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COMMUNAL OPEN SPACES IN CONDOMINIUM NEIGHBORHOOD

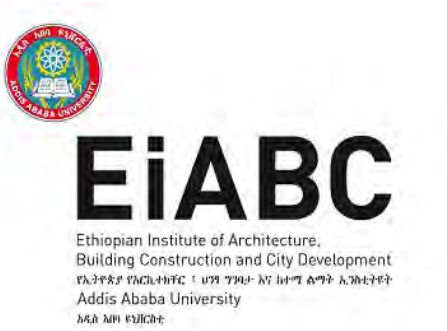
The case of Gofa Mebrat-hail Condominium

By: Yonas Mamo Wondimneh

Advisor: Yonas Alemayehu Soressa

January 2016

Addis Ababa, Ethiopia



This thesis is submitted to the Ethiopian Institute of Architecture, Building Construction and City Development (EiABC) and to the School of Graduate Studies of Addis Ababa University in partial fulfilment of the requirements for the Degree of Master of Science in Housing and Sustainable Development.

Thesis title: **Communal Open Spaces in Condominium Neighbourhood:**
the case of **Gofa** Mebrat-hail Condominium, Addis Ababa.

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JANUARY 2016

ADDIS ABABA

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Yonas Mamo Wondimneh

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Yonas Alemayehu Soressa Signature: _____ Date_____
Advisor

Approved by Board of Examiners

1. _____ Signature: _____ Date_____
Chair Person

2. _____ Signature: _____ Date_____
External Examiner

3. _____ Signature: _____ Date_____
Internal Examiner

Declaration

I declare that, this thesis prepared for the partial fulfilment of the requirements for the degree of Master of Science in Housing and Sustainable Development entitled **"COMMUNAL OPEN SPACES IN CONDOMINIUM NEIGHBOURHOOD: the case of Gofa Mebrat-hail Condominium"** is my original research work prepared independently by my own effort with the close advice and guidance of my adviser. I also declare that this thesis has not been presented in any university and all sources that I have used or quoted have been indicated and acknowledged by means of complete references.

Yonas Mamo Wondimneh

Signature: _____

Date: _____

Certification

Here with I state that **Yonas Mamo Wondimneh** has carried out this research work on the topic entitled **"Communal Open Spaces in Condominium Neighbourhood: the case of Gofa Gofa Mebrat-hail Condominium"** under my supervision and it is sufficient for defence to award MSc Degree in Housing and Sustainable Development.

Yonas Alemayehu Soressa

Signature: _____

Date: _____

Abstract

The study investigates the relationships between physical characteristics of communal open spaces and the activities in residential environment of Gofa Mebrat-hail condominium neighbourhood, which is one of the project in Integrated Housing Development Program (IHDP) in Addis Ababa. The phenomenon is investigated through a case study research method by taking the neighbourhood as a case and aiming to study: a) how the residents are utilizing the communal open spaces by investigating the activities happening and the level of their involvement in terms of utilising these spaces; b) investigate and analyse the cause and effect relationship between the activities and the physical characteristics of existing open spaces and c) identify the challenges on the day to day activities of the residents as a result of the current conditions of communal open spaces.

The study is conducted at two levels; first, a preliminary study was done covering the whole neighbourhood in order to study the activities, which are taking place on communal open spaces, and to select an illustrative parcel. Then an in-depth study is conducted on the chosen parcel based on the focus of the research to achieve the objectives. From the data collected through interviews, questionnaires, observations, and physical measurements, a qualitative and quantitative analysis are done: to examine the usage of existing communal open spaces; to understand the relationship between the physical setting of open spaces and the activities; and to investigate communal open space related challenges on the day to day activities of the residents.

Results indicate that, despite availability of communal open spaces, physical attributes of the area investigated, such as adequacy of spaces, type of enclosure, location, accessibility and overall physical quality (attractiveness), when unsatisfactory, negatively affected residents' attitudes and motivations to utilize and improve the space through physical changes and maintenance, and consequently affected social and user-environment interaction. Besides the physical attributes of the open space, the existing multiple activities are also a major factors that affect residents while utilizing the space. The other important finding is that the existing communal open space related challenges are found to be the result of combined effect of the physical characteristics and the existing activities. Finally, based on the findings the study recommends that the respective institutions who take part on developing communally owned residential neighbourhoods should make an in-depth observation to consider the need and the spatial aspect of communal open space during planning & implementation stage. The study also recommends post-occupancy resolutions to improve existing condition of communal open spaces on the study area.

Key issues: *IHDP*, *Activity, Communal Open Space*

Acknowledgement

I would like to extend a heart-felt appreciation to all individuals who supported me in this thesis project. Particularly I like to forward my gratitude to my advisor Ato Yonas Alemayehu for inspiring, supporting and guiding me in the thesis work throughout the process. I also would like to forward my sincere appreciation to the entire informants participated in data collection process through filling the questionnaires and answering the interview questions.

Yonas Mamo Wondimneh

January 2016

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Abbreviations

AANPDM	Addis Ababa Neighbourhood Planning and Design Manual
BPCDAA	Beautification, Parks and Cemetery Development and Administration Agency of Addis Ababa
CBE	Commercial Bank of Ethiopia
HDPO	Housing Development Project Office
IHDP	Integrated Housing Development Programme
MWUD	Ministry of Work and Urban Development
ORAAMP	Office for the Revision of Addis Ababa Master Plan

Local terms

Diges	Any traditional or religious occasion hosted by a household by inviting relatives, neighbours or friends for festivity of memorial service.
Iddir	Local community association for funeral assembly and consoling
Kerstena	Child baptism ceremony
Lekso	A traditional mourning ceremony on funeral day and afterwards
Mahber	A religious ceremony by Orthodox Christian followers celebrated in each member's house once a month on the day they assigned after God, Angeles or Saints.
Meskel	a religious holiday annually celebrated on September 27 in memory of the founding of the true cross.

General Notes

- All tables and figures included in the research are the original work of the author where the source in not indicated
- The years mentioned throughout the thesis are in Gregorian calendar
- All the area measurements throughout the thesis are in SI Units (Metric system)
- The names of Ethiopian authors on the reference section is mentioned in order of first name, middle name and last name respectively following Ethiopian naming system.
- The word *Ato* and *W/ro* used at the beginning of names are according to Ethiopian naming system, which is an equivalent word for *Mr* and *Mrs* respectively.

Chapter-1 INTRODUCTION

In this chapter a general issues about the subject matter and an introduction topics including motivation of the researcher to select the subject matter, the problem statement which describe the existing condition on the subject, the general and specific objective of the study, and also the significance of the study are discussed. Besides, the Spatial and Thematic Scopes of the research, the limitations encountered as a constraint during conducting the study are separately discussed with in this chapter. The research question are presented in a way that they are formulated with the research approach used by the researcher. Eventually, organization and design of the research is discussed with an illustrative diagram.

1.1 Introduction

Nowadays in cities around the world, the issue of inadequacy of land is a common problem. Since cities are the most preferable place for commercial and business activities, the competition to occupy land inside the cities is becoming tougher. A piece of residential plot land had become unaffordable even for the middle-income households. As a result, high-rise apartments and condominium housing[1] [2] become the better option to accommodate large number of population on smaller area of land.

Similarly, Addis Ababa, which is categorized as one of young cities of the country, is also experiencing this situation. The city has experienced a rapid urbanisation in the past 130 years of age since its establishment. As a result, of the rapid urbanization, land scarcity becomes a common problem in the city that causes a dramatic increase on the price of land per square meter, and this has led to significant pressure on the local government to provide land for industry development and infrastructure as well as housing for growing urban population. As a solution for the housing problem of the city, new condominium houses has been developed extensively and much more are under development by the government through the Integrated Housing Development Program (IHDP). Along with providing houses, communal facilities like communal open spaces and communal buildings are also integrated with the development program. Even if, the primary emphasis of the programme is on delivering a large number of housing units for inhabitants, communal facilities like communal open spaces and communal buildings are also a vital part of the development.

Communal Open Spaces: refers to shared outdoor unbuilt spaces between blocks inside condominium neighbourhoods provide to be used by inhabitants.

Since the commencement of the programme in 2005, the target group was the low-income group until mid-2013 in which a 40/60 programme introduced for the middle-income citizens. The houses were constructed with possible minimum cost to make them affordable for the target group. Reducing the area of each typology to the possible minimum standard is implemented as one of the way of reducing the cost. Consequently, residents are expected to use the outdoor spaces for

[1] "The concept of 'horizontal property' or condominium ownership, by which persons may have absolute title to only part of a building is an old one in Europe, and was imported in many parts of Latin America with European immigrants after the Second World War." (Doebele, 1987, p. 21)

[2] 'Condominium housing is a name given to the form of housing tenure where each resident household owns their individual unit, but equally shares ownership and responsibility for the communal areas and facilities of the building, such as hallways, heating systems, and elevators. There is no individual ownership over plots of land. All of the land on a condominium site is owned by all homeowners' (UN-HABITAT, 2010, p. 14).

multiple activities, which makes the communal open spaces a vital component of the development program since for every outdoor activity the communal open spaces are the only option for the inhabitants. Therefore, studying the existing situation of communal open spaces in previously developed neighbourhoods is an imperative step to improve the current conditions and to create liveable environment in future developments.

Studying communal open space is complex task because of the dynamic nature of the activities along with time, which is based on the needs of the users. In addition, the parameters, which influence utilization of open spaces, are numerous and variable based on the circumstance. In this study, however the activities on communal open spaces and the effect of certain aspects of the physical environment along with related challenges on inhabitants' daily activities are studied.

1.2 Motivation

It is clearly noticeable that in recently developed condominium neighbourhoods of Addis Ababa communal open spaces are provided aiming to encourage the previous living qualities at a certain level, to be used as a space for social interaction, to serve as a recreational area, to improve the scenic quality of the living environment etc. Nevertheless, in majority of condominium neighbourhoods these spaces are not utilized by inhabitants for their maximum potentials even in some places they are found in abandoned and unmanaged condition although the residents have a need for open spaces for different activities. Observing communal open spaces in such condition make me curious why they are utilised in this way. Consequently, I chose this particular issue to study the reason behind this phenomenon.

1.3 Problem Statement

Nowadays the number of inhabitants who are living in condominium neighbourhood is increasing from time to time as a result extensive production of houses by the government especially at the outskirt areas if the city. So far, the occupants of the houses are mainly lottery winners who registered for the programme. However, numerous households who were living on private plots land and government houses[3] are relocated to newly developed condominium neighbourhoods because of different infrastructure construction, land use change and redevelopment[4] programme of the inner city.

[3] Government houses (also known as *kebele* houses) are known for their substandard quality for living in terms the quality of the living environment, the interior spaces, the resilience of the structure and the basic facilities available with in the living environment.

[4] "…the proposal for inner-city redevelopment included the need for the privatization of public houses and strategies for urban upgrading and renewal." (Elias Yitbarek & Yonas Alemayehu, 2011, p. 5)

As discussed so far, living in condominium neighbourhood is a very recent experience for Ethiopians who has a diverse culture and tradition[5]. Particularly, the residents of Addis Ababa are a mixed people from different part of the country who has its own culture and tradition, which requires suitable living environment to live in, in terms of indoor and outdoor spaces. So that the occupants of newly developed condominium houses are experiencing a major changes from living close to the ground into a multi-story building where every outdoor space is going to be shared by the local community. However, the built environment in formerly developed areas is not responsive enough for occupants to continue their previous life style. *"Having now been occupied for some time, several issues concerning the design of the built environment have emerged. In particular, there are design problems in terms of the responsiveness of the units and urban design to occupants' needs and activities. Most occupants are accustomed to living close to the ground and so adjusting to life in multi-storied apartment blocks is proving a challenge"* (UN-HABITAT, 2010, p. 41). As a vital component of the living environment, communal open spaces of condominium neighbourhoods has the foremost role in affecting inhabitants outdoor activities in which they used to perform in their previous living environment.

In many of the condominium neighbourhoods which has been developed yet under IHDP, open spaces are integrated in the neighbourhood design aiming that they will serve as communal open spaces in which they are expected to serve for any outdoor activities of the inhabitants. However, the proportion of available open space with relative to the built up area varies along with the location of neighbourhood.

The communal open space is the only space available for any outdoor activities of inhabitants living in condominium neighbourhood. Therefore, multiple activities, which are the results of the needs of inhabitants, are happening on the available open space regardless of the friendliness or inhospitality of the physical characteristics of the existing open spaces and the other activities happening on the surrounding. Accordingly, living in condominium buildings where every outdoor space is shared and communally owned could be challenging or positive experience for them. Therefore, studying the existing experience on communal open space, which has a significant role on the day-to-day activities of condominium neighbourhood inhabitants, is imperative to understand the existing situation and seeking a way to create better living environment in the future.

[5] Ethiopia is a home for diverse population with more than 80 unique rich ethnic, cultural and linguistic groups.

1.4 Objective of the Study

1.4.1 General Objective

The objective of the research is to get a better understanding of how communal open spaces are functioning and the inter-relationship between the physical characteristics of the environment and the activities. The other objective of the study is to identify related challenges on inhabitants during their day-to-day activities in communal open spaces. On the one hand, the study also aimed to get a better insight on the nature of the measures, which are needed to improve the existing phenomena and gather important inputs, which will help to design, implement and deliver habitable communal open spaces on the future projects.

1.4.2 Specific Objective

The specific objectives of the study are:

- To assess how the residents are using communal open spaces in condominium houses
- To investigate the cause and effect relationship between the physical characteristics of the open space and the activities happening
- To identify the existing communal open space related challenges on the residents.
- To investigate possible solutions to overcome communal open space related problems at different housing development stages and at post-occupancy stage.

1.5 Significance of the Research

According to Addis Ababa neighbourhood planning and design manual providing a communal open spaces are also a part of Integrated Housing Development Programs (IHDP) and it aimed to encourage the previous living qualities at a certain level i.e. common green spaces for children playing area and other activities like meeting, *Iddir*[6], holiday celebration to address all age group. However, the existing conditions of previously developed areas shows a need for further improvement on communal open spaces. Consequently, this study will address the key issues in understanding the existing situations and communal open spaces related problems in condominium neighbourhoods.

The quality of the surrounding environment is an indicator of the quality of life in residential areas, thus designing a liveable open space means improving the life standard of the community. Hence, the research will have a significant role in understanding the performance of communal open

[6] A local community association for funeral assembly, consoling and contributing money, which is collected from each members of the association, for the families who lost a family member or a close relative.

space in the studied area, which is relevant for all stockholders who involved on IHDP. In addition, the study will serve as an input for the respective institution who is responsible on preparation of condominium neighbourhood designs in terms of designing habitable open space. Furthermore, the study will contribute some insights for local residents and administrators to improve the existing condition and create more suitable environment. Therefore, the study will have the following major significance:

- It will contribute for performance evaluation of housing schemes in terms of communal open space usage
- It will help to identify the space requirement for diverse outdoor activities in condominium neighbourhoods
- It will help to understand the influence of the physical characteristics of the environment on usage of communal open spaces in condominium neighbourhoods
- It will contribute some insights for the respective housing development agencies in planning and designing of shared open spaces in condominium neighbourhood.
- It will help to explore for possible solution to enhance the quality of existing communal open spaces in condominium neighbourhoods

1.6 Scope of the Study

Spatial Scope:

In terms of geographical boundary, the study covers the entire Gofa Mebrat-hail condominium neighbourhood during the preliminary study for the purpose of finding a illustrative parcel. During the preliminary study: the activities happening on communal open spaces, the physical characteristics of each parcel and the size of each parcel were examined (*see section 2.4 for detail*). Then a single parcel is selected as a study area to conduct an in-depth study for detail data collection and analysis.

Thematic Scope:

The thematic scope of the research is to study communal open spaces in relation with the activities happening and the influence of the physical characteristics of the open spaces in term of adequacy of the area for the needs of inhabitants, accessibility for multiple activities, location, enclosure type and the physical quality of the space with respect to preference of the user. In addition, the study examines if there are associated challenges on inhabitants in utilising available communal open spaces and investigates possible solutions to enhance the existing environment for the community.

1.7 Limitations of the Research

The major constraint during conducting this research was unavailability of enough similar studies on communal open spaces of IHDP. This might be because of the project is introduced in recent years. Even the researches, which are done on IHDP, are mainly concerning issues other than communal open spaces. Thus, it was difficult to find adequate comprehensive data on the subject matter.

The other major challenge was difficulty to find willing residents for interview because of being afraid that it will affect their social interaction with their neighbours. Even some of the willing residents refuses to be captured in digital image while they were doing their activities on the open space. In addition, the majority of tenant residents were not available at the day time mainly because of their business is somewhere else. Even on weekends majority of them spent their time outside their home this situation creates difficulty to obtain a proportional number of interview from tenants who are living inside the studied parcel in comparison with the homeowners.

1.8 The Research Questions

In general, four research questions are formulated based on the objective and the scope of the study. From the discussion on objective and the scope the main intension of the research is to understand the way residents use communal open spaces that will help to investigate the existing situation weather provided spaces are used for the intended purpose[7] or not and to understand the degree of utilization for different activities based on the needs of inhabitants. In relation to usage of open spaces, the other issue is to identify who is using these spaces, which also will help to distinguish different groups among the inhabitants who are involving on communal open space activities. Therefore, the first research question is:

- *How communal open spaces in Gofa Mebrat-hail condominium neighbourhood are used?*
  a. *What are the activities happening on communal open space?*
  b. *What is the level of inhabitants' involvement on utilizing communal open spaces?*

When inhabitants utilise available open spaces the physical environment might affect them. On the contrary, inhabitants' activities may also affect the physical characteristics of the surrounding. Therefore, the second research questions is formulated to address the cause and effect

[7] The intended purpose of providing communal open spaces in condominium neighbourhood is to encourage the previous living qualities of inhabitants in terms of answering the required space for social, recreational and other household activities that inhabitants are used to perform in their previous living environment. "The idea of condominium housing though under familiarized, the neighbourhood design has to encourage the previous living qualities at a certain level i.e. common green spaces for children playing area and other activities like meeting, *Iddir*, holiday celebration to address all age group" (Samuel, et al, 2006).

relationship between the existing activities and the characteristics of the physical environment. Consequently, the second research question is:

- *What is the relationship between the activities and the physical characteristics of the open spaces?*

Along with studying the existing situation in terms of understanding current functioning of communal open spaces, a research question is also included to address the existing challenges on residents' day-to-day activities, which are caused as a result of the physical characteristics of the space, and the activities happening. Likewise, the third research question is:

- *What are the communal open space related challenges, which affects inhabitants' activities?*

Furthermore, a normative question is also included to address the issue of what could be done in terms of improving existing condition of communal open spaces in condominium neighbourhoods and to find out tangible insights, which will be an input for future neighbourhood open space design approach. Thus, the fourth research question is:

- *What are the suitable approaches to overcome the existing communal open space related challenges?*

1.9 Organization of the Research and Research Design

The research is organized into seven chapters. The first chapter introduces the whole research subject and it comprises different introductory section. The background information about the subject matter, motivation of the researcher, the problem statement which describes the existing circumstances on the subject matter, the objective of the research which describe the expected output of the study, relevance of the study in terms of addressing the knowledge gap on the subject matter, scope and limitation of the study, the research questions which are formulated to be answered through theoretical and actual data analysis from the case study, the research approach and organization of the research are presented on the introduction section of the thesis.

The second chapter is about the research method implemented to conduct the study. It comprise major sub topics about the choice of method, selection of case area, sources of data and data collection techniques. The third chapter presents the theoretical basis of the research in which a related literature is presented and summarized at the end of the section. In chapter four, the overall profile about Ethiopia and its capital Addis Ababa and brief background information on the

current policy on Housing Development Program and open space provision standards is presented.

Chapter five describes the case study area and presents the empirical data from the case which is examined using both qualitative and quantitative analysis technique. The sixth chapter presents the findings and conclusions, which are distilled from analysis of the evidence. The final section, chapter seven delivers implications of the findings on housing development policy and implementation and recommendation for enhancing the existing development.

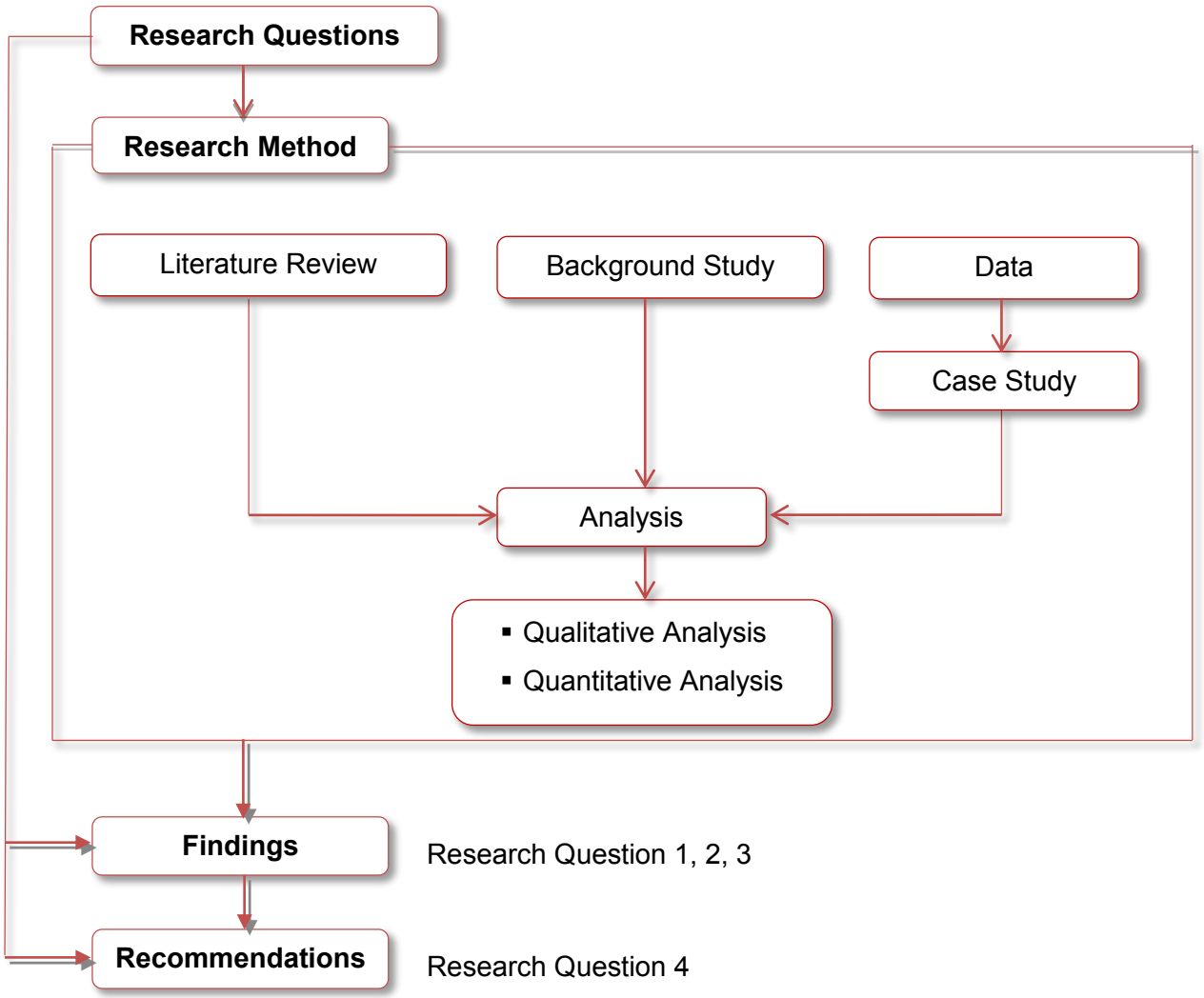


Figure 1.1: Research Design

Chapter-2 RESEARCH METHOD

2.1 Introduction

In this chapter, the methodology used to conduct the research is discussed in detail. The method applied and why it is chosen for this particular research is indicated, it is also discusses how the case and the study area is selected. In addition, the types of data collected with their sources and the techniques used to collect the data are described. The sampling techniques, data analysis and presentation techniques and the technique used to validate the collected data are also the part of this chapter. At the end, the researcher's reflection on the method used to conduct the research is discussed.

2.2 Choice of Method

The approach to this particular study is the combination of qualitative and quantitative type of case study method. According to Yin (2003), this type of approach is used to describe an intervention or phenomenon and the real-life context in which it occurred. Baxter and Jack (2008), described that we should use a case study approach when:

- The focus of the study is to answer "how" and "why" questions;
- You cannot manipulate the behaviour of those involved in the study;
- You want to cover contextual conditions because you believe they are relevant to the phenomenon under study; or
- The boundaries are not clear between the phenomenon and context.

The aim of this research is to study different cases about communal open spaces like *usage of communal open spaces; the cause and effect relationship between the physical characteristics and the activities happening; the result of this relationship (challenges or advantages) and the implication of the result.* Therefore, the case study research method is the most appropriate one to study all the above real life phenomena. Predominantly, both qualitative and quantitative analysis techniques are used based on the nature of the research questions.

The qualitative approach is applied for answering how communal open spaces are used in relation with the experience of inhabitants and to examine the relationship between the physical setting of the open space and the activities happening. Furthermore, it is used to investigate the nature of communal open space related challenges that the residents have experienced which will help to forward possible solutions based on the nature of the problems. On the other hand, a quantitative approach is also applied for answering the question of the level of inhabitants' involvement on communal open space and to obtain a quantitative data for different physical characteristics of communal open spaces and the activities happening on them.

2.3 The Research Approach and Framework

The general approach to this research was to study and analyse how communal open spaces between selected condominium blocks are functioning currently. In particular, the research aimed to understand the residents' connection to their surroundings and the governing relationship between these outdoor spaces and the residents. Hence, the study is framed on the activities on communal open spaces and the characteristics of physical environment within the selected study area.

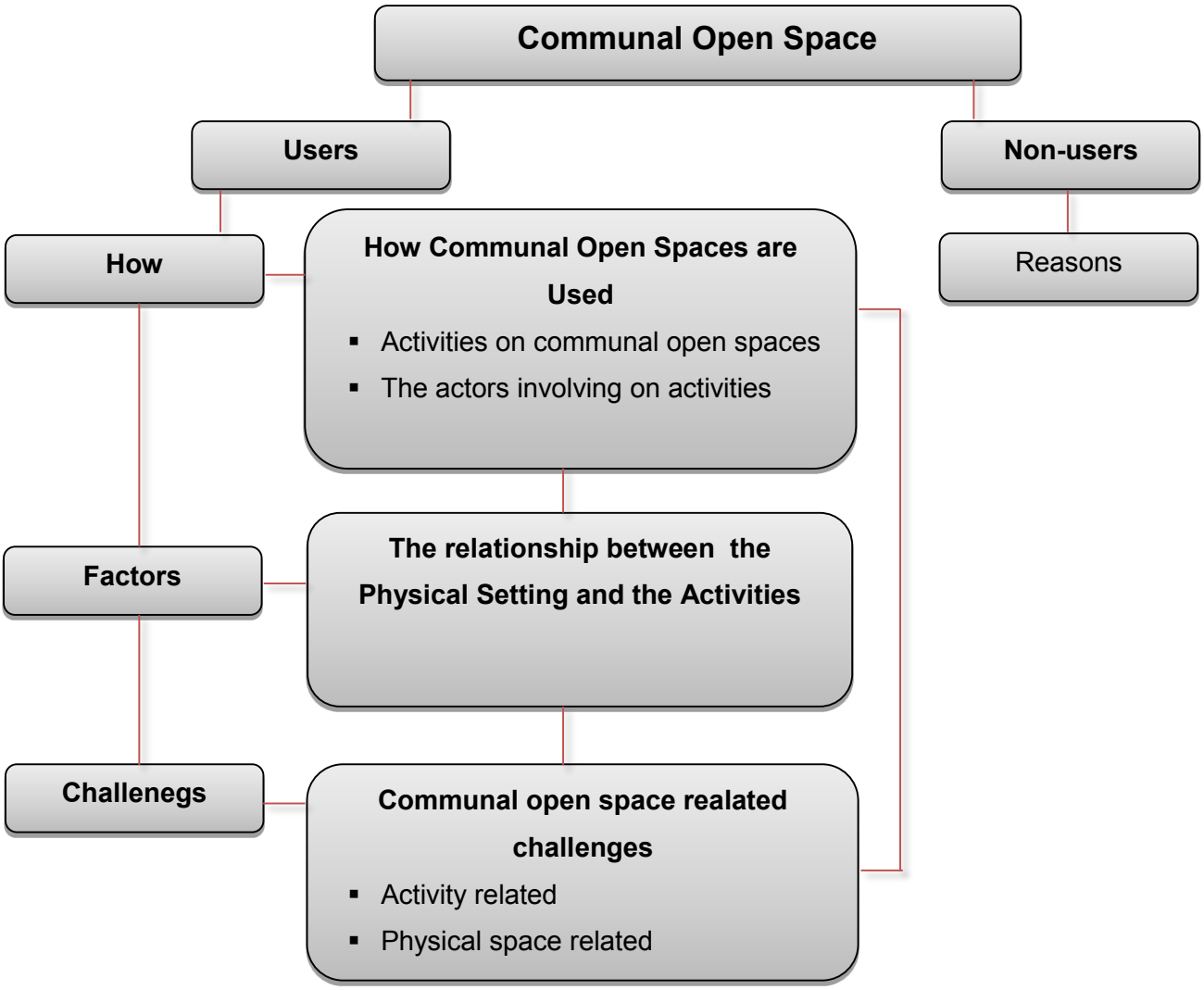


Figure 2.1: Illustration of the Research Framework

2.4 Selection of the Case

Gofa Mebrat-hail condominium neighbourhood is selected as a case for this thesis based on the idea of conducting a research on different matters of the same condominium neighbourhood by 2012/13 batch students of Housing and Sustainable Development. The idea is generated aiming to acquire a compiled research output on different aspects of a single neighbourhood in which it will be helpful to investigate the interrelationship between different aspects of the neighbourhood, which is an important input for future similar housing development projects.

