው?_____

43.4 ችግሩን ያስተካከለው አካል ማን ነው?_____

44. የመጸዳጃ ቤት እቃዎች ላይ በተያያዘ የባኞ ቤት እቃ ወይም ቁሳቁሶች ላይ የመዛግ/የመበላት ሁኔታ አጋጥሞት ነበር ?

A አዎ ነበር B አይ አልነበረም

44.1 መልስዎ አዎ ከሆነ ችግሩን ፈተውታል?

A አዎ B አይ

44.2 መልስዎ አዎ ከሆነ በምን መልኩ ሊፈቱት ችለዋል?_____

_____

44.3 ችግሩን ማን እንደፈጠረ ያውቃሉ?/ ከማን ጋር የተያያዘ ነው?_____

44.4 ችግሩን ያስተካከለው አካል ማን ነው?_____

45. ከቧንቧ እና ፍሳሽ እቃዎች ጋር ተያያዘው ቅያሪዎች ወይም እድሳቶችን ለማድረግ ምን ያህል ወጪ አውጥተዋል?

_____

46. ከቧንቧ እና ፍሳሽ እቃዎች ጋር ተያያዘው ቅያሪዎች ወይም እድሳቶችን በምን ያህል ጊዜ ያከናውናሉ?

_____

47. ከቧንቧ እና ፍሳሽ እቃዎች ጋር በተያያዘ የጥራቱን ሁኔታ በምን መልኩ ይገልጹታል?_____

48. የውሃ ፣ ፍሳሽ እና ተያያዥ ዝርጋታ እና ገጠማን በተመለከተ ቤቱን ስትረከቡት የነበረበት ሁኔታ እንዴት ነበር?

_____

ሙ. በር፣ መስኮት እና የጣራ ስራ ላይ የወጡ ጥያቄዎች

49. በርዎ በትክክል ያለመዘጋት ወይም ያለመግጠም ችግር አጋጥሞት ነበር?

A አዎ ነበር B አይ አልነበረም

49.1 መልስዎ አዎ ከሆነ ችግሩን ፈተውታል?

A አዎ B አይ

49.2 መልስዎ አዎ ከሆነ በምን መልኩ ሊፈቱት ችለዋል?_____

_____

49.3 ችግሩን ማን እንደፈጠረ ያውቃሉ?/ ከማን ጋር የተያያዘ ነው?_____

49.4 ችግሩን ያስተካከለው አካል ማን ነው?_____

50. በርዎ/መስኮቶ ያለመገጠም/ያለመኖር ሁኔታ አጋጥሞት ነበር?

A አዎ ነበር B አይ አልነበረም

50.1 መልስዎ አዎ ከሆነ ችግሩን ፈተውታል?

A አዎ B አይ

50.2 መልስዎ አዎ ከሆነ በምን መልኩ ሊፈቱት ችለዋል?_____

_____

50.3 ችግሩን ማን እንደፈጠረ ያውቃሉ?/ ከማን ጋር የተያያዘ ነው?_____

50.4 ችግሩን ያስተካከለው አካል ማን ነው?_____

51. መስኮቶት በትክክል ያለመገጠም ሁኔታ አጋጥሞት ነበር?

A አዎ ነበር B አይ አልነበረም

51.1 መልስዎ አዎ ከሆነ ችግሩን ፈተውታል?

A አዎ B አይ

51.2 መልስዎ አዎ ከሆነ በምን መልኩ ሊፈቱት ችለዋል?_____

51.3 ችግሩን ማን እንደፈጠረ ያውቃሉ?/ ከማን ጋር የተያያዘ ነው?_____

51.4 ችግሩን ያስተካከለው አካል ማን ነው?_____

52. የበር መክፈቻ፣ መዝጊያ (ቁልፍ፣ እጀታ) በትክክል ያለመገጠም ሁኔታ አጋጥሞት ነበር?

A አዎ ነበር B አይ አልነበረም

52.1 መልስዎ አዎ ከሆነ ችግሩን ፈተውታል?

A አዎ B አይ

52.2 መልስዎ አዎ ከሆነ በምን መልኩ ሊፈቱት ችለዋል?_____

52.3 ችግሩን ማን እንደፈጠረ ያውቃሉ?/ ከማን ጋር የተያያዘ ነው?_____

52.4 ችግሩን ያስተካከለው አካል ማን ነው?_____

53. መስኮቶች ጋር በተያያዘ ተዘግተውም ክፍተት ስላላቸው ዉሃ እና/ ንፋስ ያስገቡ ነበር?

A አዎ ያስገባ ነበር B አይ አያስገባም

53.1 መልስዎ አዎ ከሆነ ችግሩን ፈተውታል?