2.4.1 Study Area Selection

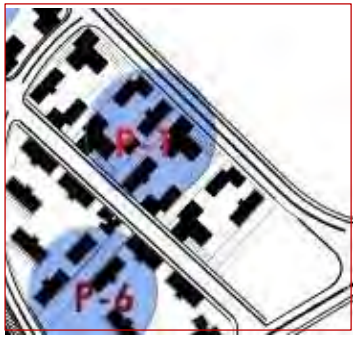
During the study area selection a preliminary study, which covers the whole neighbourhood, is done to examine and record the activities happening on communal open spaces and to survey some of the physical features of the open spaces. Then a single illustrative parcel is chosen as a study area to conduct an in-depth study based on the following requirements.

- A parcel which comprises the majority of activities happening on communal open spaces in the whole neighbourhood
- A parcel which has a variety in physical characteristics of its communal open spaces in terms of its enclosure characteristics, area of open spaces, in terms of the relative location of the open space from the residential blocks and difference in physical quality of the open space throughout the parcel.
- A parcel which has a clear boundary i.e. a parcel with its boundary is clearly defined by the adjacent local roads and the open spaces are not merged with adjacent public open space.
- A parcel with an appropriate and manageable area size for the data collection coverage

Preliminarily Studied parcels for study area selection

Selected study area

Figure 2.2: Study area selection



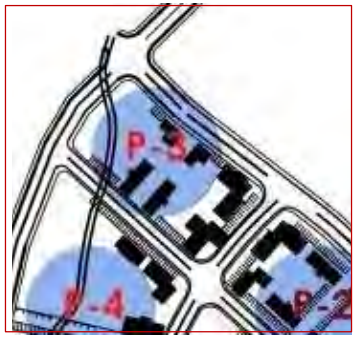
P-1

Mixed (communal and public) type of open space inside the parcel

P-2

Similar physical character throughout the parcel

Less variety of activities



P-3

Small area size

Less variety of activities

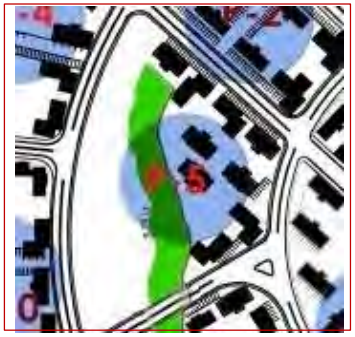
Mixed type of open space (communal and public)

P-4

Communal open spaces are not properly defined

Mixed type of open space (communal and public)

Less variety of activities



P-5

Mixed (communal and public) type of open space inside the parcel

No clear boundary between the communal and public open space

P-6

Has a clear boundary

Comprise majority of activities on communal open space

More variety in physical characteristics

Appropriate area size

P-7

Communal open spaces are not properly defined

Very small areal size

P-8

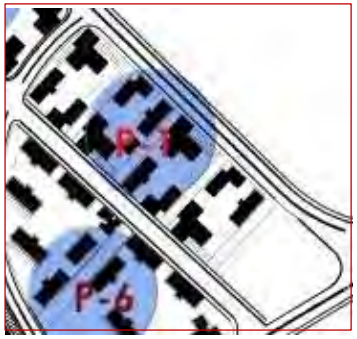
Mixed type of open space (communal and public)

No clear boundary between the communal and public open space

P-9

Mixed type of open space (communal and public)

Less variety of activities



P-10

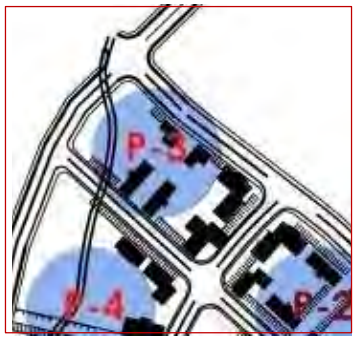
Similar physical character

Less variety of activities

P-11

Small area of open space

Mixed type of open space (communal and public)



P-12

Very small area size

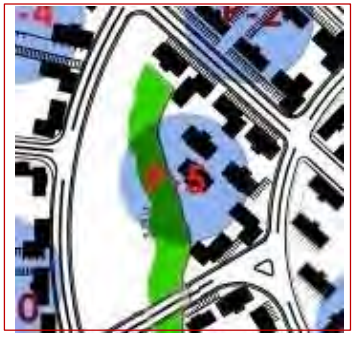
Similar Physical character

Less variety of activities

P-13

Similar physical character

Mixed type of open space (communal and public)



P-14

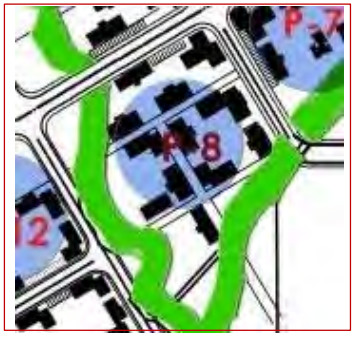
Less variety of activities

P-15

Mixed type of open space (communal and public)

P-16

Mixed type of open space (communal and public)



P-17

Mixed type of open space (communal and public)

P-18

Less variety of activities

Mixed type of open space (communal and public)

Figure 2.3 Analysis of parcels for study area selection

2.5 Purpose of Data Collection

The main purpose of data collection is to obtain an evidence from the study area and to understand the residents experience on the existing communal open spaces. Preliminarily the focus of the data collection is to understand the usage pattern of the existing open space along with capturing the effects of the physical characteristic of the area, which determines the level of involvement of the residents with different social groups. In addition, the other major purpose of the data collection is to examine the nature of the existing communal open space related challenges on inhabitants to comprehend the extent of the problem and to recommend optional resolutions.

2.6 Type of Data

For the purpose of this study both qualitative and quantitative types of data are collected targeting to answer the research questions. The qualitative data is collected to analyse and comprehend the relationship between the activities on open spaces and the physical characteristics of the space. However, the quantitative type of data is collected to analyse the level of inhabitants' involvement on open space through classifying into different groups. In general, qualitative and quantitative data from the study area is collected and analysed to answer '*how' and 'what'* questions that are addressed on the research question.

2.7 Sources of Data

Both primary and secondary data are collected from different sources including *residents* living within the neighbourhood, the *existing physical environment* through observation and from different *offices*. The following documents, which are used in this study, are collected from different sources as indicated below:

- Neighbourhood design of the study area from Addis Ababa Housing Development Project Office
- Addis Ababa Neighbourhood Planning and Design Manual (2006) from Addis Ababa Housing Development Project Office
- Local regulation norm document from Gofa Mebrat-hail Condominium House Owners Association office
- Satellite map from Google Earth online access

2.8 Data Collection Techniques

Based on the nature of the research method used different data collection techniques are applied for this study. The methods applied for collecting a primary data from inhabitants and the surrounding environment of study area includes:

- Interview
- Questionnaire
- Photography
- Mapping
- Direct Observation and On Site Measurement

Interview

Interviewing inhabitants from the neighbourhood was done on two stages. First during the preliminary study level, a random interview with residents is conducted using non-structured questions in order not to limit the respondents on specific matters of communal open spaces and to capture the general insight about the subject matter. Then after the study area is selected, an in-depth interview was conducted with inhabitants using semi-structured interview questions to obtain a detail qualitative data about the communal open spaces on the selected study area.

Questionnaire

The questionnaire was developed after a preliminary interview was done with twelve informants and site observation to assess the physical characteristics of the area and the types of activities happening on open spaces. After observing the physical characteristics of the study area, the questionnaire was formulated in a way to collect all the necessary data from inhabitants based on the focus of the study through relating the literature review. In addition, before the questionnaires were distributed to the respondents, a pilot test was carried out with five respondents to test the practicability and communicability of the questions. In some cases the researcher involved in filling the responses of the respondents on the questionnaire when respondents are unable to write and understand the questions.

Photography

Pictures are taken at different location of the study area to record the activities on the existing communal open spaces and to capture the physical setting of the environment. Which is used to relate the response obtained from the respondents with existing situation.

Mapping

Mapping the activities is done during interviewing inhabitants to locate the spaces where the activities are happening and to identify the area territory of their activity for later spatial analysis purpose. In addition sketching also used to record some of the physical features and elements on the open space during observational study of the study area.

Direct Observation and On Site Measurement

Mainly detail observation throughout the study area was done to record the detail features of the site and to observe different physical characteristics of the study area. In addition, a detail observation of existing communal open spaces was done to correlate the information obtained from the respondents and the existing condition. On-site measurement is also done to take measurements of few areas for updating the existing map since it has some variance from the proposed neighbourhood design.

2.9 Sampling Techniques

In order to cover the study area and to have well distributed data coverage, the data collection was planned to include each block and every floor with in the study area. Therefore, the interviews are done by taking a minimum of one household as a sample from each block and the questioners are also distributed to inhabitants a minimum of one questionnaire per every floor to encompass both qualitative and quantitative data needed for the study. Therefore, a total of fifteen interviews (with one additional from block number 42) are conducted and seventy questionnaires are distributed with in the study area.

2.10 Data Analysis and Presentation Techniques

Different types of data collected through interviewing the inhabitants, distributing questioners to the inhabitants, observation and survey of the physical environment, and data from different documents are analysed in accordance of answering the main research questions. Accordingly, the analysis of the data is done to obtain core findings by correlating the research questions and the data collected.

Quantitative analysis techniques like tabulating the raw data, developing graphs and charts and summarizing the information from the respondents are applied for analysis process to present the output in way that is more communicable. Also qualitative analysis approach is applied to examine the spatial phenomena's by mapping the activities of respondents on communal open spaces on their respective locations and to compare the proposed and existing condition of open spaces. In addition, qualitative analysis is done to analyse the data and to investigate the effect of each activities on the communal open spaces and on other activities happening in different time frame.

2.11 Validity and Reliability

After the data is collected from different source as mentioned above, data triangulation is done to check the validity and reliability of collected data. The response from the respondents are crosschecked by observing the open space through studying the activities happening and examining the physical setting of the open space. Furthermore, the related data is evaluated by corresponding the information with the neighbourhood design document.

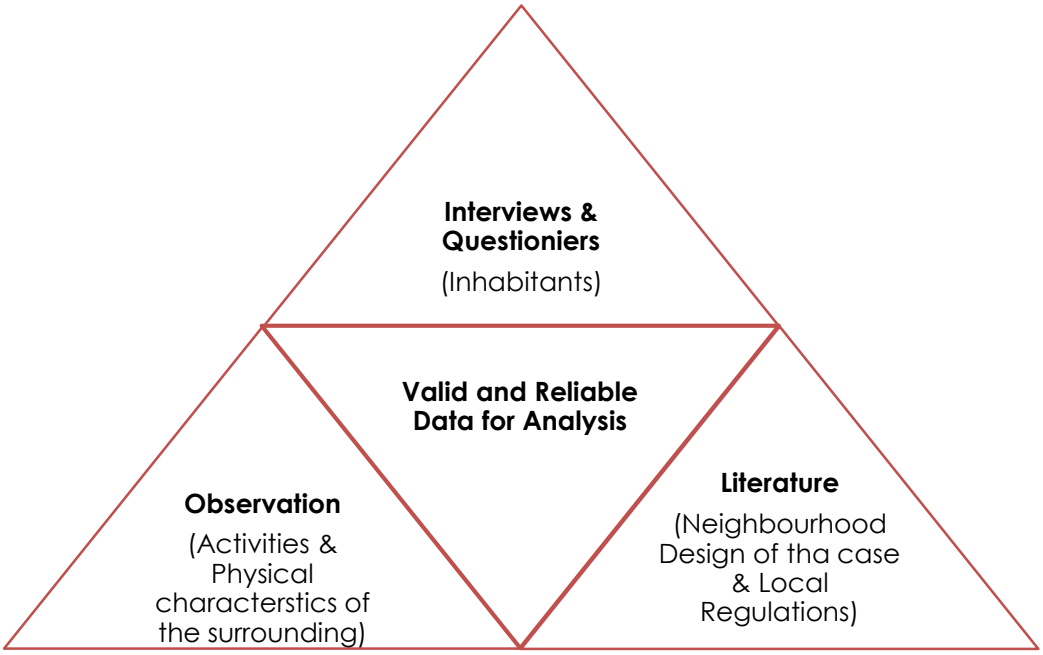


Figure 2.4: Data triangulation method used

Chapter-3 LITERATURE REVIEW

3.1 Introduction

In this chapter some basic theories on definition of open spaces in general and some specific features of communal open space are discussed. Issues on open space dimensions in terms of what open space constitutes and how the physical environment affects utilization of open space are discussed. In addition, key attributes of open space for designing a neighbourhood open space are also discussed.

3.2 Basic Definitions, Types and Benefits of Open space

3.2.1 Basic Definition of Open Space

Defining open space is a tricky endeavour since the phrase “open space” can mean a variety of different things depending on the context of the discussion and the parties involved. “For some, “open space” may simply mean “not houses,” in which case urban parks, wetlands, farms, golf courses, baseball fields, and variety of other land uses would qualify as open space. Others may define “open space” as even less-developed types of land use, such as woodlands, forests, wildlife refuges, or nature conservancies” (Anderson S. T., 2001, p. 7).

Usually an open space is perceived as an unbuilt area where outdoor activities are happening. Accordingly, Gedikli (2009), define open space as unbuilt land within the city, which provides environmental, social and economic benefits to communities. It can sometimes be a green space like parks and gardens, play areas, sport facilities and green corridors; or civic space like pedestrian streets, sport facilities and promenades.

On the other hand, according to Cryan and Curtis (2008), the term "open space" is used to refer to conservation land, forested land, recreation land, agricultural land, corridor parks and amenities such as small parks, green buffers along roadways or any open area that is owned by an agency or organization dedicated to conservation. However, the term can also refer to undeveloped land with particular conservation or recreation interest. This includes vacant lots and brownfields that can be redeveloped into recreation areas. Some open space can be used for passive activities such as walking, hiking, and nature study while others are used for more active recreational uses including soccer, tennis, or baseball (ibid).

Open space is an important component of residential development. It includes private gardens, communal areas and places to dry washing. These spaces provide private places for residents, common areas for neighbours in multi-unit developments, and they are used for entertaining, play and relaxation. Landscaping in open spaces improves residential amenity and providing shade trees and other vegetation make the space comfortable, attractive and useable (ACT Government, 2011). However, although open space itself is a simple concept, the factors that affect it, and that it affects, are complex.

3.2.2 Types of Open Space

Open space can be categorized based on different criteria. Nevertheless classifying open spaces based on its function is widely applicable one. Gibbons (1998), classified open space by functional category as follow:

1. Natural Resource Protection Areas - includes animal and vegetative habitat, stream belt corridors, trap rock ridges
    a. Areas of minimal intervention managed for biodiversity and landscape value, which comprise of existing natural features such as individual trees, woodland, watercourses, steep or undevelopable land.
    b. Areas of new planting possibly with additional features such as ponds, managed for rapid screening and structure in addition to enhancing the biodiversity value.
2. Outdoor Recreation
    a. Active - These are areas designed and located to cater for children's play requirements. They include unequipped casual play areas and formal equipped play areas. At the upper end of the scale and depending on local. E.g. parks, playgrounds, beaches, and trails
    b. Passive - Grassed or landscaped areas, which are accessible to the public and have an aesthetic and recreational function. E.g. plazas, sitting areas, arboretums
        - Amenity Areas: a passive Open space used to provide visual benefits to new residential areas. This type of open space is known as amenity open space. This can include structural planting, highway verges and landscaped areas for the purposes of making developments more welcoming and pleasant places to live and visit.
3. Resource Management - forests, fisheries, farmland
4. Protection of Public Health and Safety - floodplains, wetlands, unbuildable areas or areas with limitations for development including steep slopes, high water table, shallow depth to bedrock
5. Areas that Shape Community Character or Design - buffer strips, front, back and side yards, urban plazas, greenways, open space dedications related to development
6. Historic or Archaeological Sites - battleground, historic structures and grounds, historic districts, town green

Communal open spaces can be categorized under outdoor recreational space, which could be used for active or passive recreational purpose for the particular community. Communal open spaces are where individual and group recreational and social activities are happening in residential neighbourhoods.

3.2.3 Benefits of Open Space

3.2.3.1 Benefits of Open Space for Residential Area

Open spaces may provide a number of benefits, including opportunities for recreation, privacy, a barrier to adjacent development, nice views, wildlife habitat, and protection of natural areas and native vegetation (Anderson & West , 2006). Besides open space for outdoor activities is important components of a living environment. It provides many cultural, social, economic and environmental benefits and contributes positively to physical and mental health and a better quality of life.

> "*Open space, whether for amenity or recreational purposes makes an important contribution to the quality of residential areas in different forms. Open space in the form of landscape areas will improve the visual setting of a neighbourhood as viewed from beyond its boundaries and will help to create an attractive environment to live in. Open space in the form of recreational areas will provide an essential facility for children to play and for other residents to enjoy close to their homes" (ibid).*

From environmental point of view: the green space of residential complexes could have a significant impact in creating sense of freshness and vitality and increase the level of satisfaction (Abdul Malek N. , 2009). When the level of satisfaction increases so does the productivity of individuals thus the benefit could go up to the country's economy prosperity and citizens' life standard.

> "*The environmental service of an open space are air and water purification, wind and noise filtering, microclimate stabilization. As far as its health, services are concerned; researches prove that it reduces stress and provide peacefulness. There is a positive correlation between the use of parks and good health both mentally and physically. Its social services are encouragement of the use of outdoor spaces; and increase social integration among neighbours. Finally its economic services include air purification by trees that reduce cost of pollution prevention; and increase of property values and tax revenues"* (Gedikli, 2009).

The benefits of open space can be broken down into those that provide *use value* and those that provide *non-use value*. Use value is derived from current use of the resource, such as use of the area for recreation, scenic views, privacy, or as a barrier to adjacent development. Non-use value is derived from considering the possible future use of the area (ibid).

3.2.3.2 Benefits of Community-Managed Open Space

Communally managed open space can provide social benefits as well, encouraging interaction between residents. The presence of open space can increase community-wide quality of life, lead to increased property values, and foster a sense of responsibility for and connection to local natural resources (Wald & Hostetler, 2010). When open spaces are managed by the local community it increases their value for sustainability through achieving more benefits. According to Parks & People Foundation (2003), some of the most important benefits of community-managed open space includes:

- Aesthetic improvement
- Community cohesion
- Ecological benefits
- Training of participants in gardening
- Recreational opportunities
- Cost-effective to the city or property owner
- Income generation
- Increased community organizing capacity
- Positive activity for youth
- Ripple effect to other open spaces
- Improved community nutrition
- Asset to individual/group
- Transfer of knowledge and experience,

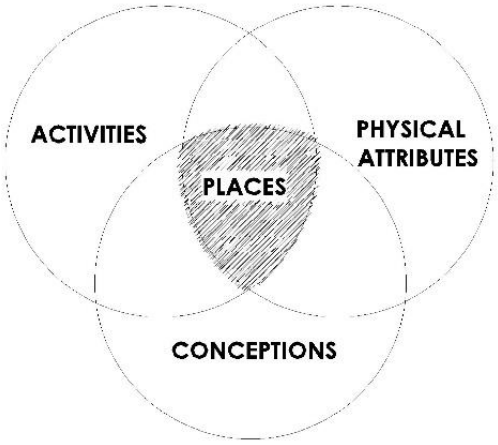
3.3 Activities on Open Space and the Role of the Physical Environment

Open space, which is designed and provided to be used by a public or a specific community, is expected to support varieties of activities depending on the needs of the users. However, the level of utilization of open space is affected by variety of physical and non-physical environmental factors. Nevertheless, most significantly the individual's conception of a particular open space plays an important role in utilization of the area in terms of attracting or discouraging the person to engage.

3.3.1 Construction of a Place

The question of space and place in geographical knowledge is ultimately not just about whether the question of "where" matters in the way that "when" does in explaining "how" and even "why" something happens (Agnew, 2011). It is also about how it matters. Given that, both space and place are about the "where" of things and their relative invocation has usually signalled different

understandings of what “where” means, it is best to examine them together rather than separately (ibid).



A contemporary theory on construction of place is described by the collective effect of its physical setting, activities happening on it and individuals’ conception of the place. Urban design is essentially about place-making, where places are not just a specific space[8], but all the activities and events which made it possible (Montgomery, 1998).

Figure 3.1: Construction of a place

(Source Montgomery, 1998)

Sense of place is a theory that delves into feelings of belonging to an environment and security within it (Clemons, Banning, & McKelfresh, 2006), by ‘sense of place’ they are referring to the personal and emotional attachment people have to a place. Accordingly anyone can understand that besides the physical environment and the activities happening, one’s perception influences his attraction and involvement in any activities on public spaces. The components of sense of place i.e. *Activity, the Physical setting and the Meaning attached to the place* are further elaborated by john punter by the following diagram.

[8] “Space is more than three-dimensional physical space. At different times and in different contexts one is, in effect, dealing with different "kinds" of space and their congruence is an important design issue. Even neglecting a whole set of spatial meanings which one might call ethological space (home range, core area, territory and so on) it is easy, without trying to be exhaustive, to list many meanings of the term.” (Rapoport, 1977, p. 12)

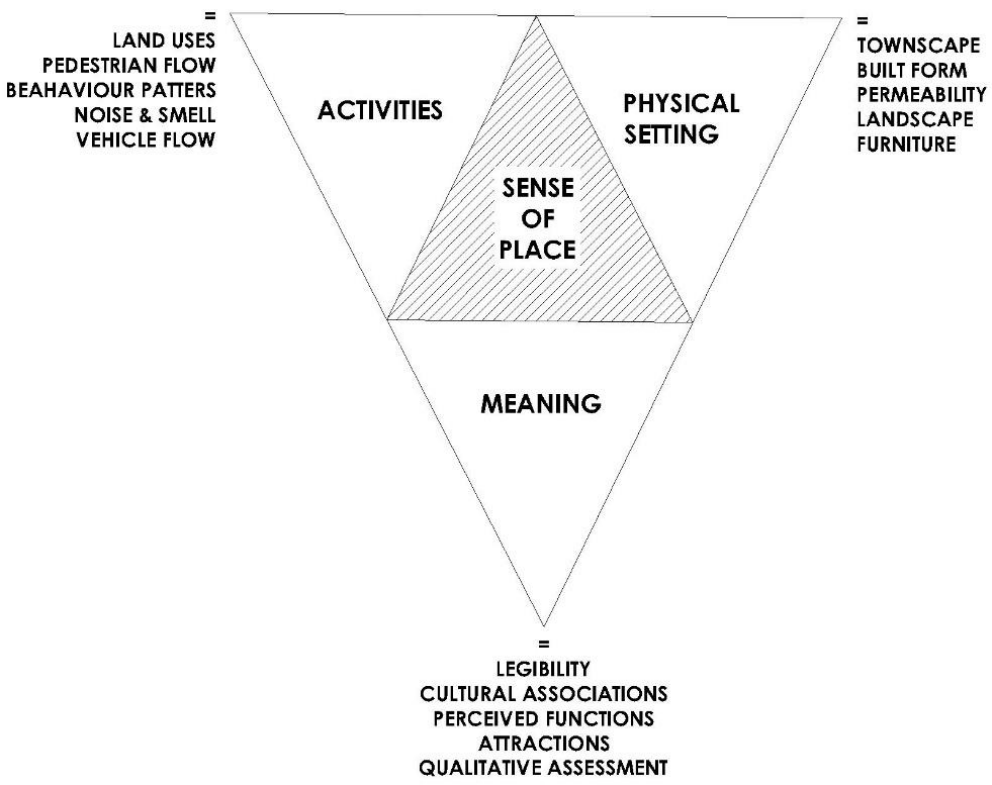


Figure 3.2: Components of sense of place.

Source: Punter (1991)

Therefore, the activities, the physical setting and the meaning or conception of the user about that particular place are the fundamental components while defining a particular space. Consequently these three components can be analogously expressed in studying open spaces as the activity refers to the existing activities of inhabitants, the physical setting refers the physical characteristics of the built environment and the meaning corresponds with inhabitants feeling and experience on open spaces around their living area which determines their involvement on the open space.

Component of sense of place	Analogous expression for open spaces study
Activity	Current activities of inhabitants on the existing open space
Physical setting	The characteristics and quality of the built environment
Meaning	Inhabitants' experience and conceptions on the existing open spaces

Table 3.1: Analogous expression for Components of sense of place

3.3.2 Activity and the Physical Quality of Open Spaces

The development of positive public spaces requires active community participation; a clear redesign program based on people's needs; and an appropriate management programs to coordinate attractive events and activities in the public space and active public uses in the

surrounding area. According to Gehl (1987), concerning the activities taking place in public spaces, he mentioned that theoretical considerations have shown *necessary, optional and social activities* may occur in the public setting. Based on Gehl's theory optional activities are very less on poor quality spaces while necessary activities are relatively higher for a particular open space. However, the necessary activities are balanced on both poor and good quality physical environment. Therefor it is clear that the quality of the physical environment has a substantial influence on the activities happening on open spaces. The relationship between the activities and the quality of the physical environment is further elaborated on the following figure.

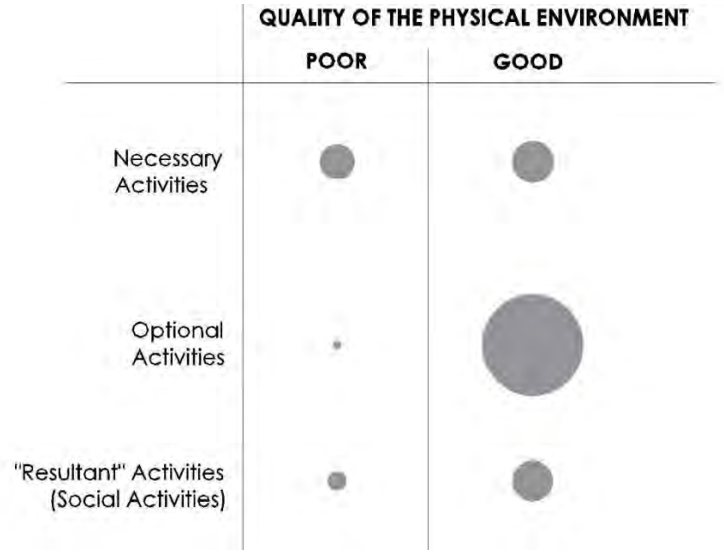


Figure 3.3: Relationship between activities and quality of the physical environment

Source: Gehl J. (1987)

Since open and recreational spaces represent the essential content of a residential zone, whose *arrangement, equipping and maintaining* affects the dwelling quality. The adequate arrangement and maintenance of the open and recreational spaces, environmental comfort and accessibility contribute to the transformation of the aesthetic identity of the functional-spatial unity of the housing ambient they belong to (Mitković & Bogdanović, 2004).