A አዎ B አይ

53.2 መልስዎ አዎ ከሆነ በምን መልኩ ሊፈቱት ችለዋል?_____

53.3 ችግሩን ማን እንደፈጠረ ያውቃሉ?/ ከማን ጋር የተያያዘ ነው?_____

53.4 ችግሩን ያስተካከለሎት አካል ማን ነው?_____

54. ጣራዎ የማፍሰስ (ኮርኒስ የመርጠብ) ችግር አጋጥሞት ነበር?

A አዎ ነበር B አይ አልነበረም

54.1 መልስዎ አዎ ከሆነ ችግሩን ፈተውታል?

A አዎ B አይ

54.2 መልስዎ አዎ ከሆነ በምን መልኩ ሊፈቱት ችለዋል?_____

54.3 ችግሩን ማን እንደፈጠረ ያውቃሉ?/ ከማን ጋር የተያያዘ ነው?_____

54.4 ችግሩን ያስተካከለሎት አካል ማን ነው?_____

55. የበር፣ መስኮት እና የጣራ ተያያዘው ቅያሪዎች ወይም እድሳቶች ላይ ምን ያህል ወጪ አውጥተዋል?_____

56. የበር፣ መስኮት እና የጣራ ጋር ተያያዘው ቅያሪዎች ወይም እድሳቶችን በምን ያህል ጊዜ ያከናውናሉ?

_____

57. የበር፣ መስኮት እና የጣራ አገጣጠም እና ቁሳቁሶች ጋር በተያያዘ የጥራቱን ሁኔታ በምን መልኩ ይገልጹታል?

_____

58. የበር፣ መስኮት፣ የጣራ አገጣጠም እና ቁሳቁሶች እና ገጠማን በተመለከተ ቤቱን ስትረከቡት የነበረበት ሁኔታ እንዴት ነበር?

_____

ሰ· የሊሾ ፣ የልስን ፣ አግሮ ስቶን እና የብሎኬት ስራዎች ላይ የወጡ ጥያቄዎች

59. በመጸዳጃ እና በማብሰያ ክፍል ውስጥ ያለው ግርግዳ የመጥቆር፣የመሸገት፣ የግርግዳ የላይኛው ክፍል የመቀረፍ ችግር አጋጥሞት ነበር?

A አዎ ነበር B አይ አልነበረም

59.1 መልስዎ አዎ ከሆነ ችግሩን ፈተውታል?

A አዎ B አይ

59.2 መልስዎ አዎ ከሆነ በምን መልኩ ሊፈቱት ችለዋል?_____

59.3 ችግሩን ማን እንደፈጠረ ያውቃሉ?/ ከማን ጋር የተያያዘ ነው?_____

59.4 ችግሩን ያስተካከለሎት አካል ማን ነው?_____

60. በቤቶ የላይኛው ኮሪኒስ(ስላብ) ውሃ የመስረግ ወይም መፍሰስ ችግር አጋጥሞት ነበር?

A አዎ ነበር B አይ አልነበረም

60.1 መልስዎ አዎ ከሆነ ችግሩን ፈተውታል?

A አዎ B አይ

60.2 መልስዎ አዎ ከሆነ በምን መልኩ ሊፈቱት ችለዋል?_____

60.3 ችግሩን ማን እንደፈጠረ ያውቃሉ?/ ከማን ጋር የተያያዘ ነው?_____

60.4 ችግሩን ያስተካከለሎት አካል ማን ነው?_____

61. የግድግዳ ልስን የመሰንጠቅ ወይም የመላላጥ ችግር አጋጥሞት ነበር ?

A አዎ ነበር B አይ አልነበረም

61.1 መልስዎ አዎ ከሆነ ችግሩን ፈተውታል?

A አዎ B አይ

61.2 መልስዎ አዎ ከሆነ በምን መልኩ ሊፈቱት ችለዋል?_____

_____

61.3 ችግሩን ማን እንደፈጠረ ያውቃሉ?/ ከማን ጋር የተያያዘ ነው?_____

61.4 ችግሩን ያስተካከለሎት አካል ማን ነው?_____

62. የአግሮ ስቶን መከፋፈያ ቁስ ሲገቡ አፍርሰውት ነበር?

A አዎ ነበር B አይ አልነበረም

62.1 መልስዎ አዎ ከሆነ ያፈረሱበት ምክንያት ምንድን ነው በዝርዝር ያስረዱ?

_____

63. የሊሾ ፣ የልስን ፣ አግሮ ስቶን እና የብሎኬት ጋር ተያያዘው ቅያሪዎች ወይም እድሳቶች ላይ ምን ያህል ወጪ አውጥተዋል?_____

64. የሊሾ ፣ የልስን ፣ አግሮ ስቶን እና የብሎኬት ጋር ተያያዘው ቅያሪዎች ወይም እድሳቶችን በምን ያህል ጊዜ ያከናውናሉ?

_____

65. የሊሾ ፣ የልስን ፣ አግሮ ስቶን እና የብሎኬት ጋር በተያያዘ የጥራቱን ሁኔታ በምን መልኩ ይገልጹታል?_____

66. የሊሾ ፣ የልስን ፣ አግሮ ስቶን እና የብሎኬት ስራዎችን በተመለከተ ቤቱን ስትረከቡት የነበረበት ሁኔታ እንዴት ነበር?

_____

ሠ. የጋራ ቦታ መሬት ንጣፍ፣ የግቢ እግረኛ ፣ ደረጃ ፣ማን ሆል ላይ የወጡ ጥያቄዎች

67. በግቢያችሁ ውስጥ ያለውን ደረጃ ሲወጡ መጠነኛ የሆነ ቁመት ነዉ ያላቸው ወይስ ለማውጣት ያዳግታሉ?

A አዎ ነበር B አይ አልነበረም

68. በግቢያችሁ ውስጥ ያለውን ደረጃ የላይኛው ንጣፍ የመነሳት፣ የመሰበር ወይም የመላላጥ ሁኔታ አጋጥሟቹ ነበር?

A አዎ ነበር B አይ አልነበረም

68.1 መልስዎ አዎ ከሆነ ችግሩን ፈተውታል?

A አዎ B አይ

68.2 መልስዎ አዎ ከሆነ በምን መልኩ ሊፈቱት ችለዋል?_____

69. ከማን ሆል (ከመሬት ጉድጓድ) ጋር በተያያዘ ያጋጠሞት ችግር ካለ በዝርዝር ያስረዱ?

_____

70. የጋራ መሬት ንጣፍ ጋር በተያያዘ ውሃ የማቆር/ውሃ እንደልብ ያለመሄድ ሁኔታ አጋጥሞት ነበር?

A አዎ B አይ

71. ከ ተራ ቁ 70 አዎ ከሆነ መልስዎ ፣ ምን አይነት ችግር አጋጥሞት ነበር?

_____

72. ከ ተራ ቁ 70 አዎ ከሆነ መልስዎ ፣ ችግሩ ፈትተውት ነበር? A አዎ B አይ

73. ከ ተራ ቁ 72 አዎ ከሆነ መልስዎ ፣ ችግሩን በምን መልኩ ሊፈቱት ችለዋል?_____

74. ችግሩን የፈጠረው ማን እንደሆነ ያውቃሉ?/ ከማን ጋር የተያያዘ እንደሆነ?

_____

ሸ. አጠቃላይ የቤት አጨራረስ

75. የቤት አጨራረስ ላይ በተመለከተ በግል ፍላጎት/ምርጫ መሰረት ባደረገ ምን ላይ ማሻሻያ/ለውጥ አካሂደዋል?

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76. ከ ተራ ቁ 75 ማሻሻያ አካሂደው ከነበረ ምን ያህል ወጪ አውጥተዋል?_____

77. ከ ተራ ቁ 75 ማሻሻያ አካሂደው ከነበረ ለማሻሻል ምን ያህል ጊዜ ወስዶበታል?_____

78. ባጠቃላይ የህንጻ አጨራረስን / የህንጻ እቃዎች የአገጣጠም ተመልክቶ ያሎት ሀሳብ ይግለጹልን?

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79. የባቫ ወልዴ ኮንዶሚኒዬም ገጠማ እና አጨራረስን በተመለከተ እናንተ ብታሰሩት ነው ወይስ አልቆ ቢሰጣችሁ ነው የምትመርጡት?

_____

80. የባሻ ወልዴ ኮንዶሚኒዬም ገጠማ እና አጨራረስን በተመለከተ የስራው ክትትል ላይ መሳተፍ ትፈልጉ ነበር?

_____

81. የተጠያቂው ስም?_____ (ይህ ጥያቄ እንደ አማራጭ ሊመልሱ ይችላሉ)

ጊዜዎን ሰውተው ስለመለሱልን አመሰግናለሁ

የሞላው ሰው ስም_____

ፊርማ_____

82. የግል ምልከታ ጥያቄዎች

	የአጨራረስ አይነት	እ በጣም ጥሩ	ተቀባይነት ያለው	ደካማ		ተቀባይነት የሌለው	ማሻሻያ የተደረገለት
				የስራ ጥራት	የቁስ ጥራት		
1.	መስኮት						
2.	በር						
3.	ልስን						
4.	ስላብ						
5.	ግርግዳ						
6.	የግርግዳ ሴራሚክ						
7.	ወለል						
8.	ኮርኒስ						
9.	ጣሪያ						
10	የፍሽ ማስወገጃ ቱቦዎች						
11.	የውሃ መውረጃ ቧንቧዎች						