It seems likely that the amount and quality of green spaces will affect inhabitants' activity patterns, frequencies of everyday recreation, opportunities to relax from daily stress as well as on the way knowledge about the environment is acquired (Abdul Malek N. , 2009). Therefore, as Sugiyama & Ward Thompson (2008), highlighted improvements in the quality of and an access to neighborhood green spaces could contribute to increase in the amount of outdoor activity.

From the discussions above it is clear that open space is a vital part of the living environment with countless benefits and the quality of open space is a key influencing factor in achieving all the benefits of open space. But the real issue here is how do we measure the quality of open space?

Currently, there numerous planning and design criteria in developing a good quality neighbourhood open space. In fact, the definition for what is called a quality neighbourhood open space is different based on its context. However, according to Abdul Malek et al (2009), it is vital to understand more about the preferences, use pattern and needs of the users' recreational activities.

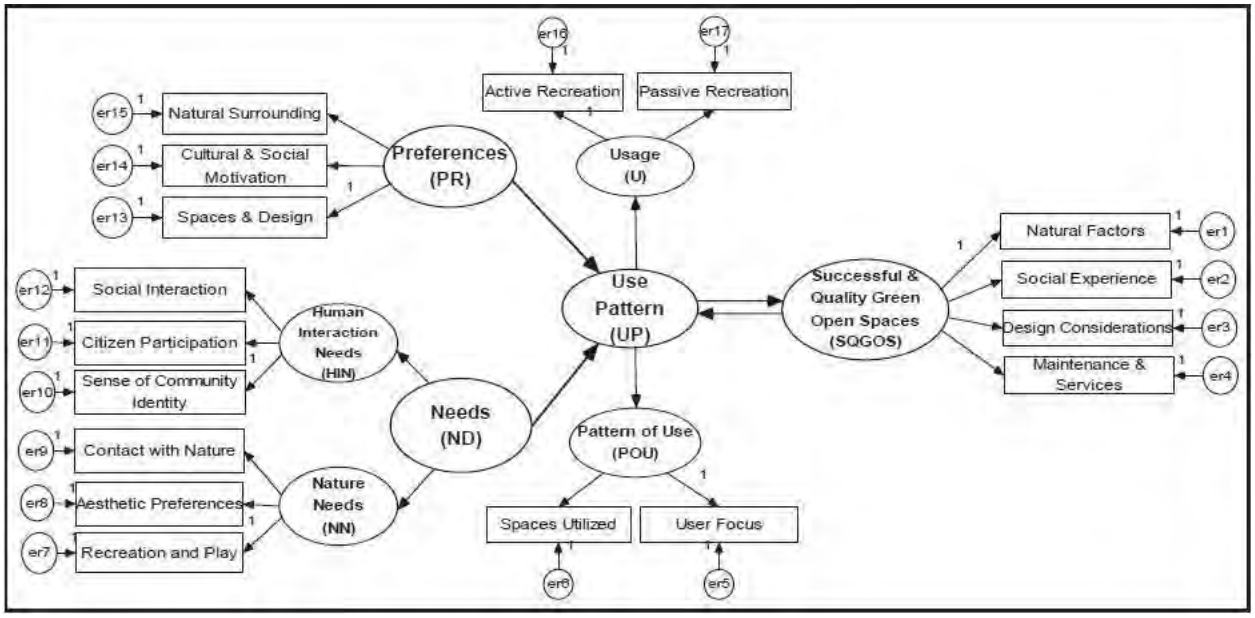


Figure 3.4: An extended hypothesized model to identify quality neighbourhood green space

Source: Abdul Malek, et al, (2009)

Herzele & Wiedemann (2003), forwarded some valuation benchmarks that quality of open spaces could be assessed separately using *space, nature, culture and history, quietness as well as facilities*. On the other hand Bradley (1986), argued that in providing a quality open space the emphasis should be on identifying the great need for diversity of both natural setting and social facilities within local areas and highlights the potential of urban green space to improve the quality of life for all citizens.

Generally open spaces have physical and functional aspects, which favorably or unfavorably influence social interaction, people comfort and security, which attract people to the setting. The physical and functional qualities of open spaces are related to the *physical amenities, the activities, the accessibility conditions, the location characteristics* and the *surrounding land-uses* that support or not the activities developed in plazas and that will influence in their capacity to promote *social interaction, livability and comfort* (Herzele & Wiedemann, 2003). Therefore, it can be summarized that *the Quality of open space is not solely about techniques and procedures but also including people who actually use them.*

3.4 Key Attributes of Successful Open Spaces

In establishing the understanding on a quality of neighborhood open spaces, detail review on successful green open spaces are done and findings from past research in urban open spaces in different disciplines was achieved. For example accordingly to Abdul Malek et al (2009), factors for a successful green open space can be divided into four main sub-categories which include the *natural surrounding factors, spaces and design factors, cultural and social motivation factors, and finally the external factors that contribute to the understanding of what is called a successful green open space.*

On the other hand, according to Project for Public Space (2016), studies, places that are great for people have four key qualities: *1) Sociability, 2) Uses and Activities 3) Access and Linkage and 4) Comfort and Image*. Particularly access related to the possibility of a place to be visible from far distances of the context and which are places easy to get to. Circulation therefore is easy, physical elements in the space are functional and safe for people. Public spaces should provide choices for sitting or walking and provide a favourable image of community life (ibid).

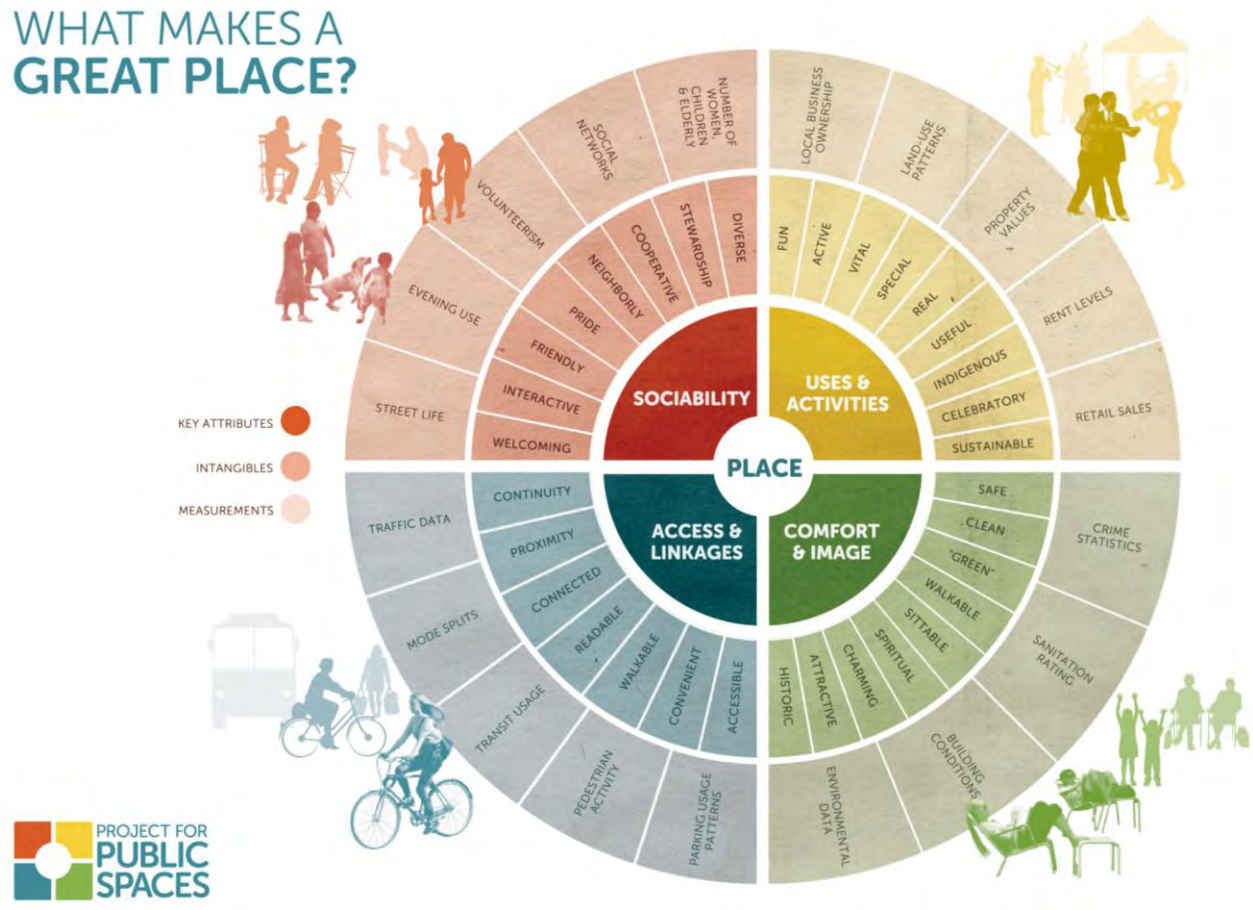


Figure 3.5: Four Key Qualities of Public Space

Source: Projects for Public Spaces (PPS), (2016)

3.4.1 Area of Open Space

Achieving the area standard during provision of open space particularly for an open space, which is expected to serve for specific, and multiple functions is the basic step in neighbourhood design process. The percentage of open space, which should be left from the total area of development, is different from place to place. However meeting the needs of the target community should be prioritized. According to MWUD (2008 p. 10), *"A system of all parks and recreation spaces, planned to meet the needs of a particular neighbourhood should be provided these should occupy about 10% of the overall area."* When the area of provided open space is inadequate for a particular function its unlikely to be used for the intended purpose since the comfort of the user is negatively affected.

3.4.2 Accessibility of Open Space

Accessibility is the basic requirement in evaluating a successfulness of any open space. Open spaces, which is properly accessible and well connected with its surrounding area, can improve urban environment by enhancing community development and social bondage. Inclusive access to high quality public spaces is therefore a cornerstone of democracy and social equity and a central issue to make a space responsive (Carmona, Heath, Oc, & Tiesdell, 2003).

3.4.3 Location of Open Space

The location of open space is also one of a vital factor in provision of open space. Neighborhood open space is a place where diverse needs are met without having to travel a long distance, providing basic recreational amenities for all users and it is usually located within the center of a development (Chapman, 1999)

Open space should be located at the most accessible part of the neighbourhood, avoiding any potential conflict with busy roads. They should be linked in to local paths and should have well placed entry points to encourage safe access. Where multiple areas of open space are proposed within new developments, these should be distributed evenly throughout the site. (South Ayrshire Planning Service, 2008).

3.4.4 Users Safety on Open Spaces

There is no doubts that open space should be safe for the intended function. This can be achieved by locating the spaces in areas, which are overlooked by housing in order to provide natural surveillance and by ensuring that developments do not turn their backs on areas of public open space. Safety can also be achieved by ensuring that open space is properly lit and that there are no hidden areas within which people can feel more vulnerable.

3.4.5 Attractiveness of Open Spaces

The other key factor in provision of successful open space is its attractiveness. *Open spaces should be welcoming to encourage people to use them*. This can be achieved by ensuring that the spaces are well signposted, encompass some soft landscaping features, contain high quality facilities and have well maintained boundaries with an attractive appearance.

3.4.6 Functional Identity of Open Spaces

The quality of an area of open space will be dependent upon the function that the area is intended to facilitate and the ability of the area to fulfil that function. Even if using a particular open space for multiple function is preferable based on its multiple advantages but it is mandatory to prepare the area to support those activities first otherwise it will not function properly. Therefore, for successful functioning of any open space, convenient environment should be created for that particular function in terms of providing facilities and equipment, meet the area requirement, covering the ground with comfortable surface material etc.

3.4.7 Enclosure Characteristics of Open Spaces

Choosing appropriate type of enclosure in open space design is another critical issue since it is directly related to the functional and aesthetical aspect of the area. According to Samuel Araya et al (2006), outdoor space can be considered in terms of positive and negative spaces based on the degree of enclosure. Positive, relatively enclosed space has a definite and distinctive shape whereas the latter is shapeless and inconceivable. The amount of enclosure and the resulting degree of containment partially depends on the ratio of the width of space to the height of enclosing wall. The weakest definition of space typically occurs when buildings are organized in row. In this situation, the buildings are individual, unrelated elements in without containment .One of the means of achieving compositional order is the sitting of buildings at right angles to one another where the corners of the space are open, forming street intersection or a gap between buildings space leaks out through the corner openings.

3.5 Performance Evaluation of Community Open Spaces

Space performance in architecture, indoor or outdoor determined by several things. In case of outdoors, it could be designed by provision supporting elements like trees, sculpture, pond, or benches. All these elements should be well interpreted by individual senses. Exploration about human perception against space performance examines how far the combination elements enable to stimulate the positive feelings of human being (Syafriny & Sangkertadi, 2010).

Post Occupancy Evaluation (POE) for outdoor facilities and other built environments, could be valuable to promote physical environment more human and could improve urban environment

quality of life in the future. POE is defined as a systematic process for evaluation of built environments from user's perspectives. It is used to identify ways to improve quality of environment, to raise comfort and productivity of users, and to reduce design and maintenance cost. According to Syafriny & Sangkertadi (2010), phases of POE to evaluate spatial performance are:

1. Observations of the place to identify who, where, when and, possibly, how users spend their time;
2. Survey determination and administration to users of the place for quantitative (statistical) measurement of the environment; (questionnaires)
3. Interviews of users regarding their experiences with the place; this helps to qualify where and how people spend their time in certain places or corners and not others;
4. Behavioural and Preference Mapping of the place, possibly at different scales, to delineate those areas that receive the most and least amount of use, as well as to quantify and qualify the reasons for the use;
5. Photographic analysis of how people use the space, as well as key measurements that demonstrate how people are either engaged or not connected to the environment.

3.6 Criteria for Defining Community Open Space Project Success

Assessing the quality of successful neighbourhood open space relied on the level of satisfaction of inhabitants. However, the success of any open space projects is also dependent on the level of resident's participation. Parks & People Study (2003), describe the difference between a successful and unsuccessful community open space project as follow:

Successful Projects	Unsuccessful Projects
Community driven idea	Idea imposed from outside
Accepted as part of the community	Used only by a few people
Many doers, some planners	Too few doers, too many dreamers
People-power comes from community	People-power comes from outside
Community takes the initiative	Community waits for assistance
Evolves through stages and seasons	First stage finished, does not evolve
Increase in horticulture skills	Not willing to learn skills needed
Improved environment	No beneficial environmental change
Gains official recognition	No one cares or recognizes
Shares knowledge with others	No interaction with others

Table 3.2: Successful and unsuccessful community open space project

Source: Adapted from Parks & People Foundation (2003)

3.7 Designing for Neighbourhood Open Space

Much of the emphasis in the past, in terms of open space within new residential areas, was placed upon achieving the necessary quantity of open space. A variety of different methods have been adopted to calculate these requirements such as open space dependent upon the volume of people living within a new development or open space dependent upon the number of units within a new development. This has led to undesirable areas of open space with no clear function as it has often become the case that providing open space within new residential areas is simply a case of meeting the required numbers (South Ayrshire Planning Service, 2008).

According to Gehl (1987), designing open space should be based on realistic insight into the way people use the space, not on abstract research or consideration from behind the drawing board. The physical design could have influence on outdoor activity however the design itself could be influenced by the number of people and occurrences expected, the length of the activity, and what type of activity are possible (ibid*)*. Therefore, in the research for design not only all type of possible activities should be studied but also the interconnection between each activity. Rapoport (1977), suggests the idea of an open ended-design approach to integrate the involvement of the end-user.

> *"The kinds of criteria developed by man-environment research are particularly important in the case of cities because they are used by a very wide range of people, have a large time and space scale and there is a great separation of designer and user. Some of these problems may be handled by open-ended design or user involvement but norms are still needed, because there are many things users cannot do at the urban scale, because designers need to deal with the joints between areas and organize the overall structure and, finally, because designers need to know the relative importance of elements to various groups" (ibid, p.17).*

Ghazizadeh and Rückert (2013), explained the user perception approach that designers should take into account not only the needs but also the perceptions of the resident in order to create a more harmonious residential environment, maximizing comfort with the resources at their disposal.

Neighbourhood open space should be designed to be attractive and comfortable for social activities in addition to personal activities because social activities are dependent from other activities. According to Gehl (1987), the basis of social activity is people meeting each other. The physical environment has no direct influence on social contact. However, designers are able to influence the conditions for social contact. Above all open space within new residential developments should be incorporated within the overall design of the development and should be

one of the central themes in providing a design solution for new sites from the outset. *It is important that any new open space is useable, well designed, safe, accessible and well maintained. Open space is not "left over land" – it must be designed as an integral part of the development* (Byrne & Sipe, 2010).

3.7.1 Density and Open Space Provision

Worldwide the concept of creating a sustainable and compact city is being promoted as it has social, economic and environmental advantages i.e. encouraging positive interaction and diversity; improving viability of and access to community services; enhancing the economic viability of development and infrastructure; supporting public transport; increasing efficiency of energy and resource utilization (Aquino & Gainza, 2014). However, compact development is going to be achieved through high-density settlement approach, which indorses more shared open spaces.

Therefore, residential density which can be defined as simply the number of units in a given area (Samaratunga, 2013) is one of the critical issues in housing development in relation to providing neighbourhood open space, especially in high-density neighbourhoods where the outdoor environment is shared and utilized by a large number of inhabitants. For some time now there has been an ongoing debate about the impacts that increased density has on urban green space use, (Byrne & Sipe, 2010; Samaratunga, 2013; Coorey, 2007; Aquino & Gainza, 2014). Theorists suggest that as density increases we should increase the amount of green space in a locality, thus offsetting the loss of private backyards. The theory is that residents will compensate poor access to private green space by using public green spaces such as parks – a notion referred to as the 'compensation hypothesis'. However, Byrne & Sipe, (2010), argues that we should not assume that just because people live in denser environments with little access to private green space they will necessarily use neighbourhood public parks and other green spaces more frequently. Indeed, a paradox of urban consolidation is that it may actually stimulate leisure-based travel, as city dwellers seek to escape to the countryside or other places for leisure and recreational experiences. And existing parks and other green spaces in higher density areas may be so congested with users or attract a clientele of 'undesirable users' that these parks may actually repel further use, making urban consolidation - without additional green space - highly inequitable (ibid).

"It seems clear that density and crowding (the negative perception of density) are related to the experience of other people (and their environmental products) while privacy can be understood as the ability to exclude such experiences at will in the various sensory modalities" (Rapoport, 1977, p. 201 referring Rapoport, 1972; 1975). One of the problems with the simplistic notion that more parks are required when density is increased is that it does not consider the characteristics

of people living in higher density environments. The idea assumes a homogeneous population of townhouse and apartment dwellers who need access to a generic park. Moreover, a common misconception is that small household live in small dwellings. However, if we take a closer look at who lives in townhouses, midrise and high-rise, we find that populations are differentiated by income, age, sex, household composition and the like. This has prompted some commentators to suggest that there is excess park capacity in many inner city areas. But a closer look at the inter-relationships between green space users and green space characteristics suggests that we need to be very careful when planning for green space in urban consolidation projects (Byrne & Sipe, 2010) .

Children living in higher density housing have a greater need for publicly accessible green spaces for play, mental health and social and physical development. Parents living within apartments may not use open spaces on daily basis for their own benefit, but they often look for safe open spaces so their children can play and vent excess energy. Apartment living may place unique demands upon children who may lack the private play spaces enjoyed by their low-density counterparts. Thus, Children need space to play away from traffic, where their parents can monitor them, and where their play will not disturb other apartment-dwellers.

It is crucial to consider every density related parameter while designing a high-density neighbourhood open space. In some cases, allocating open space in terms of percentage of the total developed area found to be inequitable. As an example study from Australia by Suter & Moskwa (2012), shows that the allocation of 12.5% of land in a high-density development (75 dwellings per hectare) results in only 0.9 hectares per 1,000 people. In a lower density development (15 dwellings per hectare), 12.5% would represent around 4 hectares per 1,000 people. This suggests that the 12.5% calculation is inequitable and inadequate for a high-density development. Byrne and Sipe (2010), described three important factors to consider when planning for increased density and open space use. According to Byrne and Sipe, planners should consider the following three points during designing neighbourhood open spaces.

(i) different types of people who live in higher density built environments will have different green space needs;
(ii) because consolidation always involves existing built environments planners need to contend with how to integrate existing green spaces into denser built environments – many parks for example will have historically been designed for a different clientele than the residents that consolidation brings; and
(iii) The character of built environments has been shown to affect how people use urban green spaces – urban design must ensure that green spaces are easy to get to, safe and have high level of environmental quality. The design of higher density

development must therefore entail careful thinking about the green space needs of future residents relative to the capacity of the built environment to meet those needs.

These various considerations mean that open space and green space near higher density dwellings must cater to very diverse populations – older people, children, adolescents, parents, wealthy people and the poor – with diverse expectations about the functions that green space should perform. A 'one size fits all' approach to green space design for higher density areas will be prone to failure (ibid).

3.7.2 Open Space Provision Standards and Best Practices

Availability, accessibility, quality, and security of green spaces in residential environment is considered as one of health indicator by the World Health Organization (WHO, 2012). The international standards recommended by the World Health Organization, which is 10 sq. m/ person (Coorey, 2007). Therefore, a minimum of one hectare (10,000 sq. m) per one thousand inhabitants is required to achieve WHO standard. According to Suter & Moskwa (2012), studies allocating 25-50% of the developing land to open space is characterized as one of the features of best pactice in Germany, Somerset and Australia. The main best practice features in terms of open space provision are summerized in the following table.

Features	Best Practice
Open Space Provision	25-50% of land allocated to open space (including communal and public realm such as plaza areas)
Diversity	A diversity of open space typologies including green space, linear connections, plazas, natural areas and play and recreation spaces, as part of a hierarchy of provision
Open Space Features	Long linear public square and Central square that provides a meeting, play and picnic focus
Landscape Verges	Wide verges (5m – 12m)
Road Widths and Shared Use	Wide roads (5m - 7m) Central road verge (4m) Shared streets
Path Widths	Wide pathways (most are 3m)
Communal Open Space	Large courtyards (0.2 ha)
Private Open Space	Internal courtyards, useable private balconies and rooftop communal spaces that provide for the immediate needs of occupiers
Building Offsets	Wide building offsets (8m – 50m) Wide link widths between buildings (9m-12m)
Planning Considerations	Reflection of the heritage, cultural and landscape features of the area and reflection of good health planning objectives
Renewable Energy	Large scale renewable energy sources through solar roof panels
Community Involvement	Widespread community involvement in planning and development

Table 3.3: Best practice features of open space provision from case studies

Source: Adapted from Suter & Moskwa (2012)

A key outcome of the Best Practice on provision of open space in higher density development project has been the development of Principles and Guidelines that aim to guide the provision, location, development, design and management of open space in higher density developments. Suter & Moskwa (2012), derived guidelines from the study on best practices in different countries as best practice directions in open space provision, open space design and open space management.

Open Space Provision

- Sporting open space Advanced planning
- Detailed planning
- Planning context (provision)
- Equitable distribution
- Open space type
- Quality and function
- Balanced access
- Defined purpose
- Activated recreation
- Storm water integration
- Land quality
- Preservation
- Amenity provision
- Walkability
- Community 'heart'
- Transport links

Open Space Design

- Planning context (design)
- Human experience and provision of amenity
- Community activation and cultural animation
- Integration and compatibility
- Adaptability and transformation Design diversity
- Accessibility and connectivity of open space
- Quality design and durability
- Proximity and frequency of use
- Urban context and built form
- Nature and landscape
- Landscape and amenity
- Universal design principles and guidelines

Open Space Management

- Quality infrastructure and maintenance
- Resident impact management
- Management of spaces
- Storm water management
- Crime prevention
- Transport management

3.8 Summary of the Literature Review

So far, in this section different aspects of open spaces are discussed starting with the definition of open space to different type of open spaces and in particular residential neighbourhood open space with its extents. Thus, based on the objective of the study the following key aspects of neighbourhood open space are summarized to link the existing theories about the subject matter with the focus of this research.

From the theoretical discussions it can be conclude that neighbourhood open spaces has myriad benefits for inhabitants. Thus neighbourhood open spaces could be studied from the human dimension based on inhabitants' activities and the level of satisfaction they attained by the existing

situation. However, the need of Inhabitants for open space varies as with their tradition, culture, ethnicity and historical background etc. Therefore, the process of designing and providing neighbourhood open space should be based on in-depth study of the target community. In the meantime neighbourhood open space should be studied based on a detail observation of the area to identify the type and characteristics of activities happening. In addition since the physical environment of the open space is a major influencing factor in utilization of neighbourhood open spaces, it should also be studied in detail along with the type of activity happening.

Accordingly, for the purpose of this study some parameters, which affect utilization of neighbourhood open spaces, are derived from the theoretical discussion to be used to evaluate the existing condition on the study area. Predominantly, the focus of this research is to investigate the relationship between the physical characteristics of the open space and inhabitants' activities and the existing challenges on inhabitants as a result of current condition of communal open spaces. Therefore, from the literature physical environment related factors such as: area, location, accessibility, design (mainly the type of enclosure), the physical quality (attractiveness) and availability of facilities on open spaces are filtered parameters to be studied in order to assess the performance and quality of the study area.

Chapter-4 BACKGROUND STUDY

4.1 Introduction

This chapter discusses the contextual matters about the study including the general overview of country with the background study of housing development and the national policy on housing development sector. In addition, a discussion on housing development program along with policies and the actors who are involved on designing, construction and delivering of condominium houses are included in this section. Furthermore, issues related with policies on provision standard of neighbourhood open spaces and the existing institutional framework in administering open spaces are discussed.

4.2 General Overview of Ethiopia

The Federal Democratic Republic of Ethiopia is a country of contrasts located at the eastern part of Africa with latitude range 3^0 North to 15^0 North, and 33^0 East to 48^0 East, where ancient rock-hewn churches sit alongside with modern bustling cities (UN-HABITAT, 2010). Ethiopia is a country of multi-nations and nationalities with a population of 90.1 million according to population projection values of 2015 by Central Statistics Agency (CSA). The country is the second most populous country in Africa and the population is growing rapidly with the annual growth rate 2.6 percent, equating to two million births per year (UN-HABITAT, 2010).

Figure 4.1: Location of Ethiopia and Addis Ababa

4.3 Urbanization in Ethiopia

Despite having one of the lowest proportions of urban population in the world (only 16.7%), Ethiopia is rapidly urbanising at a high annual growth rate of 3.49%. In the space of seventeen years the urban population become more than doubled from 6.4 in 1990 to 13.8 million in 2007(UN-HABITAT, 2010) and is projected to reach 170.2 million in 2050. Addis Ababa, the federal capital, is a true primate city - its population of about 3 million, which is eight times larger than the second largest city in the country, Dire Dawa (Elias Yitbarek & Yonas Alemayehu, 2011). Addis Ababa contains about 25% of the total urban population in which 820 (or 89%) of the 925 settlements classified as towns have a population of less than 20,000 (MWUD, 2008).

According to UN-HABITAT (2010), Ethiopia's urban centres are characterized by a poorly developed economic base, high level of unemployment and incidence of poverty and slum habitation. National unemployment is high at 16.7 percent, although in the capital city of Addis Ababa it is even higher at 32 percent. Similar source indicated that nearly 40% of the nation's urban dwellers live below the poverty line. An indicator of the magnitude of urban poverty is the proportion of the urban population that lives in slums. About 80% of the urban population in Addis Ababa is estimated to live in slum areas (Elias Yitbarek & Yonas Alemayehu, 2011). It should be noted however that Ethiopian cities are not characterized by segregated settlement pattern and slums form an integral part of the city. Achieving Millennium Development Goal 7, Target 11 – improving the quality of lives of slum dwellers – is a major challenge in Ethiopia. Currently, a housing shortage is between 900,000-1,000,000 in urban centres, and only 30% of the existing urban housing stock is in good or fair condition (MWUD, 2008).