12	የመጸዳጃ ቤት መቀመጫ						
13	የእጅ መታጠቢያ						
14	የሻወር ትሪ						
15	የመጸዳጃ ቤት ወለል						
16	የእቃ ማታጠቢያ ሳህን						
17	የኤሌክትሪክ ሶኬት						
18	የኤሌክትሪክ ማብርያ ማጥፊያ						
19	የኤሌክትሪክ አምፖል/መብራት						
20	የብሎክ ደረጃ						

Appendix D: Result

Table D0.1 Lived duration in the house

Lived duration in the house		Ownership		
		Owner	Renter	Custodian
Lived duration in the house	1 Year	3	12	0
	2 Years	9	16	0
	3 Years	24	32	1
	4 Years	24	22	0
	5 Years	31	16	0
	≤ 6 Months	1	21	0
Total		92	119	1

Table D0.2 Educational status of the respondent

Educational status of the respondent		Gender		Total
		Female	Male	
education	Primary	8	2	10
	Secondary	36	9	45
	Diploma	23	22	45
	Technical and Vocational	7	7	14
	Degree	37	34	71
	Second Degree and above	10	6	16
	not educated	12	2	14
Total		133	82	215

Table D0.3 Monthly household income and expense

Monthly household income and expense	N	Minimum	Maximum	Mean
Monthly household income	189	5000.00	40000.00	12950
Monthly expense	175	3000.00	30000.00	18031

Table D0.4 Source of income

Source of income		Frequency	Percent	Valid Percent
Valid	Salary	122	56.7	64.6
	Family support	7	3.3	3.7
	Pension	2	0.9	1.1
	Business	58	27	30
	Total	189	87.9	100.0
Missing	System	26	12.1	
Total		215	100.0	

Table D0.5 Wal material type

Wall material type		Frequency	Percent
Valid	Mud	93	43.3
	Blocket	111	51.6
	Brick	1	0.5
	Missing	10	4.7
	Total	205	95.3

Table D0.6 Wall finish material

Wall finish material		Frequency	Percent
Valid	Mud finish	12	5.6
	Plastered finish	153	71.2
	Gypsum finish	16	7.4
	Total	181	84.2
Missing	System	34	15.8
Total		215	100.0

Table D0.7 Floor material type

Floor material type		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Screed floor	158	73.5	79.4	79.4
	Wooden floor	9	4.2	4.5	83.9
	Ceramic tiles	30	14	15.1	99
	Plastic tiles	1	0.5	0.5	99.5
	Mud floor	1	0.5	0.5	100.0
	Total	199	92.6	100.0	
Missing	System	16	7.4		
Total		215	100.0		

Table D0.8 Roof material type

Roof material type		Frequency	Percent
Valid	Corrugated iron sheet	199	92.6
Missing	System	16	7.4
Total		215	100.0

Table D0.9 Cornice material type

Cornice material type		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Chipud	162	75.3	91.5	91.5
	Slab	15	7	8.5	100.0
	Total	177	82.3	100.0	
Missing	System	38	17.7		
Total		215	100.0		

Table D0.10 Toilet sit type

Toilet sit type		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	With flash	124	57.7	57.9	57.9
	Without flash	90	41.9	42.1	100.0
	Total	215	100.0	100.0	

Table D0.11 Sink usage

Sink usage		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	125	58.1	58.4	58.4
	No	89	41.4	41.6	100.0
	Total	215	100.0	100.0	

Table D0.12 Modification cost

How much for modification		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		56	26.0	26.0	26.0
	1000	4	1.9	1.9	27.9
	10000	5	2.3	2.3	30.2
	100000	16	7.4	7.4	37.7
	120000	7	3.3	3.3	40.9
	13000	2	.9	.9	41.9
	1500	1	.5	.5	42.3
	15000	8	3.7	3.7	46.0
	150000	6	2.8	2.8	48.8
	160000	1	.5	.5	49.3
	170000	2	.9	.9	50.2
	18000	1	.5	.5	50.7
	180000	2	.9	.9	51.6
	2000	3	1.4	1.4	53.0
	20000	4	1.9	1.9	54.9
	200000	9	4.2	4.2	59.1
	2000000	1	.5	.5	59.5
	25000	5	2.3	2.3	61.9
	250000	1	.5	.5	62.3
	3000	6	2.8	2.8	65.1
	30000	2	.9	.9	66.0
	300000	5	2.3	2.3	68.4
	350000	2	.9	.9	69.3
	4000	8	3.7	3.7	73.0
	40000	4	1.9	1.9	74.9
	400000	4	1.9	1.9	76.7
	5000	9	4.2	4.2	80.9
	50000	12	5.6	5.6	86.5
	500000	3	1.4	1.4	87.9
	6000	2	.9	.9	88.8
	60000	7	3.3	3.3	92.1
	7000	2	.9	.9	93.0
	70000	9	4.2	4.2	97.2

	8000	1	.5	.5	97.7
	80000	1	.5	.5	98.1
	800000	1	.5	.5	98.6
	9000	1	.5	.5	99.1
	90000	1	.5	.5	99.5
	900000	1	.5	.5	100.0
	Total	215	100.0	100.0	

Table D0.13 Time for modification

How long		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		91	42.3	42.3	42.3
	1 month	23	10.7	10.7	53.0
	1 week	18	8.4	8.4	61.4
	1 year	1	.5	.5	61.9
	2 month	3	1.4	1.4	63.3
	2 months	29	13.5	13.5	76.7
	2 weeks	7	3.3	3.3	80.0
	3 months	1	.5	.5	80.5
	3 month	2	.9	.9	81.4
	3 months	10	4.7	4.7	86.0
	4 days	1	.5	.5	86.5
	4 month	2	.9	.9	87.4
	4 months	13	6.0	6.0	93.5
	5 month	1	.5	.5	94.0
	5 months	1	.5	.5	94.4
	6 months	9	4.2	4.2	98.6
	8 months	2	.9	.9	99.5
	9 months	1	.5	.5	100.0
	Total	215	100.0	100.0	

Appendix E: Questions for key informant

የመጠይቁ ዓላማ ፡ በአዲስ አበባ ቤቶች ግንባታ የባሻ ወልዴ ሳይት ላይ የሚደረግ ጥናት ሲሆን ጥናቱ ለድህረ ምረቃ መመረቂያ ጽሁፍ የሚውል ጥናት ነው።

ለ (ስራ ተቋራጭ፣ አራዳ ክፍለ ከተማ ፣ አዲስ አበባ አስተዳደር ቤቶች ልማት እና አስተዳደር ቢሮ የቤቶች ልማት ኮርፖሬሽን፣ የከተማ ልማት ቤቶች እና ኮንስትራክሽን ሚኒስቴር፣ ጥቃቅንና አነስተኛ ኢንተርፕራይዝ በኮንስትራክሽን ዘርፍ ላይ ለተሰማሩ ተቋማት፣ የባለቤት ቅርንጫፍ ፅፈት ቤት)

1. ጥቃትንና አነስተኛ ተቋማት የስራ አመዳደብ በተመለከቱ ጥያቄዎች
   1.1 ጥቃቅን እና አነስተኛ ተቋማትን የሚመደብባቸው አካል ማን ነው?
   1.2 ተቋማቱ የአመዳደባቸውን ሂደት እንዴት ይገልፁታል?
   1.3 የምደባው መስፈርት ምንድነው?
2. ጥቃቅንና አነስተኛ ተቋማትን በተመለከተ የሚወጡ መመሪያዎች
   2.1 መመሪያዎችን በተመለከተ የሚወጣና የሚያፀድቅ ክፍል እነማን ናቸው?
   2.2 መመሪያዎች ሲወጡ ምን ላይ መሰረት ያረጉ መመሪያዎች ይወጣሉ?
   2.3 መመሪያዎች ከመውጣታቸው በፊት የሚጠኑ ጥናቶች /ውይይት/ የሌላ ሀገር ተሞክሮዎች ይጠናሉ/አይጠኑም?
   2.4 መመሪያዎች በተመለከተ ማሻሻያ ይደረጋል?
      2.4.1ከተደረገ በምን ያህል የጊዜ ክፍተት ?
      2.4.2 ማሻሻያው የሚተገብረው አካል ማን ነው?
3. ጥቃቅንና አነስተኛ ተቋማትን በኮንስትራክሽን ዘርፍ የሙያ ስልጠና በተመለከተ
   3.1 ስልጠናውን የሚሰጠው አካል ማን ነው?
   3.2 የስልጠና አሰጣጥ መስፈርትና ሂደት እንዴት ነው?
   3.3 የስልጠናው አይነቶች በዘርፉ ስር ምንድን ናቸው?
   3.4 የሰልጣኞቹ ብቃት በምን ምዘና ይረጋገጣል?
   3.5 ለስልጠና የሚቀርቡ ሰልጣኞች በምን መስፈርት ወደ ስልጠናው ይገባሉ?
4. ጥቃቅንና አነስተኛ በኮንስትራክሽን ዘርፍ ክትትልን በተመለከተ የወጡ ጥያቄዎች
   4.1 ክትትል የሚያረገው አካል ማን ነው?
   4.2 የስራ ሂደታችውን ክትትል ይደረጋል/አይደረግም?
   4.3 የስራ ሂደቱን በምን ያህል የጊዜ ክፍተት ይከታተሉታል?
   4.4 ክትትሉ ውጤታማ ነው ብለው ያስባሉ?
5. ጥቃቅንና አነስተኛ ተቋማትን በኮንስትራክሽን ዘርፍ በተመለከተ የሚወጡ ጥያቄዎች እና ቅሬታዎች
   5.1 የስራ ሂደቱን በተመለከተ የሚቀርቡ ጥያቄዎች /ስሞታዎች/ ቅሬታዎች የሚቀበል አካል አለ? ካለ የትኛው አካል ነው?
   5.2 ለጥያቄዎች ቅሬታዎች ምላሽ በምን መልኩ ይቀርባሉ
      ሀ. ቅሬታ አቅራቢዎችን ያሳተፈ ውይይት
      ለ. ምላሽ አይቀርቡም
      ሐ. በተግባር ለማሻሻል ይሞከራል
      መ. _____
      _____
   5.3 ቅሬታዎች በምን መልኩ ቀርበው ይስተናገዳሉ
      ሀ. በፁሁፍ/በደብዳቤ
      ለ. በቃል/በውይይት
6. ጥቃቅንና አነስተኛ ተቋማትን በኮንስትራክሽን ዘርፍ አፈፃፀምን በተመለከተ
   6.1 የስራ ሂደት አፈፃፀም በተመለከተ የሚመለከተው አካል ማን ነው