4.4 Housing Development Policy in Ethiopia

Ethiopia has never had a comprehensive national policy on housing development until March 2005. It was only in 2004 however that a clear policy direction was initiated that later was translated into a formal policy statement of the government and a detailed program (MWUD, 2008). Before 2005 what can be referred to as 'urban policy' is, for the most part, restricted to the statements of intent featuring in various national economic development policy documents, including some landmark proclamations and regulations regarding urban areas (UN-HABITAT, 2007).

A consolidated Urban Development Policy was formulated and approved by the Council of Ministers of the Federal Democratic Republic of Ethiopia in 2005 following the various urban reform initiatives that have been experimented in Addis Ababa and across the major cities and towns in the country since 2000 (MWUD, 2008). The policy is formulated aiming that Ethiopia's cities provide efficient and effective public services to residents, compliment and facilitate rural development, are models of participatory democracy and build accelerated economic opportunities that create jobs.

Furthermore, the objective of the policy is underpinned by eight guiding principles which form the basis for an urban development strategy and supporting actions. One of these guiding principles envisages that cities ensure residents access to decent housing. Again based on these guiding principles the Urban Development Policy identifies five critical intervention areas to support the overall objectives of accelerated and equitable growth. These critical interventions are Housing Development, Expansion of Micro and Small Enterprises, Land and Infrastructure Provisions, Delivery of Social Services as well as Governance, and Urban Planning and Environmental Conservation (ibid).

Accordingly, after the policy was formulated the implementation process followed with the aim of addressing the existing housing problems. The government designed the Integrated Housing Development Program (IHDP) in 2006 and is now implementing the program across 59 cities in the country. IHDP has first been introduced in the Federal Capital, Addis Ababa in 2004. The development of the national program in 2006 has benefited from the experiences of Addis Ababa City Government between 2003-2005 that has introduced and piloted new and innovative ways of delivering affordable housing to urban dwellers. Based on the achievements in Addis Ababa, the outcomes realised and lessons learned, the Program has been scaled-up to cover 36 cities in 2007 and 59 cities in 2008 (ibid).

The Integrated Housing Development Programme (IHDP) aims to:

i. Increase housing supply for the low-income population
ii. Recognise existing urban slum areas and mitigate their expansion in the future
iii. Increase job opportunities for micro and small enterprises and unskilled labourers, which will in turn provide income for their families to afford their own housing
iv. Improve wealth creation and wealth distribution for the nation

The initial ambition set by the Government for the IHDP for 2006-2010 was:

a) To construct 400,000 housing units.
b) To create 200,000 jobs and thereby contribute significantly to the national target of reducing urban unemployment by half.
c) To promote the development of 10,000 small enterprises on a sustainable basis in the construction industry.
d) To deliver 6,000 hectares of serviced land per annum for housing and other investments.
e) To enhance and build the capacity of contractors, consultants, engineers and foremen as well as suppliers of construction materials.
f) To support the private sector to produce 125,000 housing units per annum through the provision of land and infrastructure and a conducive legal and policy framework.

The government aims to meet nearly half the housing needs and to support private sector to provide the other portion. After further elaboration of the programme, the target was 360,000 residential condominium units across a range of housing typologies (*See Table 4.1*) and 9,000 commercial units (UN-HABITAT, 2010).

	Studio	1 Bedroom	2 Bedroom	3 Bedroom	Total units
Addis Ababa	36,750	71,750	52,500	14,000	175,000
Other regional states	38,850	75,850	55,500	14,800	185,000
Total	75,600	147,600	108,000	28,800	360,000
% Distribution	21%	41%	30%	8%	100%

Table 4.1: Planned Condominium Housing Units Construction, 2006-2010

Source: Dolicho, E. (2006) cited in UN-HABITAT (2010)

4.5 General Overview of Addis Ababa

Addis Ababa is the capital city of the Federal Democratic Republic of Ethiopia and hub of political, economic cultural activities of the country. Addis Ababa is a seat for head quarter of the African Union (AU), the Unite Nations Economic Commission for Africa (UN-ECA) and the host for multi-lateral funding organizations such as the World Bank, the European Commission, UNDP and others. In addition, the city also gathers over 103 embassies and heads of diplomatic missions, different international, regional and sub-regional organizations and several international NGOs. Besides Addis Ababa is a city, which comprises the people from different parts of the country, this makes the city a place where people with different ethnicity and cultural background live together.

Currently, the city is going through significant changes in different sectors like infrastructure provision including construction of roads and railway which aimed to address transportation problem of the city, mass production of houses at different parts of the city to alleviate housing problem of its inhabitants, increasing the volume of pure water supply for the city, increasing electric power supply of the city, emerging of many high-rising buildings which are owned by the different institutions, private owners and the government, and many other changes are going on. However, a lot further work is required to make the city comfortable to live and work for majority of its inhabitants.

4.5.1 Location

Addis Ababa is geographically located at $9^0$02'N and 38.74^{0}E in which the city is found almost at the centre of the country's territory. The city covers 540 km^2 of which 18.2 km^2 is rural area.

4.5.2 Population

Addis Ababa is the most populous city of all the cities in the country. According to population projection values of 2015 by Central Statistics Agency (CSA), the city has about three million (specifically 3,273,000) inhabitants. Nevertheless, the rapidly growing population, which is mainly a result of rural-urban migration and high birth rate, has been a challenge for the government in provision of basic infrastructure and services.

4.5.3 Topography and Climate

Addis Ababa lies between 2,200 and 2,500 metres above sea level at the foot of the 3,000 meters high *Entoto* Mountains, which is found to the northern part of the city. Despite its proximity to the equator, Addis Ababa enjoys a mild Afro-Alpine temperature and warm temperate climate. Addis Ababa is a city with a humid subtropical mild summer climate that is mild with dry winter mild rainy summers and moderate seasonality. This climate is usually found in the highlands of some tropical countries. According to the *Holdridge* life zone system Addis Ababa is situated near the sub-tropical moist forest biome. The mean annual temperature is 15.9 degree Celsius (60.7 degree Fahrenheit). The average monthly temperatures vary by 3^0 C (5.4^0 F).

Season	Average high temp in ^{0}C	Average low temp in ^{0}C	Variation
Winter	23.3	7.3	16
Spring	24.7	10.7	14
Summer	21	10	11
Autumn	22	8.3	13.7

Table 4.2: Average high and low temperature of Addis Ababa

Source: Adapted From ClimaTemps.com

4.5.4 Housing Condition in Addis Ababa

The city has a big backlog in provision of decent houses for its inhabitants because of rapidly increasing population and poor condition of the majority of existing houses. Shortage of housing is among the most visible problems of poverty in Addis Ababa, it could be understood in terms of its qualitative and quantitative dimensions (Yewoineshet, 2007 quoting Tesfaye, 1992). *"It is estimated that 80% of the population of Addis Ababa is living in 'slums"* (Elias Yitbarek, Revisiting «Slums», Revealing Responses; Urban upgrading in tenant-dominated inner-city settlements, in Addis Ababa, Ethiopia, 2008, p. 85).

In order to solve the housing problem of the city large-scale housing development has been implemented since 2004 mainly through the Integrated Housing Development Program (IHDP) by the government. The program boosts involvement of the government in housing sector which was only 8.4% before 2003 (*See Table 4.3*) and intended to construct and deliver low-cost condominium houses for the low-income residents of the city. However, the number of housing units constructed and delivered so far is much less than the plan and the actual need.

Housing supplier	No. of houses	Percentage share
Public	7,409	8.4
Cooperatives	24,820	28.2
Individuals (formal)	22,225	25.3
Real estate developers	3,520	4.0
Informal sector	30,000	34.1
Total	87,976	100

Table 4.3: Houses Constructed in Addis Ababa, 1996-2003

Source: Addis Ababa City Government, 2004 cited in UN-HABITAT (2010)

Over the past ten years, the city administration was able to build and transfer[9] more than 136,000 and currently 130,000 condominiums houses are under construction in various parts of the city (Ethiopian News Agency, 2016). So far, the target group was low-income group inhabitants however, since 2013, the city administration started implementing different housing development programs for middle-income groups as well through 40/60 programme. In August 2013 the Agency re-registered previously registered applicants and new applicants in 10/90, 20/80, 40/60 programmes. These programs are different from the previous in a way that registered applicants are expected to save 10, 20 or 40 per cent of the total cost of the house in each programme respectively to be included in the delivery process, which is a lottery system, and the rest will be paid to the bank after the house is delivered. Nevertheless, in the previous program pre-saving was not required to be included in delivery process rather the one who got a house is required to pay 20% down payment initially and pay the rest to the bank every month within 20 years.

4.6 Actors Involved on Condominium Housing Development

So far, the government is the dominant actor in condominium housing development program in Addis Ababa in terms of formulating policy, land supply, preparing plans and designs, financing, and delivering basic services; implemented through its various offices including the City Council, Works and Urban Development Bureau, Addis Ababa Development Housing Agency, Addis Ababa Road Authority, Addis Ababa Water and Sewerage Authority, Federal Utility Agencies, Addis Ababa Lease Board and Addis Ababa Lease Office. However, private consultants, construction companies and Micro and Small Enterprises are the one who actively involved in construction process.

So far the condominium project is implemented through involvement of different bodies under the coordination and supervision of the government mainly HDPO. According to UN-HABITAT (2010), the overall process of developing each new condominium houses is as follow.

[9] When construction work is 80 percent complete, registration for the lottery opens and the lottery is conducted. Results are published on the internet, in newspapers and on *kebele* (the former smallest administration units in Addis Ababa currently restructure and replaced with *woreda*) information boards.

1. Addis Ababa City Administration selects and surveys potential site
2. Request for approval put forward to the Land Board
3. Apply for Government bonds from CBE
4. HDPO competition released for site master plan
5. Shortlisted entrants develop design
6. Presentation of designs to stakeholders with a winner selected
7. Design amendments made by HDPO
8. Construction contractor vacancies released
9. HDPO hires contractors and sub-contractors
10. Condominium construction commences (first construction of houses, then infrastructure)
11. When construction is 80 per cent complete, lottery registration opens
12. Lottery draw and results dissemination
13. Winners have one month to claim condo/ complete Form 03.
14. They then pay down payment to CBE and sign General Agreement with HDPO
15. General Agreement sent to CBE and Land Authority
16. Construction complete
17. Keys given to beneficiaries.

4.7 Neighbourhood Open Space Provision Standards

According to Addis Ababa Neighbourhood Planning and Design Manual (AANPDM) (2006), the idea of condominium housing though under familiarized, the neighbourhood design has to encourage the previous living qualities at a certain level i.e. common green spaces for children playing area and other activities like meeting, *Iddir*, holiday celebration to address all age group. To do so in the neighbourhood design, it is necessary to regulate the quality & quantity of open space.

Neighbourhood planning and design principles regarding provision of neighbourhood open spaces for redevelopment of inner city areas and for new settlement areas such as expansion and infill areas emphasised on the manual are:

- Create liveable and active environment that can integrate with the existing settlement
- Take into consideration of traditional community space organization and utilization of the specific project area whether it is at the front or back yard…

- Create architectural forms and spaces that promote cultural diversity and positive social interactions such as
    - Establishing meeting place within each community, create enclosed spaces between building blocks, design spaces for promoting communal sport activities
    - Providing pedestrian pockets integrated with jobs, services and recreation,
    - Designing terraced housing with medium rise to create a better living environment for children and meeting places for the grown-ups
    - Providing ramps for disabled persons within buildings and neighbourhood
- As much as possible avoid negative spaces that are wastage and unusable spaces such as very acute triangle spaces
- Develop ecologically friendly and economically sound neighbourhoods such as ,
    - Establish community recycling backyard spaces, community bins and bio gas digesters,
    - Provide space for promoting small organic farming operations through community gardens and roof top gardens for creating favourable climate and enhancing social interactions
    - Provide trees (specially along pedestrian routes) and green areas which are important ingredients of a neighbourhood
    - As much as possible reduce hard surfaces (asphalt, concrete pavements…) and maximize green fields for creating favourable micro climate
- Focus for encouraging and promoting pedestrian and non-motorized transport specially in the local and access roads like
    - The provision of complete network for pedestrian and cycle routes,
    - Provision of ramps for disabled persons…
    - Discourage fast moving vehicles in local and access roads through winding the streets, constructing bumpers etc.

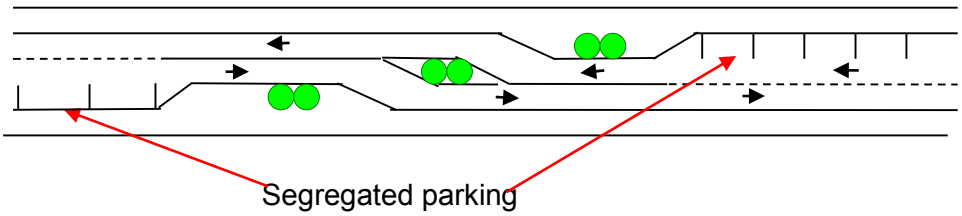


Figure 4.2: Slow street concept

Source: *Addis Ababa Neighbourhood Planning and Design Manual, (2006)*

- Integrate specific important site features (natural and man-made) while planning and designing e.g. river, landmark and historical buildings, trees etc.

- Enhance crime preventive mechanisms through physical planning (to support informal neighbourhood social control mechanisms) by designing favourable internal layout of pedestrian routes, roads and buildings to avoid unsafe spaces where rape and other assault are likely to happen (such as entrances to the houses should be open and built in such a way that people living around could observe who are entering into the house and pedestrian routes to follow roads and facing the front yard of houses than leading through backyard and wooded areas)
- Create open society and promote social cohesion, social mix and integration of different communities
- Develop and create hierarchy of neighbourhood spaces such as public (streets), semi-public (courtyards for block clusters for communal activity) and private space (within the housing unit)

According to the manual, the provision open space at residential cluster based on number of inhabitant or household is as follow:

Level of open space	Space requirement	Catchments area	Served population	Location
Play lot (at residential cluster)	0.1-0.2 ha	120 m radius	1,250- 1,750 inh. (250-350 Household)	Centre of catchments area, Not adjacent to collector street
Play lot (at residential cluster)	0.3 - 0.4 ha	400 m radius	5,000 – 10,000inh. (1,000 –2,000 Household)	Within the catchments area

Table 4.4: Neighbourhood open space standard

Source: Addis Ababa neighbourhood planning and design manual, (2006)

Concerning the green area coverage of open spaces in residential neighbourhood norms and standards are formulated by ORAAMP in 2002, aiming to improve the environmental quality and increase a green area coverage in residential environments. The standards on neighbourhood green area are summarized as follow.

- One plot one tree for plots of area up to 150 m sq. and one tree for every additional 100 m sq. plot area.
- 12-25 % of a plot area should be unsealed (for greenery and natural open space so that rainwater should percolate to the ground, decrease water discharge and reduce runoff).
- Green areas of different standards (Neighbourhood-city level) should be provided and developed according to the norms and standards provided in the Social Facilities component.
- In any case an average of 0.5-1m sq./person should be reserved for green spaces

However, in comparison with standard recommended by WHO which is 10 sq. m/person the standard for Addis Ababa is much less (*see section 3.7.2*). Furthermore, the percentage approach in allocating open space is criticised for its inequitableness in high-density development. Which will lead to less area of open space per person when it is compared with low-density development (*see section 3.7.1 paragraph 5*). Therefore, the researcher recommends allocation of open spaces per number of inhabitants instead of percentage of the total developed area.

4.7.1 Density and Open Space Provision

In a neighbourhood development program, the density range for a certain area can be given in the terms of reference based on the particular city norm and standard. Density of an area may vary not only from region to region; but also within the city based on employment opportunity, resident's interest, developments trend, land value etc. (MWUD, 2008). In the case of Addis Ababa, density proposal is set for the different zones on the structure plan. In core areas where the land value is high, with better service and infrastructure provision, job opportunity and transportation, dense development is foreseen relatively to maximize efficient utilization of resources (ibid). Accordingly, the proposed population density levels in different zones of Addis Ababa and the catchment radius area is as follow.

Density zone	Proposed Density HH/he.	Proposed population density (Inh./he)	Catchment radius
Core Area	125-380	650-2000	Areas within 5 Km radius: Merkato, Teklehaimanot, Piazza, Lagaar, Mexico, Kazainchis etc.
Intermediate Zone	80-125	400-650	Areas between core and infill
	80-125	400-650	Infill areas
Periphery and Expansion areas	54-80	280-400	Existing non-and partly built-up areas.

Table 4.5: Proposed population density of Addis Ababa

Source: ORAAMP, (2002)

In terms of achieving the above density ORAAMP (2002), established the following standard as an average land area per Household for different zones of Addis Ababa.

Areas	Average land area per Household (m. sq./HH)		
	For pure residential use	For housing units and supporting physical and social infrastructure services	For housing units, supporting physical and social infrastructure and higher level uses
Core	40-80	80-100	100-120
Intermediate	80-130	130-140	140-150
Expansion area	125	185	215

Table 4.6: Area per Household standards in core, intermediate and expansion areas

Source: ORAAMP, (2002)

In the case of Addis Ababa the building permit regulation BAR for condominium houses is 75 - 85% including parking space. This standard is applicable in core areas of the city where the density is very high. A neighbourhood of a wide area usually develops in the intermediate area. In this case, the built up area depends on the available area for development and the minimum area requirement for open space provision at neighbourhood level (Samuel; et.al, 2006). According to the performance evaluation study done by Elias Yitbarek. et.al (2011: 4), 'the total area covered by new housing projects during the planning period is calculated to be 2,977 hectares of land. Comparing this figure with the proposed area, only 30% was covered by housing. The remaining 70% of land could be vacant or is already transformed to a differing degree, to other land uses'. This data implies that the achieved development is more compact than the proposed one in which it could have a significant effect on the open spaces provided.

4.8 Institutional Frame Work

Currently the authorized institution for administering open spaces in residential neighbourhoods is Beautification, Parks and Cemetery Development and Administration Agency of Addis Ababa (BPCDAA) which is established in 2004 based on proclamation number 35/2004 by the city government, earlier it was categorized under sanitation and beautification administration (Anteneh, 2014). The agency is established to overcome the existing sanitation problem of the city and having a vision of making Addis Ababa one of the African cities, which are preferable in terms of beauty and green development to their residences and visitors as well. The agency is entitled to administer, control and develop public recreational parks and residential neighbourhood green areas.

Currently, the agency focuses on greening public parks and greeneries along the street, but the level of involvement of the agency in terms of developing and maintaining existing open space around condominium neighbourhoods is inadequate. Therefore, the residents and the residents' association in condominium neighbourhoods are engaging primarily on the development and maintenance of exiting open spaces around their neighbourhood. However, collaborated effort from all stakeholders is expected to bring an outstanding result in terms of realising liveable residential environment in condominium neighbourhoods.

Chapter-5 CASE STUDY

5.1 Introduction

In this section general description about the selected case Gofa Mebrat-hail Condominium Neighbourhood and the data collected from the study area is presented and analysed in detail. In the analysis process, the data is stratified and presented through tabulation, mapping, summary and graphs. In addition, summary of findings is presented at different stage of data analysis and cross analysis of those findings is presented as well.

5.2 The Case Study Area

5.2.1 Location

The case study area is located at Gofa Mebrat-hail condominium neighbourhood, which is found at the southern part of Addis Ababa.

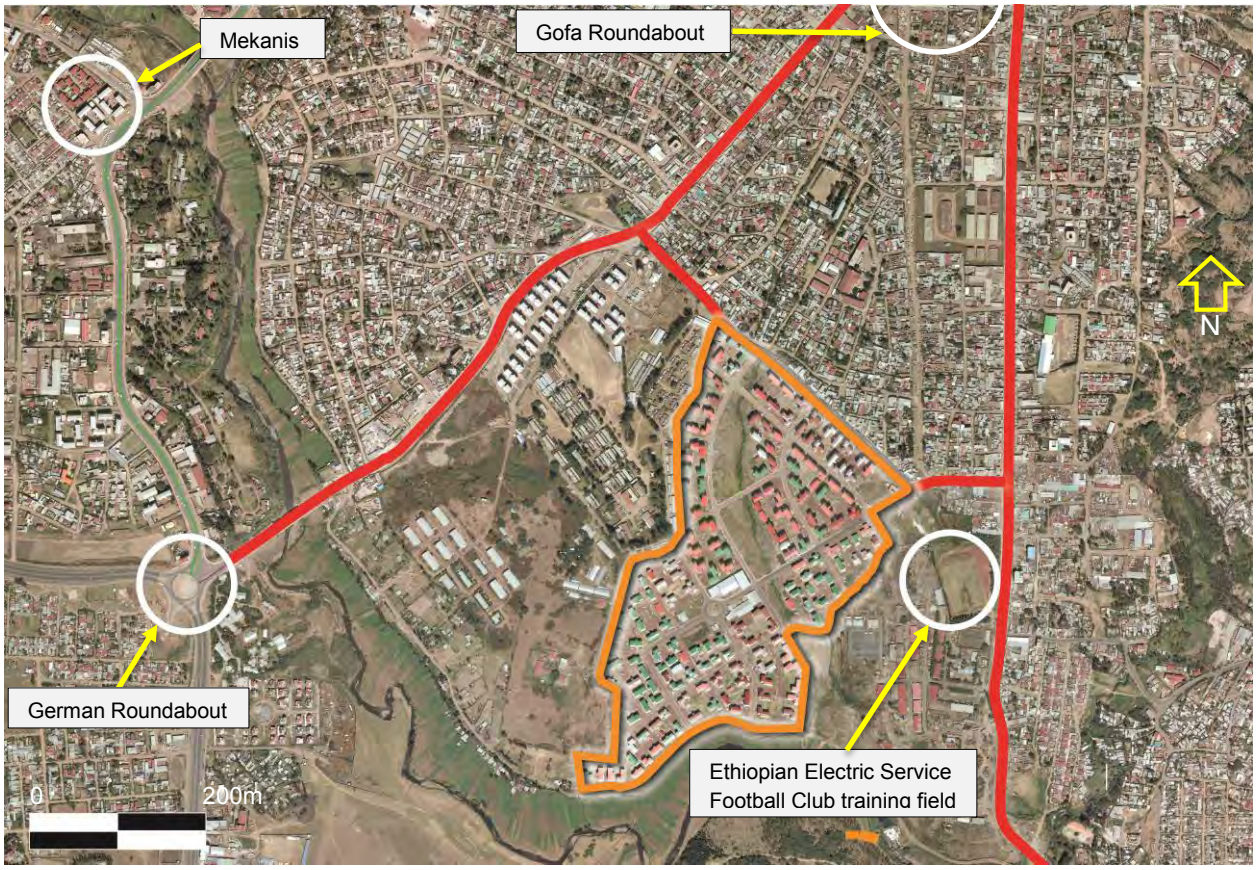


Figure 5.1: Location Map of the Case Study Area

5.2.2 General Description about Mebrat-hail Condominium Neighbourhood

The condominium houses in Gofa Mebrat-haile were transferred to occupants in 2008. Therefore, the pioneer occupants had lived in the neighbourhood for eight years until this study is conducted. According to the data from Gofa Mebrat-hail Condominium House Owners Association Office currently the total number of households in the neighbourhood is 5,580.

Based on the neighbourhood design of Gofa Mebrat-hail condominium, which is obtained from Addis Ababa Housing Development Project Office the total area of the neighbourhood, covers around 3.8 hectares. A small river passes through the neighbourhood from north to south-east

direction is the dominant natural landscape feature besides a down slope from north to southern part of the neighbourhood.

Figure 5.2: Aerial photograph of Gofa Mebrat-hail condominium neighbourhood

5.3 The Study Area

As it has been discussed in *section 2.4.1, (see Figure 2.3 for analysis of preliminarily studied parcels)* a particular study area (Parcel No. 6) is selected from the neighbourhood to be studied in detail as an illustrative parcel. Hereafter, the general description about the study area and

comprehensive data collected from inhabitants about the existing situation of communal open spaces of the study area is presented and analysed accordingly.

5.3.1 General Description about the Study Area

Total area of the site covered in the study is 16,834m^2 with built up area of 5434.4m^2 (32.2% of the total area), road network and circulation area 4,802.7m^2 (28.5% of the total area) and total area of open space 11,399.6 m2 (67.71% % of the total study area).

There are fourteen condominium blocks and one communal building[10] within the parcel. The total number of residential flats and commercial units are 389 and 32 respectively. If we assume 5 person per household population (according to Central Statistics Agency, 2007) the density of the residential area will be 1,158 inh/he which is denser than the standard provided by Addis Ababa Housing Development Project Office i.e. 600-950 inhabitants per hectare (assuming five people per household) or 120-190 household per hectare for intermediate density zone.

The area consists of fourteen residential blocks and one communal building, which are arranged following the local access roads. As shown on exiting map *(see*

Figure 5.3) the open spaces are fragmented by circulation roads and it is a buffer space to separate a block from the next block and the road.

Figure 5.3: Aerial photograph of the study area

10 “The provision of communal buildings to condominium sites was an attempt to respond to the cultural needs of residents. The function of the communal buildings is to provide a protected space for residents to perform traditional tasks such as slaughtering goats, hand-washing laundry, and cooking extensive meals: activities the housing units themselves cannot accommodate.” (UN-HABITAT, 2007, p. 22).

5.3.2 Proposed and Existing open spaces of the study area

A comparison of the existing open spaces and the proposed design by Addis Ababa Housing Development Agency is illustrated as follow.