6.2 የስራ ሂደት አፈፃፀም የሚመጡ ችግሮች እንዴት ይፈታሉ?

6.3 ችግሮች ደግመው እንዳይፈጠሩ ምን አይነት እርምጃዎች/መመሪያዎች ይወስዳሉ?

6.4 ችግሮችን በሚፈፅሙ አካላት ምን አይነት እርምጃዎች/መመሪያዎች ይወስዳሉ?

6.5 በስራ ሂደት አፈፃፀም የሚወጡ መመሪያዎች አጥጋቢ ናቸው ብለው ያምናሉ?

6.5.1በአፈፃፀም ሂደቱ ላይ ይሰራል ብለው የሚሰ ት አስተያየት/ምክረ ሀሳብ አለ?

7. ጥቃቅንና አነስተኛ በኮንስትራክሽን ዘርፍ ብቃታቸውን በተመለከተ

7.1 የተቋማት ብቃታቸው በምን መልኩ ይመዘናል?

7.2 የምዘና ሂደቱ ምን ያህል ውጤታማ ነው?/1-10

7.3 ብቃታቸው ላይ የሚፈጠሩ ችግሮች /ብቁ ያልሆኑ ተቋማት ምን አይነት እርምጃ ይወስዳል?

8. ጥቃቅንና አነስተኛ አደረጃጀት በተመለከተ

8.1 አደረጃጀታቸውን በተመለከተ የሚመለከተው አካል ማን ነው?

8.2 አደረጃጀታቸው ምን ያማከለ /ያተኮረ ነው?

8.3 አንድ ግለሰብ ለመደራጀት ምን አይነት መስፈርቶችን ይዞ መገኘት ይኖረበታል?

9. የኮንስትራክሽን ሂደት በባሻ ወልዴ ኮንዶሚኒየም ላይ የወጡ ጥያቄዎች

9.1 ኮንዶሚኒየሙ ምን አይነት የኮንስትራክሽን ሂደት የተከተለ ነዉ?

9.2 ኮንዶሚኒየሙ በኮንስትራክሽን ሂደት ስንት አይነት ደረጃዎች ነበሩት?

9.3 በሂደቱ ላይ ስንት አይነት የኮንስትራክሽን ዘርፍ አካቱል?

9.4 በስራ ዘርፉ ላይ የተሳተፉ ባለሙያዎች ምንአይነት የስራ ልምድ ነበራቸው?

10. በኮንስትራክሽን ሂደቱ ላይ የነበሩ ችግሮች ምንድን ናቸው?

10.1 ችግሮችን ለመቅረፍ የተሞከረበት መንገድ እንዴት ነበር?

10.2 የፕሮጀክቱን ስራ ጀምሮ ለማስረከብ ምን ያህል ጊዜ ፈጅቶአል?

10.3 ጥቃቅንና አነስተኛ ተቋማት በፕሮጀክቱ ላይ ምን አይነት ተሳትፎ ነበራችው፤ ተሳትፎአችው በምን ዘርፍ ነበር?

10.4 የፕሮጀክት ጥራት ክትትል ይካሄድ ነበር?

10.5 ጥራትን በተመለከተ የተመደበው አካል ማን ነበሩ?

10.6 ክትትሉ በምን መልክ ይካሄድ ነበር?

10.7 ጥራት ላይ የነበሩ ችግሮች በምን መልክ ይፈቱ ነበር?

Table 0.14 Key informant interview details

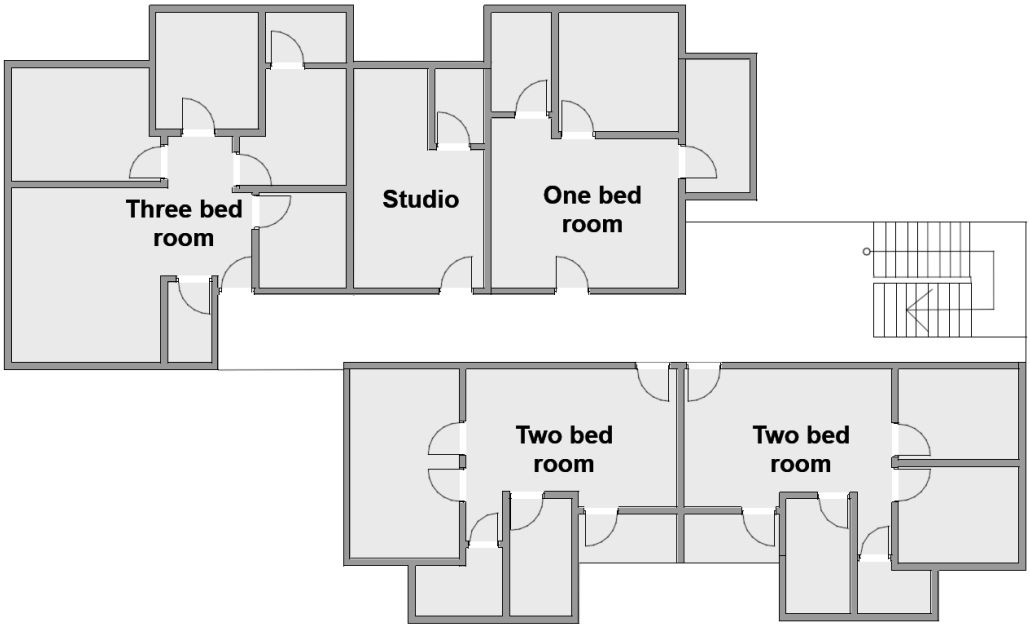
	Interviewees	Reason for selecting the interviewee	Organization(s)/association/etc. (current and/or previous)	Position(s) and activities in the organization(s)/association/etc. relevant to the interview	Date(s) of interview(s)	Location(s) of interview(s)
	MSEs					
1	D	MSEs participants in the construction of the Basha	MSE in 20/80 condominium	Sanitary installation candidate in Basha Welde condominium	15,05,2021	Addis Ababa, Ethiopia

	Interviewees	Reason for selecting the interviewee	Organization(s)/association/etc. (current and/or previous)	Position(s) and activities in the organization(s)/association/etc. relevant to the interview	Date(s) of interview(s)	Location(s) of interview(s)
2	S	Welde condominium According to their task	MSE in 20/80 condominium	Sanitary and roof installation candidate in Basha Welde condominium	10,01,2021	Addis Ababa, Ethiopia
3	S		MSE in 20/80 condominium	Electrical installation candidate in Basha Welde condominium	14,07,2021	Addis Ababa, Ethiopia
4	E		MSE in 20/80 condominium	Agro stone manufacturer	14,07,2021	Addis Ababa, Ethiopia
5	D		MSE in 20/80 condominium	Block work manufacturer	07,06,2021	Addis Ababa, Ethiopia
6	D		Currently not active in the condominium projects but previously worked as MSEs	Site work candidate in Basha Welde condominium	03,03,2021	Addis Ababa, Ethiopia
7	T		MSE in 20/80 condominium	Electrical installation candidate in Basha Welde condominium	17,04,2021	Addis Ababa, Ethiopia
	Client					
8	N	Participated	Currently Not Active	Supervisor of Basha Welde condominium from the client side	03,02,2021	Addis Ababa, Ethiopia
9	N		Marketing and	Marketing and Information Expert	12,01,2021	Addis Ababa, Ethiopia