Proposed **Existing**

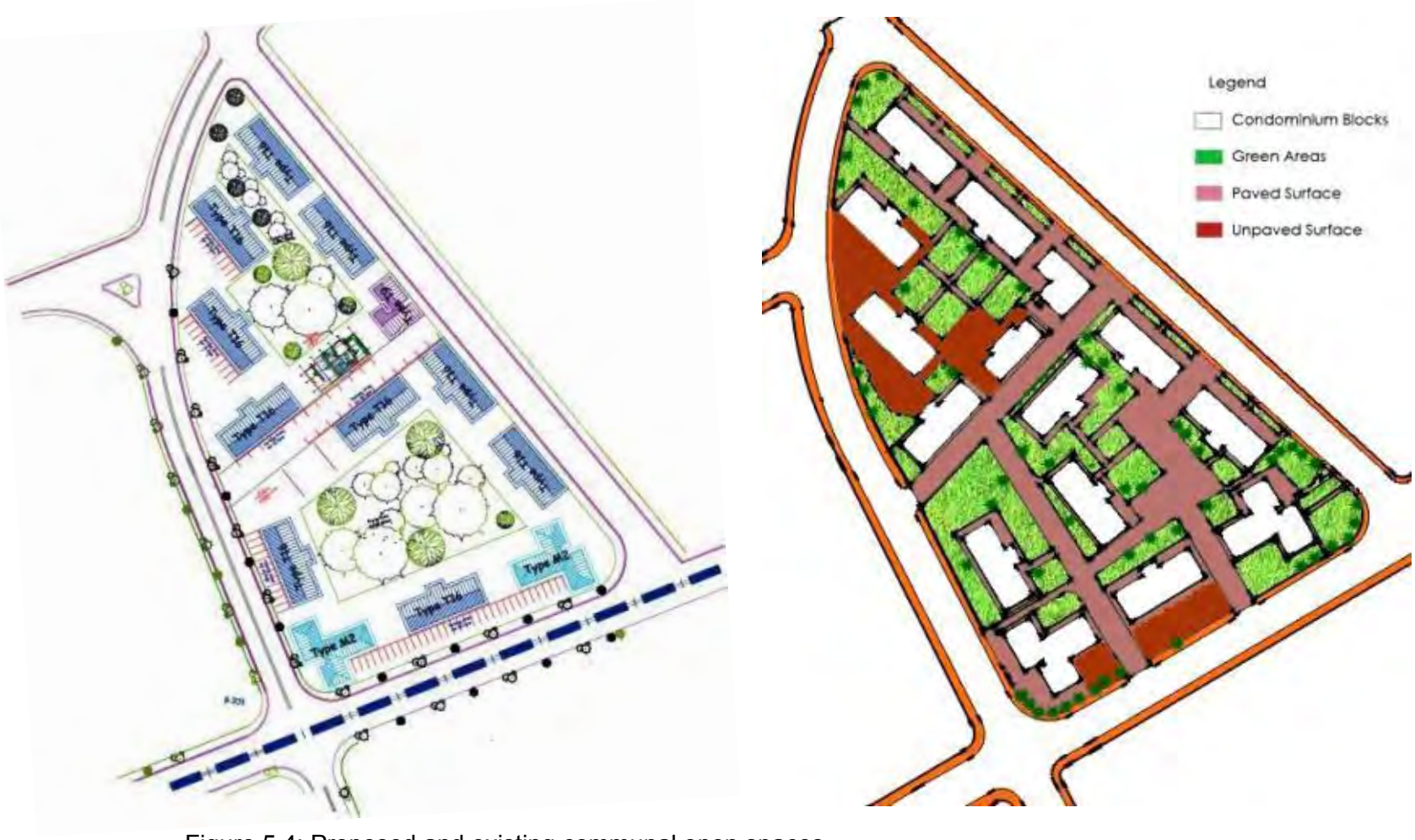


Figure 5.4: Proposed and existing communal open spaces

The different features of existing communal open spaces from the proposed design

- Extra block constructed on communal green area
- A portion of car parking area is changed into green area
- Additional area used for circulation

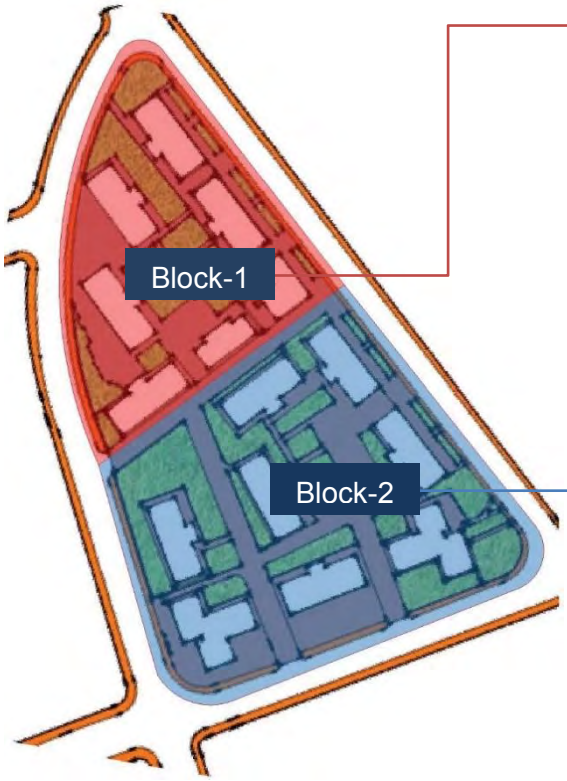
5.3.3 Management and Administration of Communal Open Spaces

Likewise, as discussed in *section 4.8* the involvement of the respective government agency in developing and managing the existing open spaces in the study area is missing. Currently, the development and management of existing communal open spaces is on the hand of the residents' association through assigned representatives from each block. The management structure of communal open space in the study area can be discussed by classifying into level i.e. at the neighbourhood level and at parcel level. At neighbourhood level, the Gofa Mebrat-hail Condominium House Owners Association Office had a local regulation norm concerning the right and responsibilities of residents on utilizing communal open spaces and how should they use these spaces. Accordingly, communal open spaces related regulations from the Association's By-law are listed below.

- Section 15.2.5. Inhabitants have equal right to use the parking spaces and other related spaces however inhabitants are not allowed to perform activities, which are restricted to be performed on communal open spaces.
- Section 16.3. Ceremonies like *diges, lekso*, wedding and other social events should be held on space, which is dedicated for this purpose.
- Section 16.4. Except on spaces, which is dedicated, to be used communally by inhabitants, it is not allowed to construct a tent on the road and building entrances.
- Section 17.1. Any slaughtering activity is not allowed except on the space dedicated for this purpose.
- Section 17.2. It is forbidden to dispose waste from household activities like cloth washing cleaning houses on the ground
- Section 17.4. It is forbidden to dispose a burned fuel from cars on the ground
- Section 17.5. Without having permission from the association car washing activity on open space is not allowed
- Section 17.7. It is not allowed to put an advertising board on the open space

- Section 17.8. It is a shared responsibility of inhabitants to maintain and protect the green areas, destroying and cutting the plants is forbidden.
- Section 17.9. Constructing a plastic shelter on residential flats or on the side of the roads for doing commercial or any other activity is prohibited.
- Section 17.10. Inhabitants should collect the trash from their household activities and handover to the trash collectors. Disposing garbage on the roads or on corridors is forbidden.
- Section 17.11. Excreting/urinating on the road is forbidden.
- Section 17.14. It is not allowed to dispose waste material from cleaning the house plastics, soft etc. in the neighbourhood except on the area dedicated for trash and residual collection purpose.
- Section 18.1 Playing football within the neighbourhood main roads and circulation areas is forbidden.
- Section 18.2 Vehicle owner inhabitants and guests should obey the traffic sighs inside the neighbourhood
- Section 18.3 Driving inside communal space with generating high noise is forbidden.
- Section 18.4. Except in case of emergency using clacks and siren in communal spaces is forbidden.
- Section 18.5. Maintaining cars and leaving broken vehicle parts on communal spaces is not allowed.
- Section 18.6. Without having permission from the Association, inhabitants are not allowed to park big trucks on communal spaces and inside the neighbourhood.
- Section 18.7. Parking on circulation area and pedestrian way is forbidden.
- Section 18.8. Without permission, practicing motor bikes or bicycle around the blocks is forbidden.
- Section 18.9. The Association will work together with the owner to relocate abandoned old vehicles on communal space. If not the association will relocated the vehicles at the cost of the owner.
- Section 18.10. Parking outside the dedicated parking lot is forbidden and there will be a fee for parking service.

However, at a parcel level besides the rules and regulation of the Association there is also a trend of allowing and denying activities on some part of the studied parcel, which are formulated by informal agreement of residents. The following two areas (distinguished as Block-1 and Block-2 for discussion purpose) within the studied parcel will demonstrate this situation.



Block-1

- Mounting satellite dish on the ground is not allowed. Every household should use the external side of the houses to mount satellite dishes.
- Spaces for cloth drying activity and spice preparation is dedicated separately. So using the green area for this purpose is prohibited.
- Children are not allowed to play inside the green area.

Block-2

- Mounting satellite dish, cloth drying and spice preparation is allowed on the ground.
- Children are not allowed to play inside the green area.

Figure 5.5: Different local regulation zones inside the parcel

Even though mounting satellite dish on the ground is not allowed in Block-1 there are a few satellite dish mounted on the ground. However, their number is very less in comparison with the situation in Block-2 portion of the study area. Besides allocating a separate cloth drying and spice preparation area in Block-1 is somehow advantageous for occupants to have a cleaner green area relative to Block-2. However, in both cases children are not allowed to play inside the green area consequently the local children play on the parking spaces and the adjacent streets.

5.4 Usage of Communal Open Spaces on Household Level

5.4.1 Selected Interviews

As it is has been discussed on sampling technique section of the research methodology *(see section 2.9*) at least one interview is done with inhabitants from each block. However, a few sample interviews are discussed in this section. Two interviews from one block is presented as a special case because of only these two inhabitants (Ato Getachew Erkyihun and W/ro Aberash Ayele) are engaging on gardening activities on communal open spaces of the studied parcel. But, the rest of the interviews are selected from different blocks.

Interview 1: Ato Getachew Erkyihun

Name: Ato Getachew Erkyihun
Age: 73
Block No: 42
Floor: First floor
Flat type: Two Bedroom
Marital status: Married
Family size: Eight
No of children: Six
Occupation Period: 8 years
Ownership status: Owner
Employment status: Self-employed

General information: Ato Getachew and his family have lived in Gofa Mebrat-haile condominium since 2009 after they had been relocated from Olympia because of the redevelopment program. He is a driver on his own taxi. He always leaves for work at 5:00am in the morning and comes back from work at 4:30pm. Even if he spent all the day at work far away from his home surprisingly, he is the only person who is taking care of the green area around his block. He invested his resources including money, time, skill and experience he had got while he was a farmer many years ago on the open space around his block. Every three days Ato Getachew waters the grass, the trees and some other vegetables he planted on the communal open space. Sometime when he comes back home late, he used a torch light during watering the green area since there are no outdoor lights nearby. He also constructed a temporary fence from wood and plastic rope to guard the area from others interference particularly from the local children.

Usage of communal open space: besides taking care of the green area Ato Getachew uses the communal open space for car parking daily and growing vegetables like cabbages and crops a couple of times at very small scale. He said, “I do not spend the daytime in the neighbourhood so I don’t have much activity on the open space however my family uses the space sometimes for cloth drying food and spice preparation purpose.”

Challenges: destruction the vegetation he planted by other occupants mainly while children are playing, dry wastes thrown from the upper floors to the ground into his backyard garden, mounting satellite dish on the green space he used to taking care of, are the major challenges that Ato Getachew mentioned on his gardening activities. He said, *“The number of satellite dishes mounted on the green area is increasing from time to time and when occupants mount a new satellite dish on the ground they destroy the plants and reduce the area of green space.”* He

added, *"During mounting satellite dishes they used a stone to make it stable which became an obstacle for me in gardening activity and make the area unattractive."*

Concerning the area of existing open spaces, he mentioned that *"once around three years ago we experienced a problem of finding enough open space for constructing a tent for my daughter's wedding ceremony so that we were forced to have the ceremony at the hotel. This problem is common for other residents too; many residents from this compound have their wedding somewhere else by renting a hall"*

He also mentioned that even though he is contributing his best to make his living environment more liveable voluntarily he did not get that much support from his neighbours financially or labour wise except one woman called W/ro Aberash Ayele living in the same block with Ato Getachew. He said, *"W/ro Aberash Ayele is living on the ground floor so she is very close to the green area she sometimes works with me and by herself on maintaining the fence and cleaning the space."*

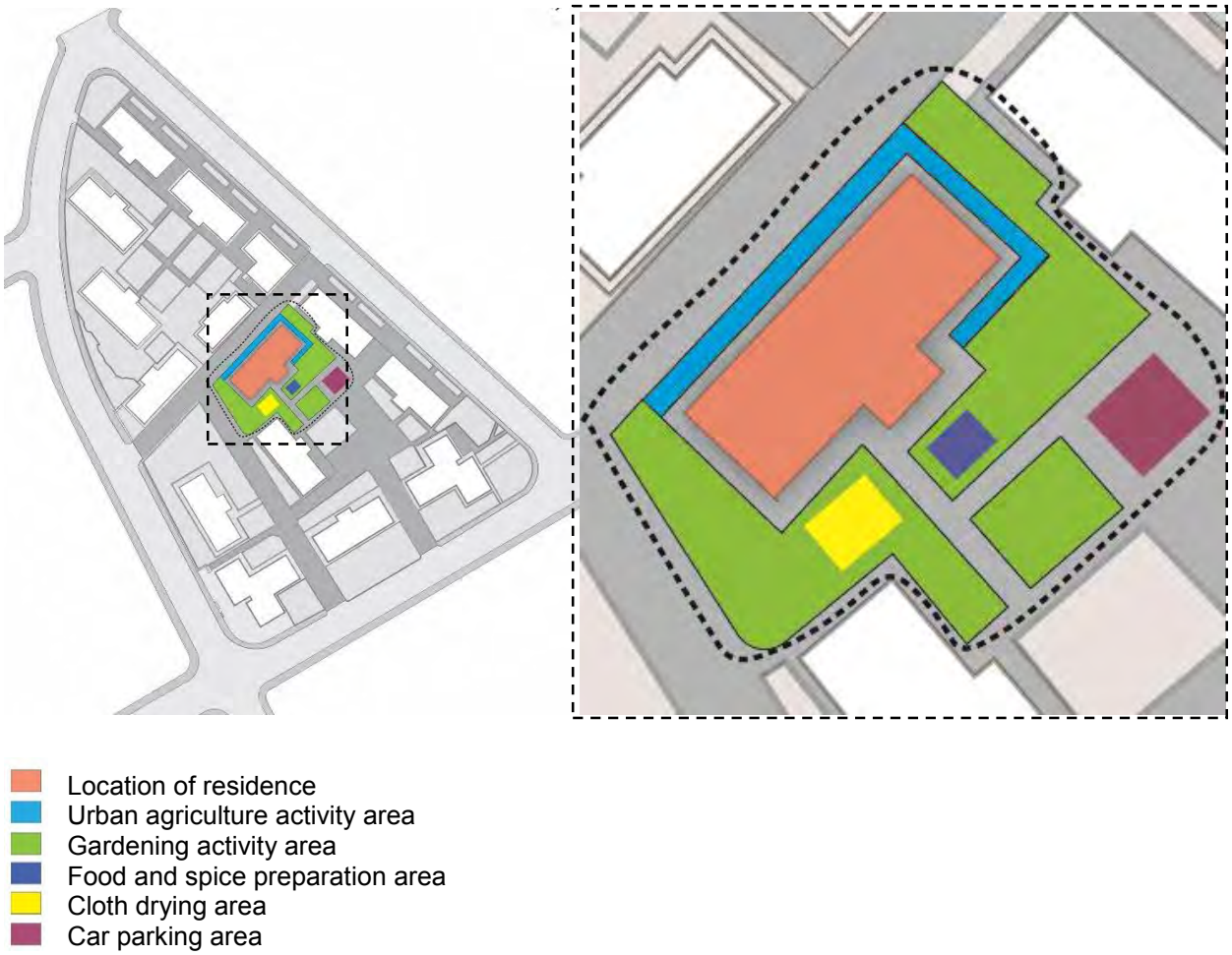


Figure 5.6: Location and activity map of Ato Getachew's family

Figure 5.7: Ato Getachew's gardening activity on communal open space

Interview 2: W/ro Aberash Ayele

Name: W/ro Aberash Ayele
Age: 54
Block No: 42
Floor: Ground floor
Flat type: Two Bedroom
Marital status: Widow
Family size: Seven
No of children: Six
Occupation Period: 8 years
Ownership status: Owner
Employment status: Employed

General information: W/ro Aberash Ayele has lived in Gofa Mebrat-hail condominium since 2009 after her family had been relocated from *Lideta*[11] because of the redevelopment program of the area. Currently she is living in two bedroom flat with her children. She works in nearby government institution thus she spent most of the daytime at work in weekdays. However, she mentioned that she spent her leisure time (mostly in weekends) on the surrounding open space performing different activities.

Usage of communal open space: W/ro Aberash and her family use the communal open spaces around the block they are living in for different activities like: gardening, cloth drying, food and spice preparation purpose and sometimes as cooking area for *diges*[12]. *"As you can see I had grown some vegetables and spice plants on the front and right side of the block so that I use them for household consumption. And since me and my family are not available most of the day time I have constructed a fence around the area I used as a garden to protect the plants from destruction by passengers, especially children who play on the adjacent street."*

Challenges: W/ro Aberash mentioned the activities of other inhabitants like satellite dish mounting, cloth drying activities inside the garden and trashes thrown from the above floors into her garden, as hostile activity for the plants she is growing. She said, *"When the residents enter to the green area to mount their dishes and to hang their washed cloth they damage the vegetation I have planted. Not only this, occupants who are living on the upper floors throw their trashes into the garden where I use to grow vegetables so I have to clean the area all the time."*

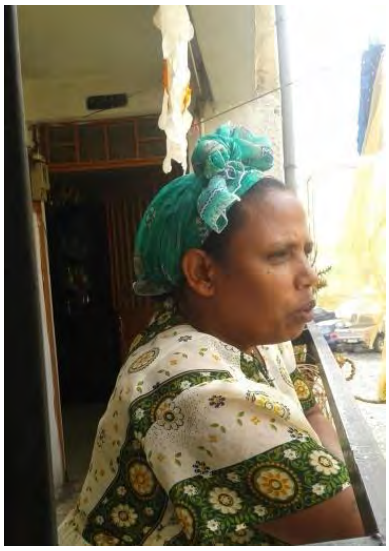
[11] A place in Addis Ababa where relatively large scale redevelopment programme is implemented so far

[12] Any traditional or religious occasion hosted by a household by inviting relatives, neighbours or friends for festivity of memorial service.

Figure 5.8: Location and activity map of W/ro Aberash's family

Figure 5.9: W/ro Aberash's activity on communal open space

Interview 3: W/ro Amarech Jembere



Name: W/ro Amarech Jembere
Age: 47
Block No: 48
Floor: First floor
Flat type: Two Bedroom
Marital status: Married
Family size: Ten
No of children: Eight
Occupation Period: 8 years
Ownership status: Owner
Employment status: Housewife

General information: W/ro Amarech Jembere is one of the pioneer occupants of Gofa Mebrat-hail condominium who lived in the neighbourhood since 2009. Similarly, W/ro Amarech is relocated to Gofa Mebrat-hail neighbourhood from her previous location '*Lideta'* because of the redevelopment program of the area. Currently she is living in two bedroom flat with her family. During the interview, W/ro Amarech was a representative of the block she is living in concerning different issues regarding the living environment including the usage of communal open space around her block.

Usage of communal open space: W/ro Amarech and her family use the communal open space, which is located in front of their block for some personal uses primarily and social activities. *"We use the open space for food and spice preparation for household consumption and for cloth drying activities predominantly, in addition to this we also occasionally use the green space for children birthday parties, meeting for Iddir [13], Meskel [14] celebration, hosting area for diges like Kerstena[15]."*

Challenges: ***"****For me the major challenge regarding the open space is the disturbing noise while car parking and children playing on the left and rear adjacent side of the block."* And she also mentioned *"As a representative of the block it is a big challenge for me to convince other inhabitants to willingly clean the space after they used it for activities like food and spice preparation which makes the area a dirty place for others to use it."*

[13] A local community association for funeral assembly, consoling and contributing money, which is collected from each members of the association, for the families who lost a family member or a close relative.

[14] A religious holiday annually celebrated on September 27 in memory of the founding of the true cross.

[15] Child baptism ceremony

Figure 5.10: Location and activity map of W/ro Amarech‘s family

Figure 5.11: W/ro Amarech’s family activity area

Interview 4: W/ro Mihret Seyfu

Name: W/ro Mihret Seyfu
Age: 35
Block No: 43
Floor: Third floor
Flat type: Two Bedroom
Marital status: Married
Family size: 4
No of children: Two
Occupation Period: 8 years
Ownership status: Owner
Employment status: Housewife

General information: W/ro Mihret is also one of the pioneer occupants of the Gofa Mebrat-hail condominium neighbourhood who lived in the area for eight years. She is a housewife and she spent most of her time in the neighbourhood taking care of her two daughters.

Usage of communal open space: W/ro Mihret mentioned that living on the upper floors is discouraging to use the open space however; they use it for necessary activities. *"Living on the upper floor by itself is not comfortable to do our activity on the ground despites this me and my family occasionally use the open space available in front of our block for important events like children birthday ceremony, Mahber [16], as a cooking space for diges, for cloth drying, and for spices preparation but mostly we use it for car parking and children from around play on it on weekends and after school."*

Challenges: "*for me the biggest challenge is the location of the open space as you can see, it is adjacent to the asphalt road in which cars passes with higher speed that makes me worried to let my children to play on the open space. Besides this the open space which is found adjacent to the road and at the rear side of the front block is not clean as a result of dumping a trash and waste by inhabitants living inside the parcel and outsiders which makes it unhygienic for children to play on it and caused unpleasant smell. Sometimes I feel the smells while I am inside my home."* She also mentioned the difficulty to use the open space because of interferences of multiple activities. *"we don't have a separate space for cloth drying purpose so is it difficult to hang a washed cloth because most of the time when I use the wire on open space to dry clothes the*

[16] A religious ceremony by Orthodox Christian followers celebrated in each member's house once a month on the day they assigned after God, Angeles or Saints.

children will drag it to the ground or hit it with a ball while they are playing consequently I have to clean it again."

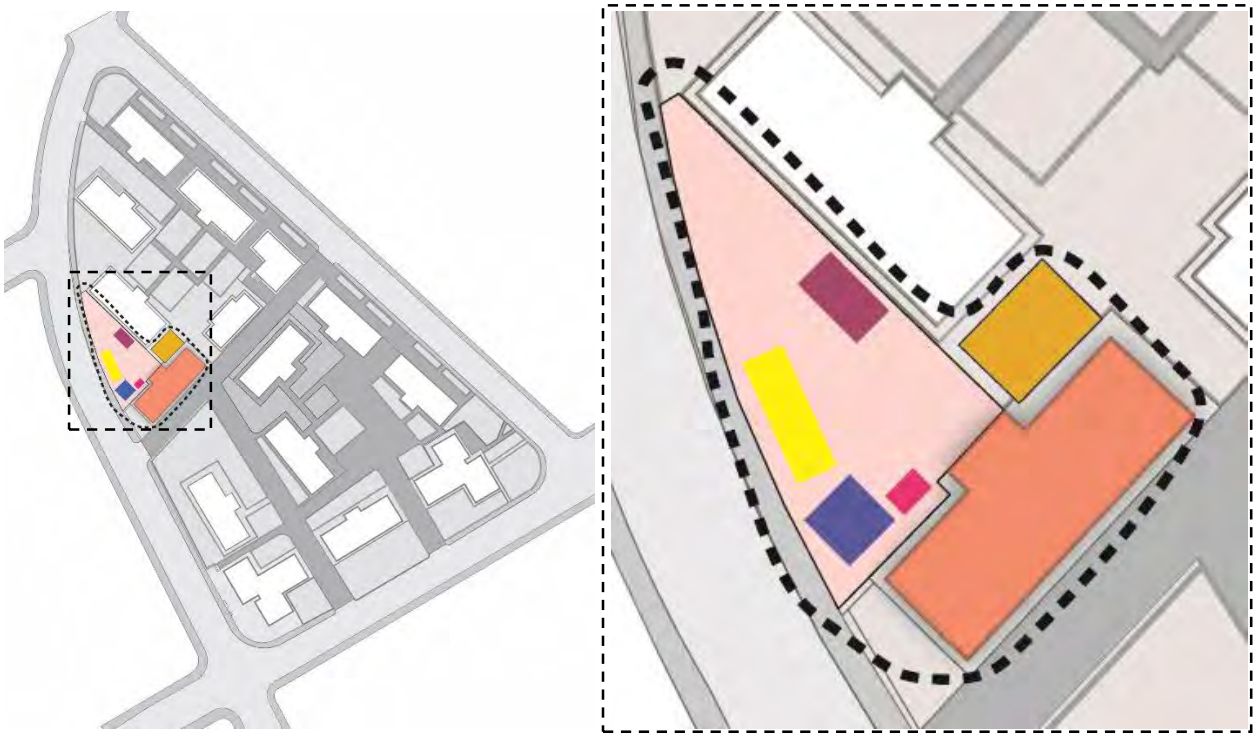


Figure 5.12: Location and activity map of W/ro Mihret's family

Children playing area Birthday celebration area Parking area

Figure 5.13: W/ro Mihret's family activity area

Interview 5: W/ro Shewarega Wendemagegnehu

Name: W/ro Shewarega Wendemagegnehu
Age: 83
Block No: 40
Floor: First floor
Flat type: One Bedroom
Marital status: Widow
Family size: Four
No of children: Three
Occupation Period: 6 years
Ownership status: Owner
Employment status: Housewife

General information: W/ro Shewarega Wendemagegnehu has lived in Gofa Mebrat-hail condominium neighbourhood since 2009. She and her family relocated from Arat-kilo neighbourhood because of the redevelopment program. Currently W/ro Shewarega is living with her daughter and two grandchildren in one bedroom flat. Currently, she is not working because of her age and spent most her time at home however she has a financial support from her daughter.

Usage of communal open space: W/ro Shewarega's activity on communal open space is limited to planting cabbage at a very small scale in summer and participate on *Iddir* meeting. *"I am old I spent much of my time inside my home however in the previous years I have planted a cabbage on the open space adjacent to the stair case and I used them for home consumptions. I also have a plan to do it this year too but the tenants on the ground floor who owned a restaurant are using it to store their trashes. Other than this we use the cobblestone paved area in front of our block for Iddir meeting."*

Challenges: W/ro Shewarega mentioned the area of available open space as a major challenge as it is inadequate for any recreational activity for her and for her grandchildren. *"The green space we have is very small for recreational or other activities, for an old person like me it will be very good if we have enough green space. Also there is no children playing area so that my grandchildren are playing on the cobblestone paved area and on the adjacent asphalt road. This make me and their mother worried everyday thinking about if they might hit by car or fell on the ground. Even if it is not safe for them there is no other option."* W/ro Shewarega also mentioned the open space problems because of the commercial activities on her block. "*The restaurants owners on the ground floor uses the our green space for storing their unwanted stuffs and use*

the space as a trash collecting area this situation creates a problem for me and other residents on this block to use the open space."

Figure 5.14: Location activity map of W/ro Shewarega's family

Children playing & Meeting area for *Iddir* Trashes from commercial units

Figure 5.15: Some features of W/ro Shewarega's family activity area

Interview 6: W/ro Selam Gebru

Name: W/ro Selam Gebru
Age: 37
Block No: 38
Floor: Second floor
Flat type: One Bedroom
Marital status: Married
Family size: Three
No of children: One
Occupation Period: Three month
Ownership status: Tenant
Employment status: Housewife

General information: W/ro Selam's family had moved in to Gofa Mebrat-hail condominium neighbourhood three month ago. Currently she is living with her husband and her one years old daughter.

Usage of communal open space: *"I use the communal open space only for cloth drying activity as you can see the open space available near to our block is not convenient for any other social or recreational activity because the area is too small and the space is too narrow for such activity."* She added *"even if I didn't have any 'diges' since I came to this neighbourhood, I saw the other residents using the corridor area for 'diges' and other ceremonies this is because of the existing open spaces are not convenient for such kind of activities"*

Challenges: W/ro Selam mainly mentioned inadequacy of area and the physical quality of available open space as a limiting factor to use it for recreational activity herself and to let her baby to play on it. *"You can see that the area and the physical quality of this space is not comfortable for our babies to play on it and our house is also very small so it is a big challenge to live in condominium for residents who have children. Even there is no enough space for cloth drying because most of the residents wash their cloth the same day when the water is available once a week"* and she added, "*the satellite dishes mounted on the cloth drying area makes the space more uncomfortable even for cloth drying activity".* She conclude her insight about the neighbourhood by saying *"the place is good for living except some problems like water shortage and sufficient and comfortable outdoor space for children playing and other social activities."*

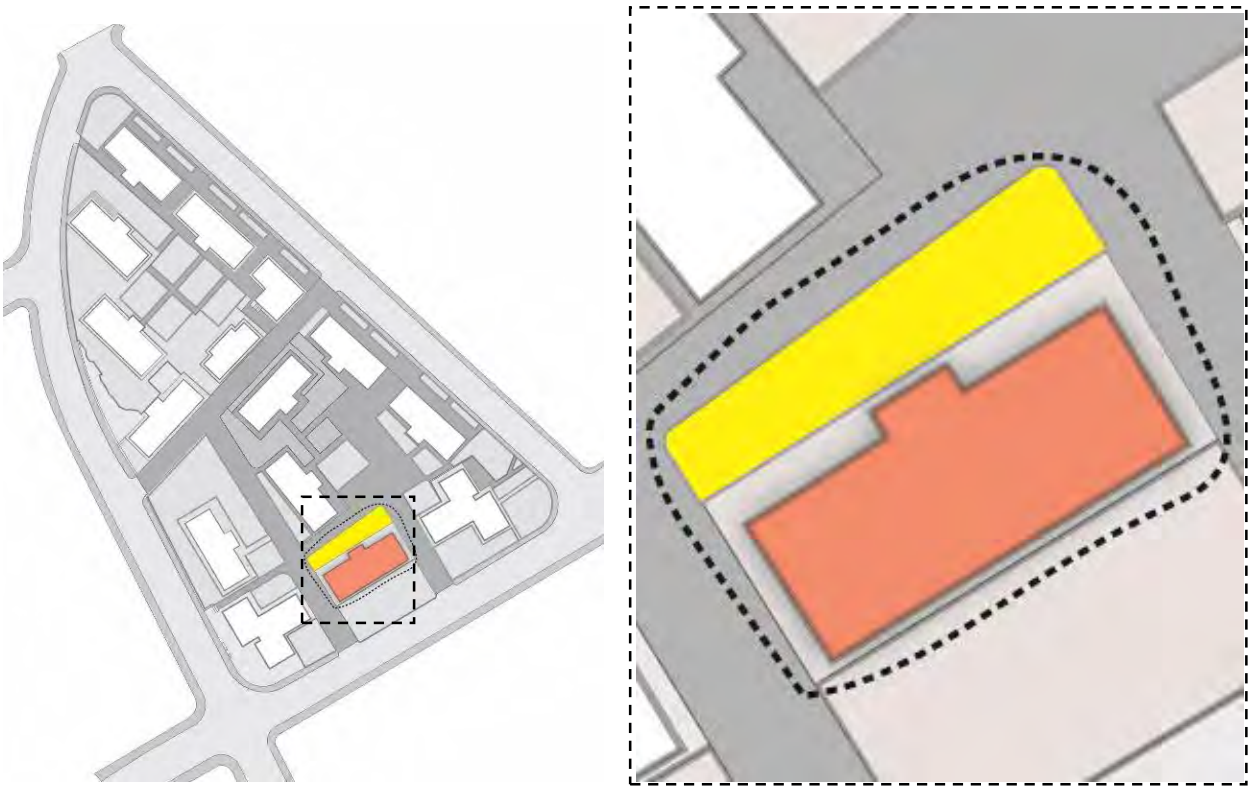


Figure 5.16: Location and activity map of W/ro Selam's family

Figure 5.17: W/ro Selam's family activity area

5.4.2 Activities on Communal Open Spaces

As it has been discussed on, the previous section inhabitants who are living inside the study area use the available open space for different function depending on their needs. In the following table, the data from the respondents (both from interview and from questioner) is presented in the form of summary. It is summarized in a way to describe the activities, which are currently happening on communal open spaces with their relative location from the blocks and frequency of happening.

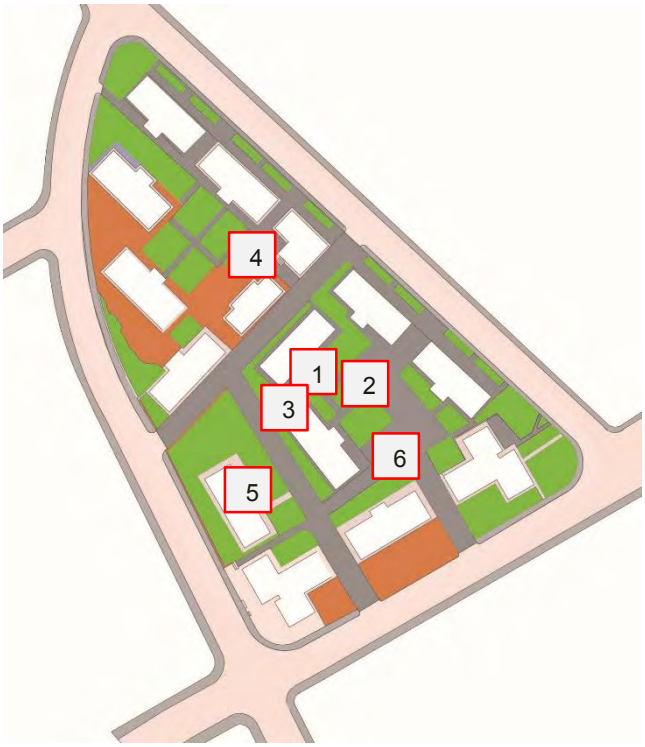
Summary of activities happening on communal open spaces of the study area

No	Activity type	No of respondent	Specific area	No of respondent	Relative location	Frequency	No of respondent
1	Children playing	9	Inside the green area	1	Front side	Daily	9
			On paved ground	7			
			Both	1			
2	Gathering for *Iddir*	27	On paved ground	27	Front side	Occasionally	27
3	Wedding ceremony	2	On paved ground	2	Front side	Occasionally	2
4	Birthday party	2	Inside the green area	2	Front side	Occasionally	2
5	Holiday ceremony	12	Inside the green area	12	Front side	Occasionally	12
6	Food & spice preparation	17	Inside the green area	3	Front side	Frequently	11
			On paved ground	12		Rarely	5
			On unpaved ground	2		Once	1

7	Cooking for ceremonies	11	On paved ground adjacent to the block	11	Front side	Occasionally	11
8	Cloth drying	22	Inside the green areas	6	Front side	Frequently	22
			On paved ground adjacent to the block	13			
			On unpaved ground	3			
9	Car parking	11	On paved and	10	Front side	Daily	11
			Unpaved ground	1			
10	Gardening	3	Inside the green area	3	Front side, at both Sides and Rear side	Regularly	3
11	Satellite Dish mounting	17	Inside the green area	14	Front side, at both Sides and Rear side	Once	17
			On paved ground adjacent to the block	3			
12	Slaughtering	11	Inside the green area	11	Front side	Occasionally	2
						On holidays	11
						Both	2
13	Urban agriculture	2	Inside the green area		Front side, at both Sides and Rear side	Seasonally	2

Table 5.1: Types of Activities happening on communal open spaces

Child playing on circulation area



Food preparation activity in green area

Gardening

Cloth drying

Cooking for social ceremonies

Car parking

Figure 5.18: Activities on communal open spaces

5.4.3 Summary of Finding on Usage of Communal Open Space

Types of Activities: In general, inhabitants of the study area use the available communal open spaces according to their needs for different outdoor activities specifically for *children playing, gathering for Iddir, car parking, wedding ceremony, birthday party, holiday ceremony, food & spice preparation, cooking for ceremonies, cloth drying, gardening, satellite dish mounting, urban agriculture and slaughtering.*

Activity area: there is a territorial limit on communal open spaces for each household. This is not formally demarked area however; there is an assumption that an open space, which is found adjacent to the block particularly on the front side of the block, is belong to that block. Majority of the residents use the open space, which is adjacent to their block they are living in for regular daily activities except for activities, which involve large number of people like general *Iddir* meeting, wedding ceremony etc.

Distribution of activities: following the activity area of each household the distribution of activities on communal open spaces is limited to the nearby and adjacent spaces for household activities thus majority of the activities are concentrated on the open spaces which are closer to the residential blocks

General activity distribution map developed from the data collected from questioners, interviews and observation of the study area to show which type of activity is happening where. The maps are presented by categorizing the activities into four categories, which are *Household activities Recreational activities Social activities, and other activities* which includes gardening, meeting for *iddir*, mounting satellite dishes, parking and urban agriculture

Figure 5.19: Activity distribution map of the study area

5.5 Inhabitants Involvement on Communal Open Space

Assessing the quality of successful neighbourhood open space relied on the level of satisfaction of inhabitants. However, the success of any open space projects is dependent on the level of resident's participation (adapted from Parks and people, 2003).

For the case of the studied area, the level of inhabitants' involvement on communal open spaces is analysed in a way to distinguish the number of people involved in each activities, which are discussed so far, and to obtain stratified data on the level of inhabitants' involvement on communal open space for different groups.

5.5.1 Summary of Inhabitants' Involvement on Communal Open Spaces

The following analysis is made based on the data collected from questioner and interviews per household level (from 29 questionnaire respondents who use the communal open space for different activities and interview of 15 households from each block).

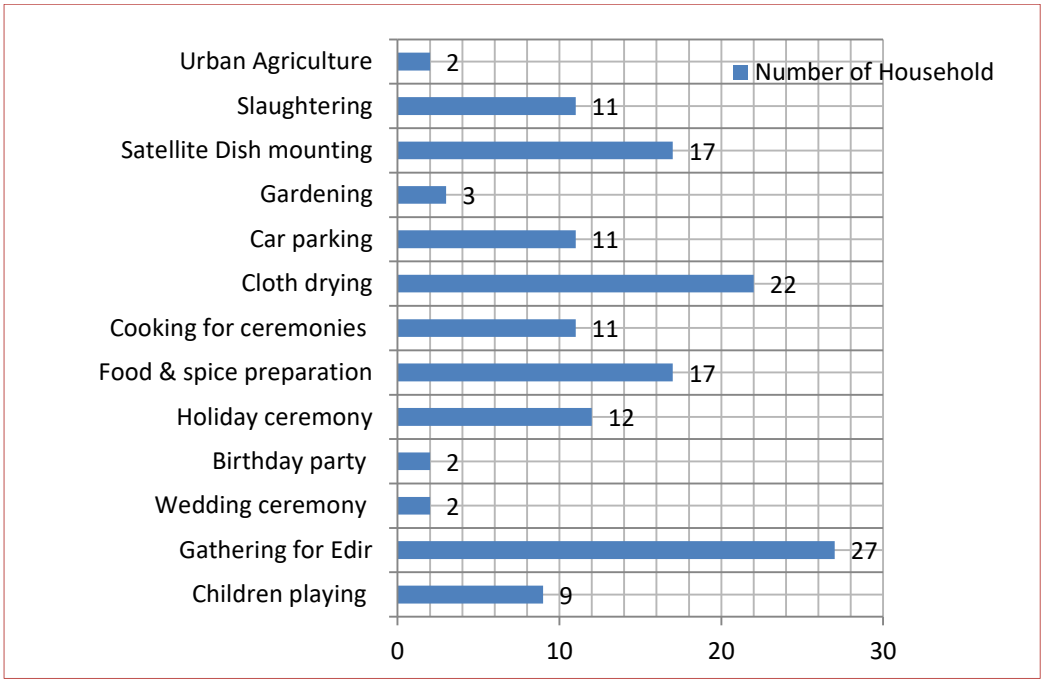
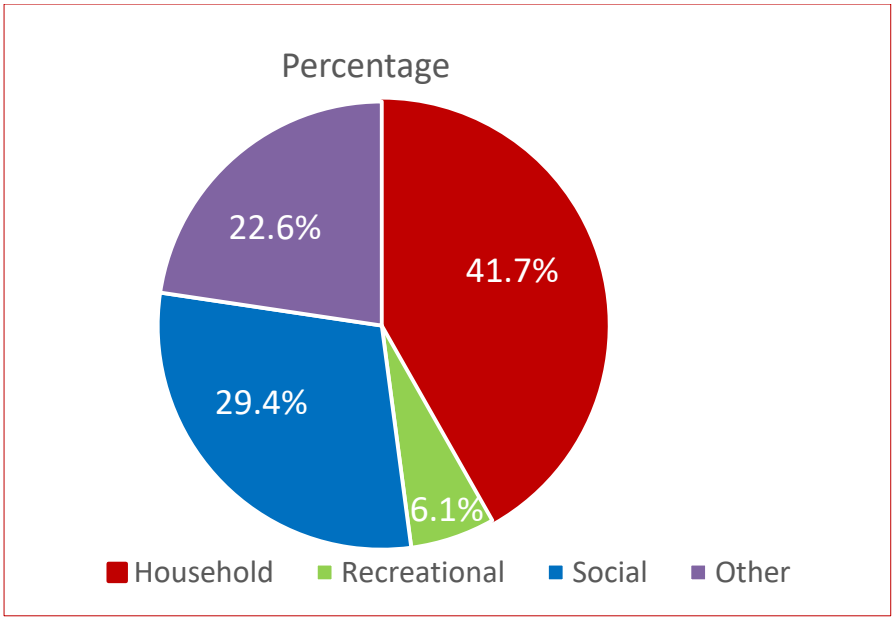


Figure 5.20: Inhabitants involvement on communal open space activities



5.5.2 Inhabitants' Involvement per Floor

The data collected through the questionnaire which is distributed per every floors of each block of the study area (*see section 2.9 data sampling technique*) is presented as follow to analyse the level of in habitants' involvement on communal open spaces per floor. This is to examine how the vertical distance affect the involvement of residents on the open space.

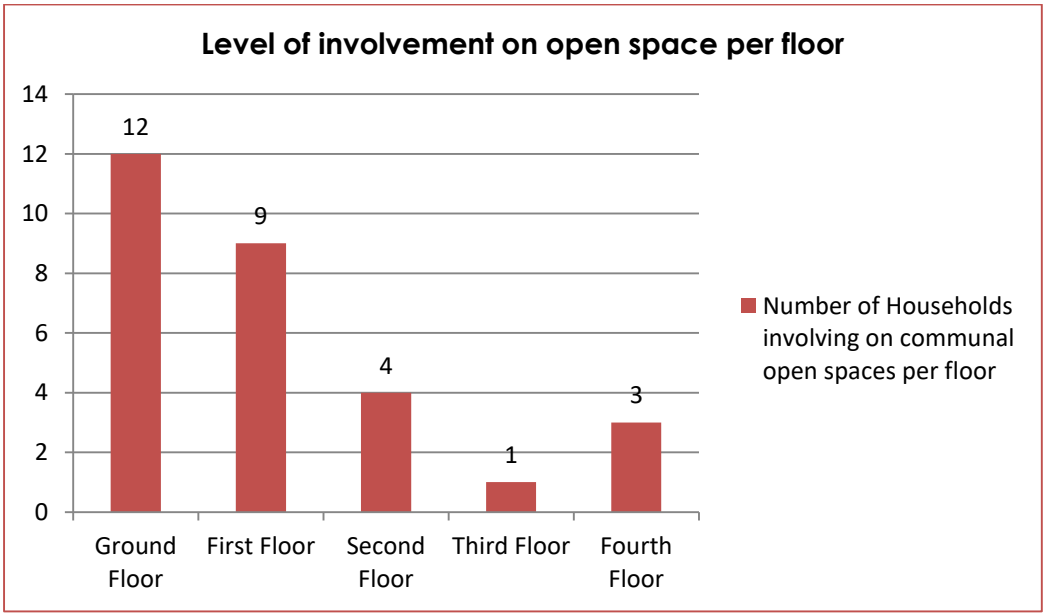


Figure 5.21: Inhabitants' involvement on open space per floor

5.5.3 Inhabitants' Involvement per Ownership Status

To analyse the level of inhabitants involvement on communal open space activities per their ownership status the following chart is developed using the total number of respondents and identifying the one who uses the open spaces separately for owners and tenants.

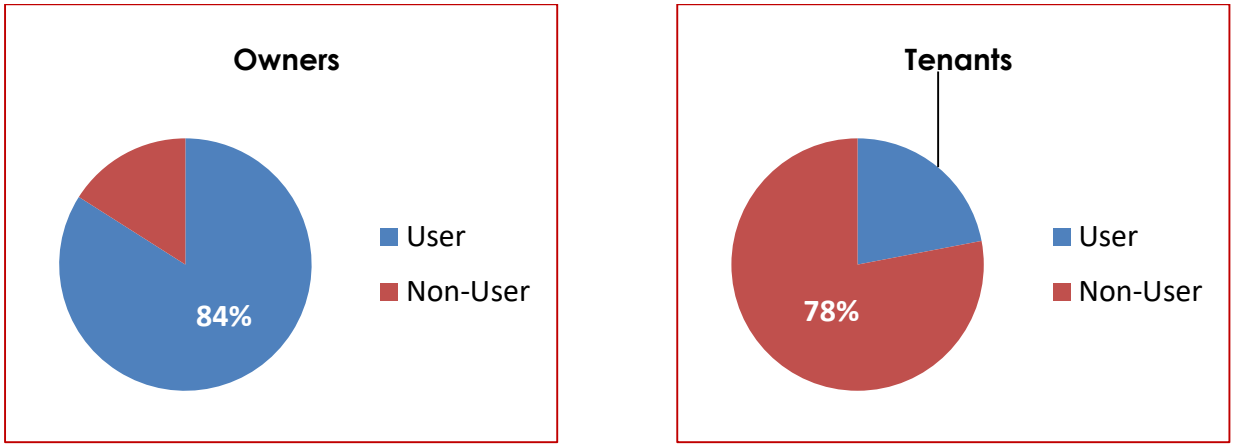


Figure 5.22: Inhabitants' involvement on open per ownership status

5.5.4 Involvement on Communal Open Space by Gender

In terms of gender, the numbers of male respondents are less than the number of female respondent. However, the level of inhabitants' involvement on communal open spaces by gender is analysed in percentage, which indicates how many of the respondents from each gender involve on communal open space activities.

Gender	No. of respondents	Respondent who involve on open space	Percentage
Female	53	33	62.2%
Male	17	6	35.2%

Table 5.2: Involvement on Communal Open Space by Gender

5.5.5 Involvement of Inhabitants on Open Spaces per House Type

This is particularly to identify which house type of residents i.e. Studio type, One Bedroom type, Two Bedroom type and Three Bedroom is more involved on communal open space activities. Similarly, the percentage is calculated to correlate the level of inhabitants' involvement on communal open space with the type of their house.

House type	No of Respondents	No of Involved households	Percentage
Studio	7	1	14.2%
One Bedroom	21	16	76.1%
Two Bedroom	26	11	42.3%
Three Bedroom	16	13	81.2%

Table 5.3 Involvement of inhabitants on communal per house type

5.5.6 Involvement on Communal Open Space by Age Group

The minimum age among the respondent is 20 years old and the maximum age is 83. Involvement of inhabitants on communal open space is analysed by grouping them into different age groups as follow.

Age group	No of respondent	No of Involved respondents	Percentage
Young adult (19-25)	11	4	36.3%
Adult (26-39)	39	24	61.5%
Middle age (40-60)	17	10	58.8%
Senior (Above 61)	3	3	100%

Table 5.4: Involvement on communal open space by age group

5.5.7 Employment Status and Involvement on Communal Open Space

Employment status is directly related to the amount of time that residents spent in their neighbourhood. Therefore, it is expected that inhabitants who spent much of their time within the neighbourhood have an opportunity to use those communal open spaces. Involvement of inhabitants on open spaces according to their occupation is presented as follow.

Occupation type	No of respondent	No of Involved respondents	Percentage
Housewife	27	21	77.7%
Employed	35	13	37.1%
Self Employed	8	5	62.5%

Table 5.5: Employment status and involvement on communal open space

So far, it has been discussed about inhabitants who are involving on communal open space activities. However, there are also a number of respondents who do not use those spaces for any kind of activities. As it has been discussed above, (see *Section 5.5.3*) the ratio of tenants who are not using the open spaces is higher than owners and there are so many reasons for this. The major reasons, which are mentioned by the respondents, are summarized in the following table by categorizing them based on ownership status (i.e. Tenants and Owners).

Reasons	No. of respondents	
	Owners	Tenants
Green areas are not allowed for children playing activities	4	2
Unavailability of facilities for recreational purpose	9	7
The available open area is too small for recreational activity	7	6
Available spaces are not attractive for recreational purpose	11	5
The area is not enough for tent construction	2	-
Don't have social event yet	10	3
No social interaction within the neighbourhood	-	8

Using upper floor corridor for cloth drying	13	7
Not suitable because of living on upper floor	11	8
Spending less time in the neighbourhood	2	7
Security problem for cloth drying	8	6

Table 5.6: Reasons of inhabitants for not involving on communal open spaces

5.5.8 Summary of Findings on Inhabitants' Involvement

Inhabitants' involvement on communal open space varies along with their ownership status, the floor they are living on, gender, house type, age group and their employment status. In terms of ownership status the data implies that *using existing communal open spaces by tenant residents is significantly less mainly because of tenant residents have no strong social interaction with their neighbours which leads to engage on social activities and because of some other reasons mentioned in Table 5.6.* However, further in-depth study on this issue is very important to deeply understand the phenomena and the root causes for the existing situation.

A difference on using communal open space also varies with the floor level they are living on. *In general speaking the level of inhabitants' involvement on communal open spaces decreases as we go up to the upper floors* (See Figure 5.21). With respect to gender as it has been discussed above even if it was difficult to obtain equal number of male respondent to compare the level of participation of by gender but *in general, female residents are the one who are more involved on communal open space activities.* This is mainly because of most of the activities are household activities which are carried out by females in relation to the existing tradition and cultural trend. However, the existing data shows *male's involvement on communal open space is not negligible.*

The conclusion regarding utilization of communal open space by house type is more of relative rather generalized because the proportion of the house type is different i.e. among the total flats within the study area the majority of them are two-bedroom type and one bedroom type. However from the data (see Table 5.3) *if it is compared in terms of the number of households responded that they uses the open space from the total number of respondent in each house type the highest percentage in utilizing communal open space is hold by the household who occupy three-bedroom flat followed by one-bedroom and two-bedroom types respectively*. In fact, studio type house occupants are the least involved types this because of the majority of this type of houses are occupied by less number of household size families and bachelors. However, the other factors like the floor level, ownership status, sex etc. and the reasons mentioned by respondents as a cause for not utilizing the communal open space (*see* Table 5.6) also should be considered and further detail study on this issue is needed.

Likewise, the finding on involvement of inhabitants in terms of age is also comparative to the number of respondents. Accordingly, in the studied area the majority of the respondents are adults in which the result shows majority of them (61.5%) involve on communal open space activities. Even if senior age group category obtained the number, 100% in terms of utilizing communal open space it is difficult to generalize since the total number of respondents in this category are too small.

The other filter, which is used to evaluate the level of inhabitants' involvement on communal open space, is the occupation type and type of employment (employed or self-employed). Accordingly, the data shows *housewives are the one who use communal open spaces the most* even if the number of respondents in this category are less than the employed one (*see Table 5.5.*)

5.6 Interference of Activities on Communal Open Spaces

The existing physical environment is not the only factor, which affects someone's activity on open spaces but also the activities of others. Since the communal open spaces are used for multiple functions, interference of activities is expected. However, in the study area this phenomenon is happening in the way that one activity disturbing the other. According to the data collected from inhabitants to analyse how other residents' activity affects their activity on communal open spaces they mentioned some of the existing activities as a challenge for them while they use the space. Mostly the situation affects the residents when different activities are happening simultaneously on same area (*SeeFigure* 5.19 *for activities distribution*). Those activities and the problems associated are summarizes in the table below.

Interfering activities	Associated challenges
Gardening and satellite dish mounting	Conflict between neighbours as a result of destroying the vegetation and dirtying the area during satellite dish mounting,
Gardening and food preparation	Destroying the vegetation and mucking up the area
Gardening and children playing	Destroying the vegetation
Cloth drying and food preparation	Not comfortable while using the space for both activities and conflict as a result of competition for space,
Gardening and cloth drying	Destruction of vegetation while hanging clothes
Cloth drying and children playing	Difficulty for cloth drying
Car parking and children playing	Difficulty for car parking during children are playing

Table 5.7: Interference of activities and associated problems

Figure 5.23: Interfering activities on communal open spaces

The activities performed by the local residents has its own effect on the existing physical environment. As the residents responded and from observation the activities and their effects on the existing open spaces are presented in the following table in the form of summery indicating their effect in terms of functional disturbance for another activity, their contribution on the environmental quality and the conflict they arise between the users.

Activity	Cause	Effect on the open space		
		Functional Disturbance	Environmental Quality	Conflict
Satellite dish mounting	▪ Using separate satellite dish individually ▪ No dedicated space for this function	Narrowing the space for gardening activities	Reduce Scenic View	▪ Interfering with gardening spaces
Dumping dry waste	▪ No maintenance ▪ Irresponsible behaviour	Reduce the quality of the space for other activity	Changing in to dumping area	▪ Unwillingness for cleaning
Food and spice preparation	▪ The need for direct sun light ▪ Separate space is not allocated	Interfering with gardening activity	Reduce Scenic View because of the waste from the process	▪ Interfering with gardening space

Table 5.8: The influence of activities on green areas

5.7 The Relationship between the Physical Environment and Activities

The physical environment is a broad concept to go through in detail as it consists so many components to describe. Rapoport (1977), defined environment as "*any condition of influence outside the organism, group, or whatever system is being studied*". Different components which define the urban environment is made up of the physical environment; *"The physical environment, including all natural features of geography, climate and manmade features which limit and facilitate behaviour and the resources of the environment"* (Rapoport, 1977 quoting Lawton, 1970)

So that it can be understood, that it is needed to limit the parameters while studying the physical environment. For the case of this research the role of the physical characteristics and quality of existing communal open space in relation to the activities of inhabitants is studied based on some of the parameters discussed on the literature i.e. *Area, Enclosure, Accessibility, Location and the physical quality (Attractiveness based on availability of facilities and visual desirability)* of communal open space.

5.7.1 Area of Communal Open Spaces

The area of an open space is a crucial factor as it could encourage or discourage a particular activity. As a result of being a multi-functional space the types of activities which are happening on the existing communal open spaces of the study area are different in type and character so does the area they require. Therefore, area related data is presented below to examine how the area of available open space affects the activities on communal open spaces.

5.7.1.1 Area sub-division of the study area

Description	Area	Percentage
Total study Area	**16,834m^2**	**100%**
Built up area	5,434.4 m^2	32.3% of total study area
Total Area of open space	11,399.6 m^2	67.71% of total study area
Road network+ Circulation	4,802.7 m^2	28.5% of total study area
Green area coverage	4,998.2 m^2	75.7% of the open space
Unpaved open space	1,598.9 m^2	24.2% of the open space
Abandoned green space	1,427 m^2	21.6% of the open space
Total fenced green space	3,242.9 m^2	49.1% of the open space
Open space for residential units	10,724.6 m^2	94% of the open space
Open space for commercial units	675 m^2	10.3% of the open space

Table 5.9: Areal sub-division of the study area

5.7.1.2 Proposed and Existing Area of Communal Open Spaces

Open space	Proposed	Existing	Justification
Green area	4419 m^2	4998.2 $m^{2,}$	▪ A portion of proposed parking space are changed into green areas because of inaccessibility for parking (elevated masonry constructed because of the elevation difference). ▪ An open space which is proposed as a dry waste collecting area is change into a green area
Parking area	818 m^2	3910 m^2	▪ Additional space is used as a parking area which is subtracted from the total open space

Table 5.10: Proposed and existing area of open spaces

5.7.1.3 Provision Status of Open Space as per the Standard

Open Space	Space Required	Standard for Provision	No. of total population	Total required area	Stats of Provision
Play lot	0.1-0.2 he	1,250- 1,750 inh. 250-350 Household	2,105 inhabitant	0.2-0.4 he	Totally 0.4998 he green area available (Note: existing open spaces area fragment by access roads)
Parking area	15 sq. m	1 per household	421 household	6315 sq. m or 421 spots	Only 88 parking spots are proposed

Table 5.11: Provision status of open space as per the standard

5.7.1.4 Communal Open Space Area related Problems and Causes

According to the response from the respondents the challenges, which are related with the area adequacy of existing open spaces, are summarized in the following table.

Area related problems	No of respondent
Difficulty to find wider open space for tent construction in case of social events	5
Blocking of access roads while tents are constructed on them for social events	4
Difficulty to find a parking space when a tent is constructed on the parking area and because of other social activities which take place on the parking area	7

Table 5.12: Open space area related problems

5.7.1.5 Summary of Findings on the Area of Existing Open Spaces

- Provided parking space is much less than the standard as a result it leads to using the open space provided for other purpose for parking.
- Since the available green areas are fragmented by the access roads, the residents are experiencing the problem of finding enough open space for activities, which involve large number of people like wedding ceremony, *Mahiber, Iddir* at the closest distance from their flat. Because of this problem currently, the residents are using the parking areas for such kind of events. However, this phenomenon also creates a challenge to find a parking spot for others.

5.7.2 Activities and Enclosure of the Open Spaces

The activities and the enclosure type of the open space is analysed to determine the relationship between the type of enclosure and the activities happening on them which will help to identify which type of open space is mostly used by inhabitants and to understand its effect on usage of open spaces. For analysis purpose, the enclosure type of the study area is categorised into two: *Enclosed open space* and *Partially-enclosed open space* based on the characteristics of the existing open space.