	Interviewees	Reason for selecting the interviewee	Organization(s)/association/etc. (current and/or previous)	Position(s) and activities in the organization(s)/association/etc. relevant to the interview	Date(s) of interview(s)	Location(s) of interview(s)
			Information Expert			
10	T		Marketing and Information Expert	Construction Monitoring and Infrastructure	06,01,2021	Addis Ababa, Ethiopia
11	S		Marketing Link Team Leader	Marketing Link Team Leader	02,04,2021	Addis Ababa, Ethiopia
12	B		Contract administration	Contract administration	06,01,2021	
14	Contractors					
13	T	To know the construction process from the Contractors' perspective	a contractor on 20/80 condominium	Contractor candidate for Basha Welde condominium	15,05,2021	Addis Ababa, Ethiopia
17	A		A contractor on 20/80 condominium	Contractor candidate for Basha Welde condominium	17,05,2021	Addis Ababa, Ethiopia
18	Y		A contractor on 20/80 condominium	Contractor candidate for Basha Welde condominium	05,05,2021	Addis Ababa, Ethiopia
19	M		A contractor on 20/80 condominium	Contractor candidate for Basha Welde condominium	10,06,2021	Addis Ababa, Ethiopia
20	A		Construction office	Contractor candidate for Basha Welde condominium	23,05,2021	Addis Ababa, Ethiopia
21	T		A contractor on 20/80 condominium	Contractor candidate for Basha Welde condominium	01,05,2020	Addis Ababa, Ethiopia
	Consultant					

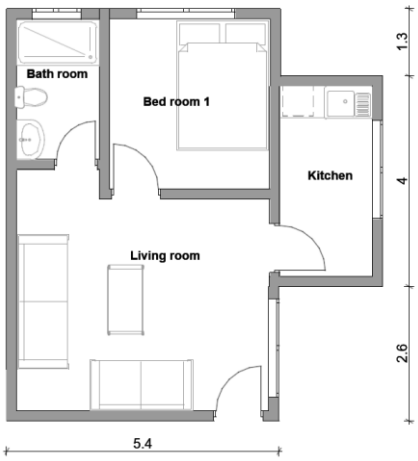
	Interviewees	Reason for selecting the interviewee	Organization(s)/association/etc. (current and/or previous)	Position(s) and activities in the organization(s)/association/etc. relevant to the interview	Date(s) of interview(s)	Location(s) of interview(s)
22	I	In order to know the construction process from the supervisor's perspective		Supervisor of Basha Welde condominium site from a consultant perspective	26,02,2021	Addis Ababa, Ethiopia

figure 18 Floor plan and typology of Basha Wolde Chilot condominium



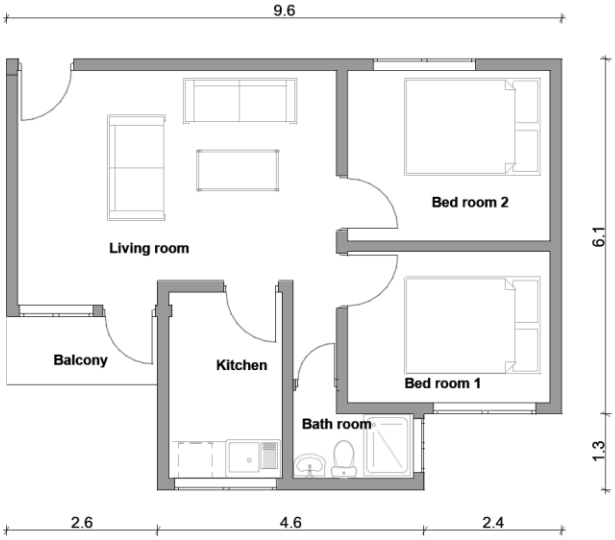
Studio typology

Area= 25m2



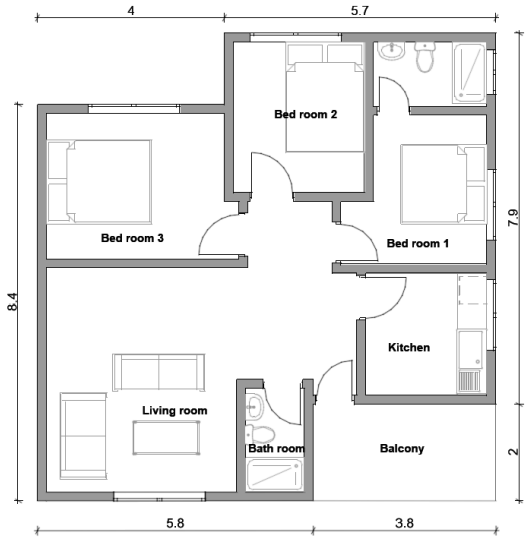
One bed room typology

Area= 53m2



Two bed room typology

Area = 62m2



Three bed room typology

Area = 83m2