5.7.2.1 Enclosed Open Space

An open space which is created as a result of surrounding the area by condominium blocks. This type of open space is different from partially-enclosed one as it is more defined and having a characteristics of semi-private space.

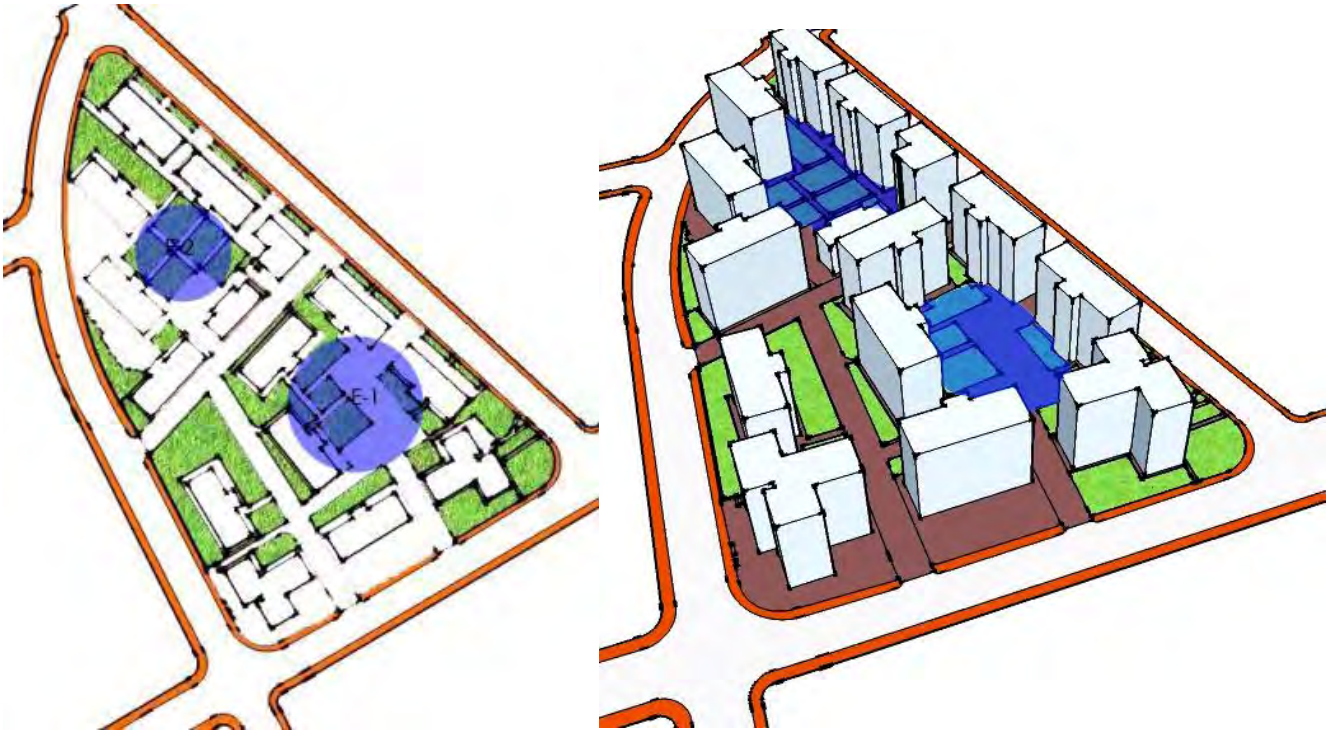


Figure 5.24: Enclosed open spaces

List of activities happening	Type of Open Space	Location
Children playing	Inside the green area and on paved ground	E-1
Gathering for *Iddir*	On paved ground	E-1
Wedding ceremony	On paved ground	E-1
Birthday party	Inside the green area	E-2
Food & spice preparation	Inside the green area, and on unpaved ground	E-1 and E-2
Cooking for ceremonies	On paved ground adjacent to the block	E-1 and E-2
Cloth drying	Inside the green areas and on paved ground adjacent to the block	E-1 and E-2

Car parking	On paved ground	E-1
Gardening	Inside the green area	E-1
Satellite dish mounting	Inside the green areas,	E-1 and E-2

Table 5.13: Activities on enclosed open space

5.7.2.2 Partially Enclosed Space

Open spaces, which are partly bounded by condominium blocks like corridor spaces between blocks and spaces adjacent with condominium blocks on one side and the road on the other side.

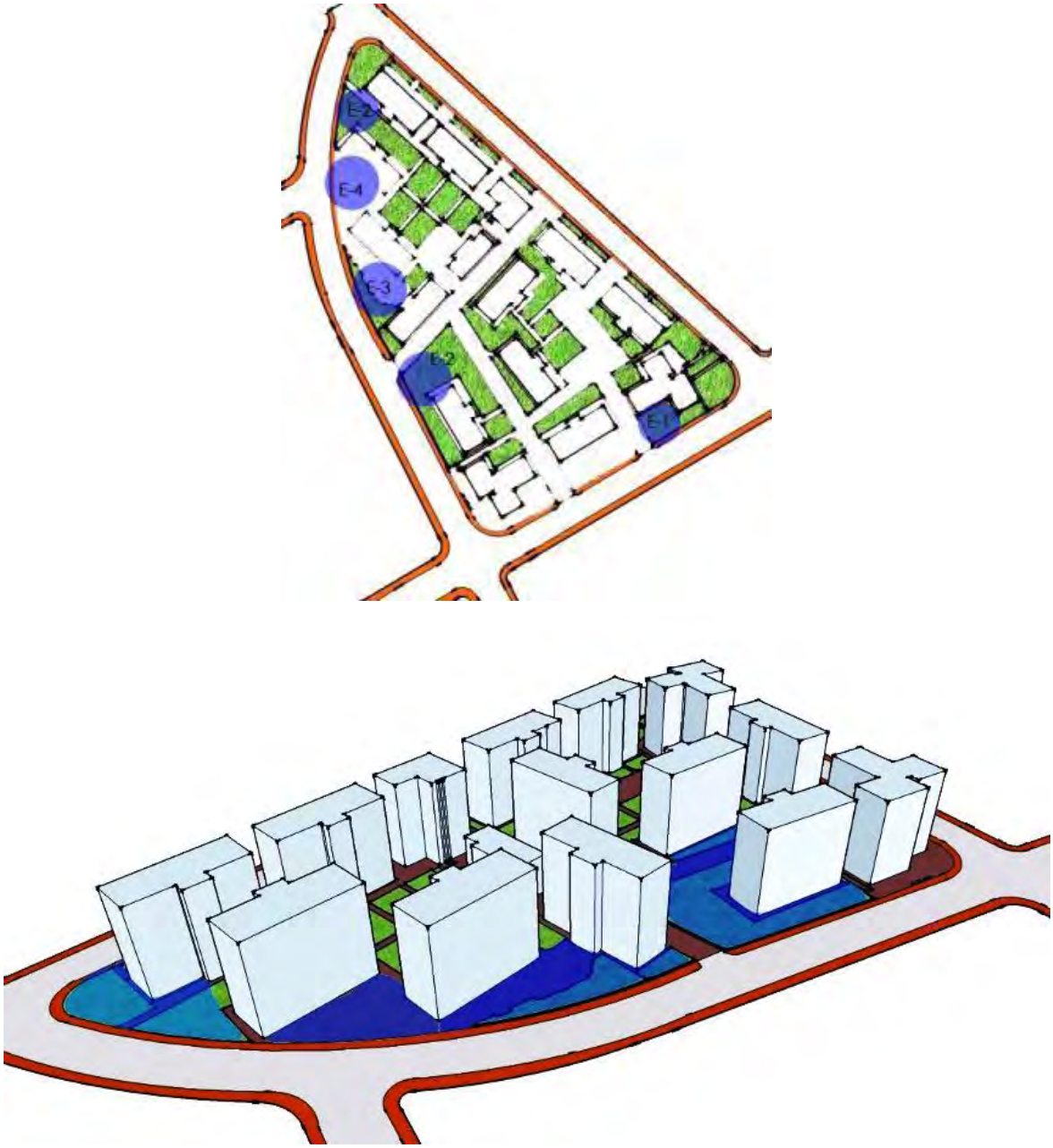


Figure 5.25: Partially enclosed open spaces

List of activities happening	Location	Location
Children playing	Inside the green area and on unpaved ground	E-3 and E-4
Food & spice preparation	Inside the green area, and on unpaved ground	E-3 and E-4
Cooking for ceremonies	On paved ground adjacent to the block	E-3
Cloth drying	Inside the green areas and on paved ground adjacent to the block	E-3
Car parking	On paved ground	E-3 and E-4
Satellite dish mounting	Inside the green areas,	E-2, E-3 & E-5

Table 5.14: Activities on partially-enclosed open space

5.7.2.3 The Effect of the enclosure characteristics on inhabitants activity

As the residents responded the arrangements of the blocks affects their privacy and comfort while they uses the open spaces. Some of the challenges mentioned by the residents and observed from the studied area in relation to the enclosure of existing communal open spaces are:

- Partially-enclosed spaces attract more parking activity and causes noise disturbance as a result of car parking activity too close to the building
- Security problem on partially-enclosed open space while cloth drying
- Partially-enclosed open space is exposed for trash damping activity by outsiders
- Partially-enclosed open space are difficult for management

5.7.3 Accessibility of Green Areas

5.7.3.1 Accessibility Status of Existing Green Areas

Accessibility of green area is analysed based on the existing physical barrier to access the open space and allowed and denied activities by the local regulation system. In fact on the studied area are there are no major natural landscape feature which limits the accessibility of the open spaces however the manmade features like fences, cloth hanging wires, mounted satellite dishes, dumped dry wastes etc. plays an important role on the inaccessibility of the communal green spaces. For the analysis purpose, each green area is assigned with area code and related with the activities (*see Figure 5.27*).

Figure 5.26: Area code for existing green areas

Accordingly, the accessibility status of each green areas shown on the above picture is indicated in the table below.

Area code	Activity Type										
	Children playing	Gathering for *Iddir*	Wedding Ceremony	Birthday Party	Holiday Ceremony	Food & Spice Preparation	Cooking for Ceremonies	Cloth Drying	Gardening	Satellite Dish Mounting	Slaughtering
G-1	x	x	x	x	x	x	x	x	√	√	√
G-2	x	x	x	x	x	x	x	√	x	x	x
G-3	x	x	x	x	x	x	x	√	x	x	x
G-4	√	x	x	x	x	x	x	√	x	x	x
G-5	x	x	x	x	x	x	x	x	√	x	x
G-6	x	x	x	x	x	x	x	x	√	x	x
G-7	√	x	x	x	√	x	x	x	√	x	x
G-8	x	x	x	x	x	x	x	√	x	x	x
G-9	x	x	x	x	x	x	x	x	√	√	x
G-10	x	x	x	x	x	x	x	√	√	x	x
G-11	√	√	√	√	√	√	√	√	√	√	√
G-12	x	x	x	x	x	x	x	x	√	x	x
G-13	√	x	x	x	x	√	√	√	√	√	x
G-14	√	√	√	x	√	√	√	√	√	√	x
G-15	x	x	x	x	√	x	x	x	x	x	x
G-16	x	x	x	x	x	x	x	x	√	x	x
G-17	x	√	√	√	x	x	x	x	√	x	x
G-18	x	x	x	√	x	x	x	x	x	x	x
G-19	x	x	x	x	x	x	x	x	√	x	x
G-20	x	x	x	x	x	x	x	x	√	x	x
G-21	x	x	x	x	x	x	x	x	√	x	x
G-22	x	x	x	x	x	x	x	x	√	x	x
Total Accessible	5	3	3	3	4	3	3	8	15	5	2

Legend: √- Stands for Accessible Area, whereas x- Stands for Not Accessible Area

Table 5.15: Accessibility status of existing green areas

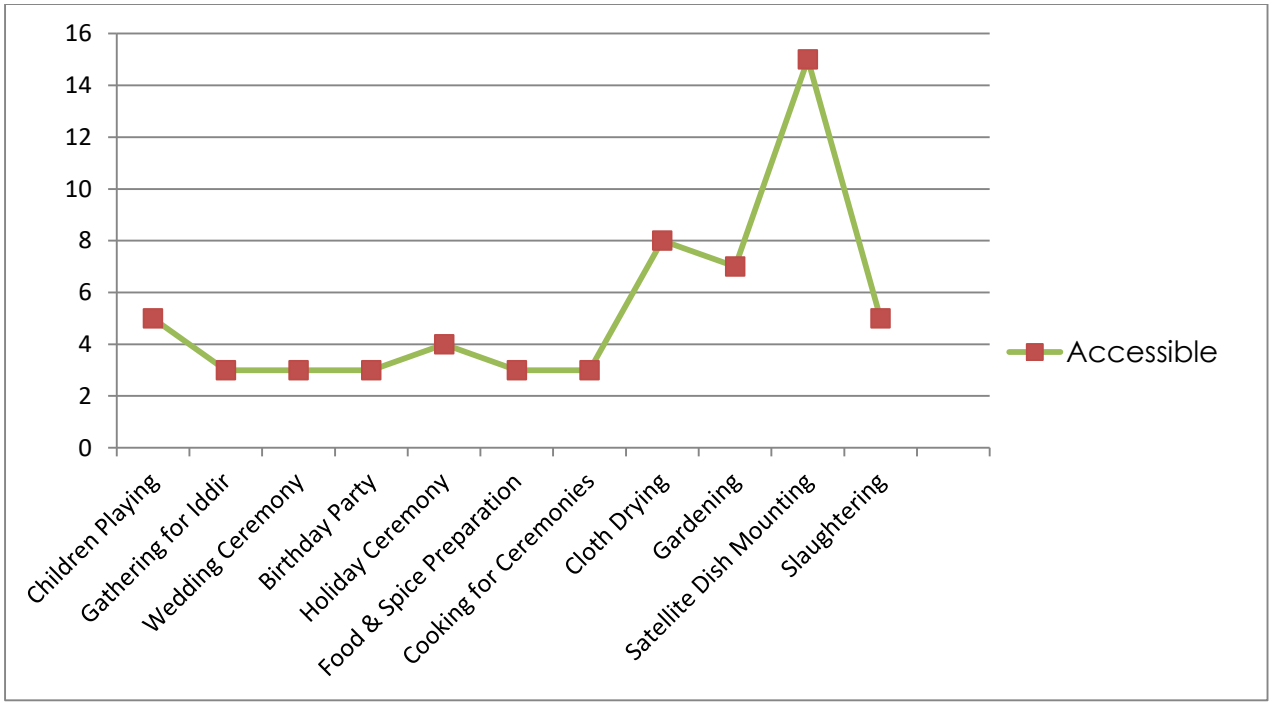


Figure 5.27: Accessibility status of existing green areas

5.7.3.2 The Effect of Inaccessibility of Green Areas on Activities of Inhabitants

Since the majority, the green areas are fenced and closed for activities like recreational, social or extended household activities. This situation reduce the multi-functionality of the open spaces, which limits the purpose of the available green space only for improving scenic quality of the environment. However, the inaccessibility of the green spaces resulted in forcing the local children to play on unsafe ground like asphalt road and cobblestone paved area. In addition, in areas where hanging washed clothes inside the green space is prohibited, residents use the corridor and circulation areas for cloth drying which also affects the circulation.

Figure 5.28: Activities on circulation areas

5.7.4 Location of Open Space and Activities

5.7.4.1 Relationship between the Relative Location of Open Spaces and the Activities

The relationship between the location of open spaces and activities is studied by categorizing the position of open space relative with the orientation of the condominium blocks i.e. open space located at Front Side (adjacent with the front side of the block), Left and Right side (adjacent with either right or left side of the block), and Rear side(adjacent with only the rear side of the block). The following table summarizes the relative location of the open space and the activities happening (*See Figure 5.19*). Data from the questioner, interview and observation are used to summarize the activities and their location.

Relative location	Activities
Open space at Front side	All activities
Open space at Right & Left sides	Satellite dish mounting and gardening
Open space at Rear side	Satellite dish mounting, gardening and car parking

Table 5.16: Relative location of open spaces and the activities happening

5.7.4.2 How the Location of the Open Space Affect the Activities

According to the response from the residents, the location of the open space affects their activity in terms of its comfortableness to use and the noise from the activities because of the closeness of the open space to the residential blocks. The challenges that the respondents mentioned in describing how the locations of the existing open space affect their day-to-day activity in the neighbourhood are listed as follow.

- Open spaces which are located at rear side of the condominium blocks are inconvenient for use
- Open spaces, which are used for parking and children playing ground at closest distance from the condominium block, are the causes for generation of noise. In particularly, the respondents mentioned the high disturbance from open space which are located near to the rear side of the block where the bedrooms area located
- Open space which is located at rear side of the condominium blocks are have got less attention for maintenance and ended up abandoned open space
- Some of the open spaces located at the rear side of the blocks are changed to a trash dumping area by outsiders in which it creates a bad smell and unhygienic environment

5.7.5 The Physical Quality of Communal Open Spaces

5.7.5.1 Site features of existing open spaces

Site features	
Average slope	6.1^0
Available amenities for playing or resting	None
No of satellite dish mounted on the ground	42
Total length of cloth hanging wire	>350m
Garden + Small scale urban agriculture coverage	109 m^2
Green area fencing material	Wood, wire, plastic
Electric poles passing between blocks	17
Small trees inside green areas	18
Available man-made shades	None
Available amenities for recreational activity	None

Table 5.17: Site features of the study area

Figure 5.29: Some of the features of the study area

5.7.5.2 Maintenance Condition of the Green Areas

The maintenance condition of the study area is studied to comprehend how often the existing open space are maintained so that it will preserve its desirability for intended function.

Accordingly, the maintenance status of existing green spaces is studied with respect to the consistency of the maintenance process, in terms of cleaning, fencing and planting vegetation to keep the area clean, attractive and functional. Consequently, the condition of each green area is studied according to previously assigned area code as follow. (*See Figure 5.26 for area code*)

Maintenance type	Area code																					Total
	G-1	G-2	G-3	G-4	G-5	G-6	G-7	G-8	G-9	G-10	G-11	G-12	G-13	G-14	G-15	G-16	G-17	G-18	G-19	G-20	G-21	G-22	
Cleaning	x	x	x	x	√	√	x	√	x	√	x	√	x	√	√	x	√	√	√	√	√	√	13
Planting	x	x	x	√	√	√	x	x	x	√	x	x	x	x	√	x	√	√	√	√	√	√	11
Fencing	x	x	x	x	√	√	x	x	x	√	x	x	x	x	√	x	√	√	√	√	√	√	10

Table 5.18: Green area maintenance type and status

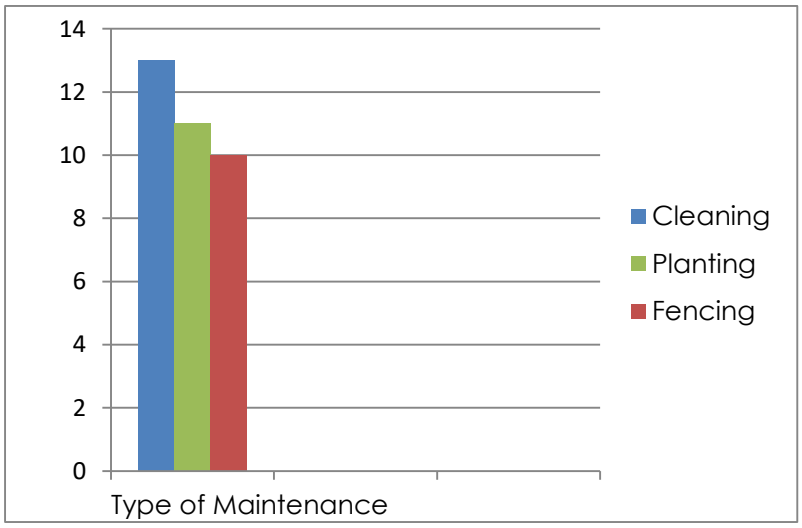


Figure 5.30: Level and type of maintenance on green areas

5.7.5.2.1 Maintenance Status of Green Area with Relative Location

It is the analysis done to identify the location and maintenance status of the existing green areas. (*See Figure 5.26 for the area code*)

Relative location of green area	Area code	Maintenance status		
		Maintained	Partially maintained	Not maintained
Open space at front side	G-2, G-3, G-4, G-5, G-6, G-7, G-8, G-14, G-15, G-16, G-17, G-18, G-19, G-20, G-21	G-5, G-6, G-15,	G-2, G-3, G-4, 14, G-17, G-18, G-19, G-20, G-21	G-7, G-8, G-16,
Open space at both Sides	G-10, G-11, G-22	G-10, G-22		G-11
Open space at Rear side	G-1, G-9, G-11	G-9		G-1, G-11

Table 5.19: Maintenance condition of green areas with relative their location

5.7.5.3 Polluting Elements on Communal Open Spaces and their Sources

Some areas of the open spaces are polluted as a result of different activities by the residents. The following table summarizes the polluting elements and their sources along with the resulting effects:

Polluting Elements & sources	Actors	Resulting effect
Trashes thrown from upper floors	Inhabitants	Reduces scenic quality, create a conflict with ground floor residents, creates bad smell
Residual waste from food and spice preparation process on open spaces		Reduces scenic quality of the green space
Waste from home maintenance and modification		Deteriorate the environment, reduces scenic quality of green space, change the area into trash dumping place, destroy the plants
Noise from parking and children play ground	Inhabitants and outsiders	Noise pollution on adjacent block residents

Table 5.20: Analysis on polluting elements and sources

The major reasons mentioned by the respondents for lack of maintenance in open spaces and the resulting problems they experienced are discussed in the following table.

Reason for lack of maintenance	Problems related with lacking regular maintenance
▪ Less attention for open spaces which are located at rear side ▪ Unwillingness of inhabitants to contribute in maintenance especially the tenants ▪ Follow up problem from the responsible body	▪ Losing visual attractiveness ▪ Health problem as a result of bad smell ▪ Environmental deterioration ▪ Damage of vegetation

Table 5.21: Reasons for lack of maintenance and related problems

Figure 5.31: Dry waste on communal open spaces

For the question that how the physical characteristics of the existing open space particularly in terms of its *Area, Enclosure type, Accessibility, Location and Quality of space* affects their activities residents responded with different answers based on their experience. Some of them mentioned that all of above characteristics affect their activities and the rest of them mentioned that the area and the physical quality of the space is the major influencing factor on their activity. This is because the need and requirement for open space for every household is different, either way the collected data shows that the residents are affected by the physical characteristics of the open space as summarized in the following table.

	Effect of the characteristics and quality of the space on activities	No. of Respondents
Enclosure	The existing type of enclosure is convenient	5
	The blocks are very close to each other the open space is narrow for our activity	3
	The enclosure is not convenient in terms of security for cloth drying	13
Area	The area of existing open space is enough for our activity	5
	The available open area is too small for recreational activity	7
	The green area is not enough for tent construction in case of social events	9
	The area of the green area is too small for children playing	18
Location	The location of available open space for tent construction is not close to our block	4
	The location of existing open space is close enough for our activity	10
	Car parking area is too close to our block which generates a high noise	6
Accessibility	Green areas are not accessible for children playing	8
	Green areas are fenced and only used by ground floor residents	14
	Green areas are not accessible for cloth drying	11
	Open spaces are accessible for our activity	3
Quality of space	The space is not clean to let our children to play on it	12
	Available spaces are not attractive for recreational purpose	31
	There is no recreational facility on communal open space for us to use	26

Table 5.22: The effect of characteristics and quality of the open space

Chapter-6 FINDINGS

6.1 Introduction

In this chapter, the findings are discussed in accordance with answering the research questions, which basically focuses on the usage of communal open spaces, the level of residents' involvement on open space activities and the relationship between the physical characteristics and quality of communal open spaces with the activities of inhabitants. Finally, challenges on inhabitants, which are associated with the existing condition of communal open spaces, are discussed. However, the fourth research question is answered in the next chapter (on the recommendation section).

6.2 Equivalent Statement of the Research Question

Research Question	Equivalent statement
1. How communal open spaces in Gofa Mebrat-hail condominium neighbourhood are used? *a) What are the activities happening on communal open space?* *b) What is the level of inhabitants' involvement on utilizing communal open spaces?*	▪ Usage of communal open spaces ➢ Activities on communal open spaces ➢ Inhabitants' involvement on communal open space
2. What is the relationship between the activities and the physical characteristics of the open spaces?	▪ Activities and the Physical environment
3. What are the communal open space related challenges, which affects inhabitants' activities?	▪ Challenges associated with communal open spaces
4. What are the suitable approaches to overcome the existing communal open space related challenges?	▪ Recommendations

Table 6.1: Equivalent statements of the research questions

6.3 Usage of Communal Open Spaces

6.3.1 Activities on Communal Open Spaces

Generally, the residents are using the existing communal open spaces for diverse activities according to their needs. These activities can be categorized into four major categories, which are *Recreational, Social, Household activities and other activities like car parking, gardening, urban agriculture and satellite dish mounting.*

6.3.1.1 Recreational Activities

Making neighbourhoods comfortable for recreational activities is a basic step of creating a liveable environment. Thus, in condominium neighbourhoods communal open spaces are the only outdoor spaces, which are usually used for personal and group recreational activities. However, in the studied area the extent of using communal open spaces for recreational activities is limited to children playing activity. Because the need for using existing open space for other recreational purpose is limited mainly because of the substandard quality of the built environment and the current usage and management trend. The physical quality of available open spaces are not attractive enough for recreational activities like relaxing, playing, hanging out with people, or leisure time activity like reading etc. In addition, denying access to green areas is also another reason, which abstain the residents from having recreational activities on available green areas.

Generally, communal open spaces are not used for their maximum potentials because of the following major reasons.

- **Inaccessibility of green areas for recreational activities**: majority of the existing green areas are not allowed for children to play inside and for other recreational activities.
- **Unavailability of amenities**: basic facilities, which will attract the user to spend their time inside green areas like sitting furniture, playing equipment, and natural or manmade shads, are not available.
- **Unattractiveness**: as a result of barely coverage of vegetation and lack of proper maintenance, the available open spaces lost their visual attractiveness. In addition, wide area of open space, which could be used for recreational purpose, is abandoned (unused and unmaintained).
- **Area**: in some cases the area of available green space is very small as a result of being fragmented by the access roads therefore it is inadequate and uncomfortable for recreational activity.

6.3.1.2 Social Activities

The level of inhabitants' engagement on communal open spaces for social activities within the studied area is relatively higher for gathering in case of funeral ceremony and gathering for *Iddir* related issues. On the contrary using the open space for other social activities like wedding ceremonies, birthday parties, and holiday ceremonies is limited. However, the residents use their house and corridor spaces in the building for such activities mainly because of inconvenience of available open space in terms of the area inadequacy and its location relative to the inhabitants' flat.

Besides, the level of social interaction between inhabitants in the studied area is found to be weaker. The reasons for this situation is mainly because of high percentage of tenant resident living in the area in which majority of them don't involve in social activities and don't have a social relation with their neighbours.

6.3.1.3 Household Activities

Household activities are the most dominant activities happening on communal open space. Most of the activities in this category are the result of personal needs of the residents. Activities like *washing and drying clothes, cooking food for social events, preparing food ingredients and spices for household consumption and slaughtering* are takes place on communal open spaces even against the local regulation trend. Most of these activities are happening in unmanaged manner consequently; they had a negative contribution for the quality of the physical environment.

Majority of the residents use green areas for household activity as a result of unavailability of separate spaces which are dedicated to these activities. However, unmanaged utilization of open space for household activities also resulted in interference of activities in which activities are disturbed each other when multiple activities are happening simultaneously on the same area.

6.3.1.4 Other Activities

Additional activities besides the recreational, household and social activities, which are currently happening in the study area includes *car parking, gardening, urban agriculture and satellite dish mounting.* The activities of gardening and urban agriculture is happening in a very small scale and only two residents are involving. However, car parking and satellite dish mounting activities are the common activities in the studied area.

6.3.2 Inhabitants' Involvement on Communal open Space

Inhabitants' engagement on communal open spaces varies with the type of activities. From the data presented in the previous chapter, it is shown that residents' involvement on open space for their individual needs is higher on household activities like food and spice preparation, cloth drying car parking and slaughtering. However, using communal open space for gathering in case of funeral ceremony and for *iddir* meeting purpose is higher than the other activities.

Comparison in terms of the level of inhabitants' involvement per floor shows a dramatic decrease towards the upper floors of the condominium building. Consequently, residents on the ground floor are the one who uses the open space the most. Majority of the residents living on the upper floor use the circulation corridor for some of household activities like cloth drying and food drying purpose. In addition, they also use the exterior side of the wall for mounting satellite dishes.

Ownership status is also another major issue to measure the level of inhabitants' involvement on communal open space. The difference between owners and tenant residents in terms the level of using communal open spaces is very significant that owners are the dominant users of communal open spaces. Absence of a strong need for open space and lack of strong social interaction with neighbours and the local community is the core reason for tenant residents for not involving on existing communal open spaces.

6.4 Activities and the Physical Environment

6.4.1 The relationship between the physical characteristics and the activities

The physical environment is a key influencing factor in terms of attracting the user to engage in any activity on open space with respect to its different characteristics, like the physical quality of the space, the relative location from the user, the degree of accessibility, adequacy of the area

etc. The data collected from the study area enabled to examine how the existing physical characteristics affect the activities taking place on communal open spaces and what is the contribution of the existing activities on the surrounding open space. Accordingly, within the studied area the relationship between the characteristics of the outdoor built environment and the activities of residents on communal open spaces is related in a way that one affecting the other.

Physical Quality: The current physical quality of the open spaces within the studied area is not up to the standard to satisfy and attracts inhabitants to use the space for a recreational activity, which is an optional activity that depends on the preference and satisfaction of the user. Lack of visual attractiveness and unavailability of facilities for different recreational activities and to spend a quality time inside green space are the primary factors which contributes for the absence of recreational activity on the existing communal open spaces. In addition, the area inadequacy of available open spaces is also the other factor, which discourage recreational activity on the communal open space. On the other hand, the activities of inhabitants mainly extended household activities which are taking place on communal open spaces and the waste generated from these activities, lack of regular maintenance, construction of sub-standard fences around green areas, wires for cloth drying purpose, installation of satellite dishes at random arrangement and dumping dry waste on open spaces, are the major reasons which creates the existing undesirable environment.

Accessibility: The issue of accessibility is another major factor, which limits usage of communal open space by the residents and reduce the multi-functional purpose of the open space. Accessibility problems are mainly related with the local regulation system in which majority of the green areas are not accessible for children playing activities and household activities for the reason of protecting the vegetation and to keep the area clean from wastage of household activity. However, this situation resulted in forcing children to playing on unsafe grounds like asphalt roads, hard surfaces and unhygienic places. Furthermore, inaccessibly of open spaces also contribute in terms of forcing inhabitants to use the existing narrow access roads and circulation corridors of the condominium blocks for household activities.

Area: The areal subdivision of the study area shows that the total available open space is 67.71% (11,399.6 sq. m) of the total area of the parcel. However, the area adequacy problem of the existing open spaces is mentioned by the respondents as one of affecting element of the physical environment. Inhabitants have challenges in finding enough space for tent construction for social events like in case of wedding ceremonies, funeral and memorial ceremonies or any other social events, which involves too many people. As a result, currently inhabitants use the corridor space and in some cases, their neighbours flat to accommodate guests. In addition, some of the

residents are forced to use the access road and the parking spaces for tent construction purpose in case of social events, which affects the circulation and create difficulty for car parking.

Location: The effect of the location of communal open space is studied in terms of the preference of the residents in utilising the open space in accordance with the relative location of the open space from the residents block. From the analysis it is shown that majority of the activities are happening on open space which are adjacent to the front side of the blocks which indicates that front side open spaces are the most utilized open space. Moreover, in relation to the maintenance status of open spaces also front side facing open spaces are regularly maintained and found relatively in better physical quality. On the contrary, majority of the open spaces, which are located at the rear side of the blocks, are abandoned. Interference of activities when multiple activities are happening at the same location is also observed in the studied area. Besides, the closeness of noise generating activities like car parking and children playing from the residential blocks, is also affecting the residents who live closer to this area.

Enclosure: The difference in enclosure characteristics of communal open spaces creates different physical environment for the residents. The effect of the enclosure characteristics on the studied area associated with the privacy and security issues, which is related with the residents comfort to use the open space. From the studied area, the effect of the enclosure characteristics is shown in a way that residents utilise enclosed type of open spaces more than partially-enclosed one. In addition, the existing partially-enclosed types of open spaces are despised by the residents because of the security problems while cloth drying and attracting more traffic and car parking activity which resulted in noise pollution on inhabitants because of parking activities too close to the building.

6.5 Challenges Associated with Communal Open Spaces

Communal open space related problems are analysed in relation to the activities and the physical characteristics of the open space. The existing challenges are found to be the result of the cause and effect relationship between the activities of inhabitants and the characteristics and quality of the space. The major communal open space related problems, which are filtered from the analysis, are discussed below.

Losing the Scenic Quality: The outdoor living environment of the studied area losses its desirability because of poor physical quality condition of existing communal open spaces. Open areas around the residential blocks are not used and maintained in a way to enhance the physical quality of the neighbourhood. The types of activities happening on the area and absence of regular maintenance contributes for losing the scenic quality of the communal open spaces. The major

causes, which contribute for losing the scenic quality of the available communal open spaces, includes:

- *Maintenance problem:* a large portion of green areas are not maintained regularly by cleaning the area, planting and preserving plants like grasses, trees, flowers and replacing the protection fences.
- *Mounting satellite dishes:* using a separate satellite dish for every household resulted mounting of too many of them on any available nearby open space in a random manner, which creates unpleasant visual environment.
- *Low standard fencing:* the fences which are constructed around the green areas using a eucalyptus wood and plastic material creates unpleasant visual environment.
- *Dumping dry waste:* wastes form different sources like trashes thrown from upper floors, residuals wastes from food and spice preparation process and waste from home maintenance and modification process make some areas of open spaces unattractive and unhealthy.
- *Wires for cloth drying:* unpleasant way of installing wires for hanging washed clothes on different areas of the communal open space using wood post and fibre.

Inaccessibility: Majority of the green areas are not fully accessible because of the following major reasons:

- To protect the vegetation: Green areas are fenced to deny access children from playing inside green area and other residents not to use the green area for household activities.
- To keep the areas clean from the residual waste of some household activities.
- A part of the green area is covered with private garden and it is fenced to protect anyone from accessing it.

Unsuitableness: As it is discussed in the analysis section, some of the inhabitants have trouble to find suitable open space to construct a tent in case of social events and adequate playground for children playing. This is because of the existing open spaces are fragmented into small lots of land by the access roads and large area of the open space is paved for parking area.

Interference of activities: It is the result of existence of multiple unfriendly activities located on a single open space. Activities happening on existing open spaces sometimes disturbed each other when they occur simultaneously, activities like cloth drying and children playing; gardening and satellite dish mounting; children playing and food preparation; gardening and cloth drying are the most common ones.

Conflict: Conflicts because of the communal open space are not the common problems in the study area however, some inhabitants mentioned that sometimes conflict with other inhabitants or neighbours arise as a result of different reasons like:

- Unwillingness to participate on maintenance
- Interference in someone's private garden
- Conflict caused as a result of interference of activities

Unpleasant Smell: Absence of regular maintenance and trash dumping activity at some areas of the open space resulted deterioration of the environment, which generates a bad smell within the residential areas consequently it cause health problem and create unpleasant environment for the living.

Noise Pollution: Residents living close to the parking space and children playing area are suffering from noise from activities on open spaces particularly while children are playing on adjacent open space and car parking too close to the building.

Chapter - 7 RECOMMENDATIONS

7.1 Introduction

In this chapter, the recommendations that aim to answer the fourth research question are discussed according to the natures of the existing challenges, which are pointed out on the finding section. The recommendations are sorted in to two major categories based on the development stage of a neighbourhood i.e. ***Pre-Occupancy and Post-Occupancy Stage****.*

It is important for any neighbourhood to provide a quality and comfortable environment to ensure that inhabitants are able to live their lives in a satisfying way. Indeed the living environment is not only the interior space of a house but also the outdoor spaces of residential areas. Therefore integrating outdoor open spaces is a vital part of delivering a quality neighbourhood. Making neighbourhood open spaces more liveable is a key step in achieving broader sustainability goals. Besides liveability in neighbourhood open space is about integrating quality physical environment and functional spaces which is a result of a chain effort at different level of housing development process. The aim of integrated housing development program is to provide the better quality houses and liveable environment for citizens particularly for low-income group. However, if the living environment in newly developing condominium neighbourhoods are not properly designed and managed to be used for its full potential there is no doubt that they will end up like abandoned areas and unable to fulfil the goal it was aimed for besides creating uncomfortable environment for living.

As shown from the previous sections existing communal spaces within the study area are a vital part of the living environment for the residents, which are used for social, household and recreational activities. However, because of the existing difficulties, a number of inhabitants are unable to use them. The problem arises from different interconnected reasons of the physical characteristics and the existing activities on available open spaces. However, the interconnected nature of the problem could be an advantage for the necessary measure going to be taken to enhance the liveability of the place, because solving one problem will result in solving the other by itself. Below, some points are discussed as a recommendation for enhancing the quality of existing communal open spaces and designing functional neighbourhood open spaces. The recommendations are categorized into two categories i.e. **Pre-occupancy** and **Post-occupancy** stages following the development process of new condominium neighbourhood.

7.2 Pre-Occupancy Stage: Planning & Implementation

Addis Ababa had already experienced development of a large number of new condominium housing and much more are under development by the government. Those developments are located at inner part of the city and much more at the periphery areas. Nevertheless, in the process of providing those houses for inhabitants there are vital issues to be considered during the design and the construction stage. The quality of communal open space is one of the major issues, which should be seriously considered through the whole process in provision of condominium houses.

7.2.1 At Policy Level and Planning Perspective

Designing open space should be based on realistic insight into the way people use the space, not on abstract research or consideration from behind the drawing board (Gehl, 1987). So that considering the need for space for a particular function and taking into account the spatial and functional aspects of open space in relation with how activities are happening is the most important component of planning communal open spaces. As discussed on the background study (*see section 4.7*) of the research the policy on provision of neighbourhood open space strongly supports for providing a quality open space which could preserve the previous living qualities through providing communal open spaces to create liveable environment for occupants. However, at the design process it needs a detail analysis on the characteristics of the activities on communal open spaces to provide best functioning open space and create liveable environment for inhabitants. Therefore, the following issues should be clearly indicated at the policy level and carefully considered during preparing the neighbourhood design.

7.2.1.1 Consider the needs for spaces for different activities:

Fulfilling the needs and increasing satisfaction of the end user, can be achieved through encouraging participation of the end user in the planning process. The relevance of this fact is elaborated by Turner:

'A brief review of the common characteristics of centrally administered housing will substantiate diseconomies and dysfunctions. The difficulties and therefore rarity of the participation of users or even local institutions in the planning, construction and management of public housing programmes, needs no further emphasis. The consequences of this lack of participation provide the material for an increasing literature on the alienation experienced by modern housing users.' (Turner , 1976, p. 42)

So far, the neighbourhood design of IHDP is focusing on including communal green areas for amenity purpose. Nevertheless, the need of inhabitants' is more than having a green area unless it is expected to use the amenity area for all of their needs like recreational, household chore and social activities. Therefore, providing separate open spaces for the following activities will solve the problem of interference of activities.

- For recreational activity: children playing area, space for sitting & hanging out etc.
- For household activities: cloth drying, food and spice preparation, etc.
- For social activity: space for tent construction in case of social events like funeral, memorial, wedding, holiday or any other religious and traditional ceremonies.

7.2.1.2 Spatial Perspective

Enclosure: *Outdoor space can be considered in terms of positive and negative spaces based on the degree of enclosure. Positive, relatively enclosed space has a definite and distinctive shape whereas the latter is shapeless and inconceivable.* (Samuel Araya et al, 2006)

The effect of the enclosure characteristics of the studied area is clearly observed in terms of lacking a hierarchy between private, semi-private and public outdoor space. This can be observed from studied area that an open space with enclosed type of arrangement accommodate the majority of activities rather than partially enclosed type. Creating proper hierarchy of space with appropriate arrangement is an important tool in encouraging residents to properly utilize the outdoor environment since it improves safety and answer the question of privacy. However, the issue of area requirement for each activity should be considered accordingly.

Location: As discussed on the finding section the level of communal open space utilization is clearly affected by its location with respect to the condominium blocks and the distance from their flat. In order to maximize the performance and increase the chance of maintenance it is better to minimize the area of open space adjacent to either of sides of the block but more importantly the rear side facing space and maximize the front facing space.

Furthermore, if separate spaces are provided for different activities then it should be locate in order to minimize interference of activities to each other and appropriate distance from the flats. Particularly, spaces which are provided for activities involving generation of noises like playgrounds and car parking areas should be located at appropriate distance from residential blocks to overcome noise pollution problem.

Area: The analysis shows built up area ratio (BAR) of the study area is 32.3%, which means the total area of available open space is 67.7% of the total area of the parcel. However, the area related problem is resulted because of fragmentation of open spaces by access roads and large area of open space is used for parking purpose. This implies that availability of open space may not solve the area problem however considering the area requirement of every activity on communal open spaces will help to provide appropriate open spaces for every activity of inhabitants.

Reducing the area of internal circulation and parking will maximize the area of green space. As it is observed from the analysis the area used for access road and circulation could be minimized by creating a bigger open space rather than fragmenting the area into smaller spaces. It will also help to reduce attracting more parking activity.

Function: The physical design could have Influence on outdoor activity however the design itself could be influenced by the number of people and occurrences expected, the length of the activity, and what type of activity are possible. In the research for design not only, all type of possible activities should be studied but also the interconnection between each activity (Gehl, 1987).

For the case of studied area, interference of activities to each other is observed and mentioned as a challenge by inhabitants. So that for designing a better functioning communal open space it is vital to take in to account the types of activities, take place on communal open spaces and assign separated area to avoid the interference of one another. This can be achieved through distinguishing all expected activities on communal open space and analysing the characteristics of each activities so that it could be easier to allocate an open space based on the area requirement, friendliness of the activity with the other activities and other preferences of the users, which satisfy their need and requirement.

7.2.2 Implementation Perspective

Designing a liveable neighbourhood through achieving every aspect of design requirements for neighbourhood design will be incomplete without proper implementation of the design during the construction process. For the case of the studied area, the problem of properly implementing the design is observed as a result of building additional block on the area which was designed and allocated for community green area. In addition, a part of car parking space on the proposed neighbourhood design is changed into abandoned green area because of its inaccessibility for car parking as a result of masonry wall constructed adjacent to the asphalt road.

Therefore, during the construction process the emphasis should be given on proper implementation of the neighbourhood design by making sure that the open spaces allocated on the neighbourhood design are provided and constructed accordingly so that that they can be utilised for the purpose that they are provided for.

7.3 Post-Occupancy Stage: Usage & Management System

As it can clearly understand from the analysis section, communal open space related problems are resulted not only from the design related issues but also how inhabitants are using and managing the existing communal open space. Accordingly, these challenges could be solved and the existing condition of communal open spaces can be improved by joint efforts of inhabitants and the respective administrative body.

7.3.1 Recommendations for the Studied Area

Create a system to increase participation of tenants: there will be a significant improvements on the physical quality of communal open spaces if more tenants are involved. Since the percentage of tenant residents is higher than the owners, it is crucial to create a system of management to facilitate the participation of tenants on enhancing the quality of communal open spaces.

Introduce income generation activities on green areas: as it is observed from the analysis, agricultural activity by inhabitants like planting vegetables and some spice plants has a positive contribution on communal open space in terms of maintaining the area. Accordingly, introducing income generation activities on abandoned open spaces will help to improve the physical quality of the environment besides generating additional income for inhabitants. However, those income generation activities should be friendly with the living environment like urban agriculture: growing vegetables or other plants.

Assign a multiple responsible body from the residents: even if there is a trend of managing blocks by assigning one person from each block, it doesn't seem an effective way in terms of achieving quality outdoor spaces. Instead assigning a multiple residents as a committee to be responsible for conservation and maintenance of green areas will be more effective in a way that increases the number of responsible body, and create a better check and balance system.

Use a multi-nodal satellite dish system: mounting a satellite dish on open area individually is the major element contributing for losing attractiveness and narrowing the usable area of the open space. Introducing a multi-nodal satellite system will help to solve the situation of mounting a satellite dish on green areas individually, which is a solution for increasing the usable area, enhancing the attractiveness of the living environment and avoid conflicts occurring because of interference on green area while mounting satellite dishes.

Increase flexibility of the space: increasing functional flexibility by allowing friendly activities on restricted green areas.

Use plants as a fence for green areas: this will help to create more attractive green area with an easy access to the space and to avoid using woods and plastic robs materials, which created visually unattractive environment.

Maintain green areas regularly: the area of regularly maintained green space within the studied area accounts for smaller part of the total green area coverage. Therefore, the residents should be devoted on regularly maintaining the green areas to have a pleasant living environment.

Provide facilities: amenities for sitting, shade or for playing activities will attract recreational or leisure activities like playing games, reading, hanging out with friends and neighbours. It also will help to allocate a particular area for a specific function, which will avoid the undesirable outcome of interference of activities as the result of multiple activities happening on the same area. Furthermore, it will increase the number of responsible individuals who take part in maintenance process through developing belongingness as they benefited from the open space.

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APPENDICES

Appendix A: Questioner

This questioner is prepared by a student of Addis Ababa University Ethiopian Institute of Architecture, Building Construction and City Development for the purpose of collecting information for conducting an educational research on Communal Open Spaces in Gofa Mebrat-hail condominium neighbourhood. I would like to **'Thank you'** in advance for your cooperation.

Name:_____Sex:___ Age_____Block No.:_____Floor:_____

House Type: Studio ☐ One Bedroom ☐ Two Bedroom ☐ Three Bedroom ☐

Marital Status: _____Family Size:_____No. of children_____

Ownership Status: Owner☐ Tenant ☐

Employment Status: _____ Occupation Period: _____

Note: Communal open space refers to available unbuilt space within your parcel which is provided to be used by the inhabitants within your parcel it includes the green area, circulation and parking area, and any available paved and unpaved area.

1. Do you or your family members use the communal open space? Yes ☐ No ☐
2. If you and your family don't use the communal open space, what is the reason?

   _____
   _____
   _____
   _____
   _____
   _____

3. If yes, for what activity do you or your family uses the communal open space?

No	Your or your family activity	Where is this activity happening		When is this activity happening
		The specific area	Location	

Note: For the “where” question answer the question with respect to the type of space by saying “inside the green area”, “on unpaved area” or “on paved area” and the location of the place with respect to your block.

4. When you or your family member use communal open spaces within your parcel for the activities you mentioned on question No-3, how the physical characteristics and quality of the open space affect your activity?
   a. In relation to the enclosure of the open space?

      _____

      _____

      _____

      _____

   b. In relation to the area and shape of the open space?

      _____

      _____

      _____

      _____

   c. In relation to its relative location from you block?

      _____

      _____

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      _____

   d. In relation to its accessibility?

      _____

      _____

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      _____

   e. In relation to attractiveness

      _____

      _____

      _____

      _____

f. In relation to availability of facilities

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5. What challenge do you or your family experience because of the physical characteristics and quality of the open spaces mentioned on question 4 above when you use available communal open space within your parcel?

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6. What challenges do you or your family experience by other inhabitants' activity on communal open spaces?

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Appendix B: Semi-structured Interview Questions

1. Genera Information:
    a. Name
    b. Age
    c. Family Size
    d. No of children
    e. Ownership Status
    f. Floor Currently Living On
    g. Employment Status
    h. Duration of Living in neighbourhood
2. Involvement On communal open space:
    a. Do you or your family member use communal open spaces within your parcel?
    b. For what activities do you use communal open spaces?
    c. Where do you perform those activities?
    d. Do you involve on maintaining communal open space? How?
3. How the physical characteristics of the open space affect your activity?
    a. The area of available space?
    b. The accessibility of the space?
    c. The location of available space?
    d. The type of enclosure of open spaces?
    e. The physical quality of available space in terms of availability of facilities and maintenance condition?
4. Who is managing and administering communal open spaces within your parcel or block?
5. Which activities are allowed and which are not in communal green areas?
6. What communal open space related challenges do you experience?
    a. For your need for spaces for different activities?
    b. From others activities on communal open spaces?
    c. Related with the physical characteristics of communal open space?
    d. Related with the physical quality of communal open space related problems?

Appendix C: Lists of Interviewees

No	Name of interviewee	Gender	Age	House type	Marital status	Ownership	Floor	Using open space
1	Getachew Erkyihun	Male	73	Two BR	Married	Owner	1st	Yes
2	Sebsebe Tiruneh	Male	57	Three BR	Married	Owner	2nd	Yes
3	Aberash Ayele	Female	54	Two BR	Married	Owner	Ground	Yes
4	Amarech Jembere	Female	47	Two BR	Married	Owner	1st	Yes
5	Almaz Abera	Female	37	One BR	Married	Tenant	1st	Yes
6	Zeritu Alemu	Female	39	Two BR	Married	Owner	Ground	Yes
7	Yalemwork Tesema	Female	35	Two BR	Married	Owner	2nd	Yes
8	Shasho Desalegn	Female	27	One BR	Married	Tenant	Ground	Yes
9	Mihiret Seyfu	Female	43	One BR	Married	Owner	3rd	Yes
10	Selam Gebru	Female	38	One BR	Married	Tenant	2nd	Yes
11	Derbe Ababe	Female	80	Three BR	Widow	Owner	Ground	Yes
12	Shewarega Wendemagegnehu	Female	83	One BR	Widow	Owner	1st	Yes
13	Tigest Mengesha	Female	34	Two BR	Married	Owner	3rd	Yes
14	Hirut Terefe	Female	30	Studio	Married	Tenant	4th	Yes
15	Teshale G/michael	Male	54	Two BR	Married	Owner	2nd	Yes

Appendix D: Neighbourhood Design of the Case

Gofa Mebrat-hail Condominium Neighbourhood design from Addis Ababa Housing Development Project Office

Appendix F: Regulation Document of the Neighbourhood

Local regulation norm document from Gofa Mebrat-hail Condominium House Owners Association Office (only communal open space related section)

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14.2 ግዴታ

14.2.1 እያንዳንዱ አባል በመተዳደሪያ ደንብና በውስጠ ደንብ የተደነገጉትን ደንቦች፣ ትዕዛዞች፣ መመሪያዎችና ውሳኔዎችን ማክበርና ተግባራዊ ማድረግ ይኖርበታል፣

14.2.2 የህ/ሥራ ማህበሩ የጋራ ንብረቶችንና ይዞታን የመንከባከብና የመጠበቅ ኃላፊነት አለበት፣

14.2.3 በጠቅላላ ጉባኤ የተወሰኑ ልዩ ልዩ ክፍያዎች በወቅቱ መክፈል አለበት፣

14.2.4 በአዋጅ ቁጥር 370/1995 በአንቀጽ 22 በተደነገገው መሠረት የቤት ባለቤት የሆነ ሁሉ ቤቱን ሲያከራይ፣ በዚህ ደንብ የተዘረዘሩትን ክልከላዎችና የሥነ-ምግባር ደንቦች ለተከራይ በማሳወቅና ህጎችን በማስረዳት ማክበርና ማስከበር ይኖርበታል፣

14.2.5 ማንኛውም የጋራ ህንፃ ባለቤት የቤት ኪራይ ውል ሲያደርግ ወይም ሲያድስ ስነዱ ለህብረት ሥራ ማህበሩ ማቅረብ አለበት ኪራዩ ሲቋረጥም የውሉ መቋረጥ የሚያስረዳ ሠነድ /ማስረጃ/ ለህብረት ሥራ ማህበሩ ማቅረብ ይኖርበታል፣

14.2.6 ማንኛውም ተከራይ ከተከራየው የጋራ መኖሪያ ህንፃ ለቆ በሚሄድበት ጊዜ የማህበሩ ግዴታ የሌለበት መሆኑን የሚገልጽ ወረቀት /ክሊራንስ/ ከህብረት ሥራ ማህበሩ ሥራ አመራር ኮሚቴ በቅድሚያ ማግኘት ይኖርበታል። ይህንኑ በመያዝ ለግቢው ጥበቃ ማሳየት ይኖርበታል። ከግቢው ንብረቱ ይዞ ሲወጣም ክሊራንሱ ለጥበቃ ያስረክባል።

14.2.7 ሁሉም ነዋሪዎች የሚመለከታቸው ኮሚቴዎች በሚያወጡት/በሚያዘጋጁት/ የልማት፣ ዕዳትና ሌሎች ስራዎች የመሳተፍ ግዴታ አለባቸው።

አንቀጽ 15፡- በጋራ ህንፃ ላይ የጋራ መጠቀሚያዎች አጠቃቀም፣

15.1 በጋራ ህንፃ የቤት ባለቤት ወይም የጋራ መጠቀሚያዎች

የያዘ ማንኛውም ነዋሪ የሆነ ሰው ለዚሁ የወጡ ደንቦችና መመሪያዎች ማክበር ይኖርበታል፣

15.2 በጋራ ህንፃ የቤት ባለቤት እና ነዋሪ የሆነ ማናቸውም ሰው፣ የጋራ መጠቀሚያዎች መተላለፊያ መፍቀድ ይኖርበታል። ይህም፣

15.2.1 ለጋራ መጠቀሚያዎች ወይም ለሌሎች ቤቶች የሚሆን የኤሌክትሪክ፣ የቴሌኮሙኒኬሽን፣ የፍሳሽ መስመሮችን ለመዘርጋት፣ ለመጠገንና ለመቆጣጠር እንዲቻል፣

15.2.2 በክፍሎችና በጋራ መጠቀሚያዎች ላይ እድሳትና ጥገና ለማድረግ እንዲቻል፣

15.2.3 በጋራ ህንፃ መተላለፊያዎች /ኮሪደር/ የተሰያዩ ዕቃዎች፣ ካርቶኖች፣ ዲሾች፣ ብረቶች፣ የማገዶ እንጨት፣ ክሰል የያዘ ጆንያ፣ የልብስ ማጠቢያ ሳፋ፣ የአበባ ማስቀመጫ ጣሳዎች፣ ብረቶች፣ የቆሻሻ ማጠራቀሚያ እና የመሳሰሉት ሁሉ መደርደርና ማስቀመጥ ለመከላከል ሲባል፣

15.2.4 በኤሌክትሪክ ምሰሶ፣ በውሃ ማውረጃ ቱቦ /PPC/ እና በውሃ መስመር ቱቦ ገመድ በማሰር ይሁን በሌላ የህንፃው አካል ልብስ ማስጣት ለመከላከል ሲባል፣

15.2.5 በጋራ ህንፃ ፊት ለፊት ለፓርኪንግና ለሌሎች አገልግሎቶች የተያዙ ቦታዎች በሙሉ ለህንፃው ነዋሪዎች የጋራ መጠቀሚያዎች በመሆናቸው ሁሉም እኩል ተጠቃሚ የሚሆኑበት አሠራር በመዘርጋት የጋራ እድሳትና እንክብካቤ ለማድረግ ሲባል፣

በደንቡ የተከለከሉ ተግባራት መፈፀም የለበትም።

አንቀጽ 16፡- በጋራ ህንፃ ላይ የፀጥታና የድምፅ አጠቃቀም የተከለከሉ ተግባራት

16.1 በጋራ ህንፃ ውስጥ የቤት ባለቤት፣ ነዋሪ ወይም ተከራይ የሆነ ሰው ያለአግባብ ሌላውን ነዋሪ የሚረብሽ የቴፕ፣ የራዲዮ፣ የቴሌቪዥን ወዘተ ... ድምፅ መጠቀም የተከለከለ ነው፣

16.2 በጋራ ህንፃ ላይ ቡና፣ ቅመማ ቅመም እና ሌሎች ነገሮች መውቀጥ የህንፃው ደህንነት የሚጐዱና ፀጥታ የሚነሱ ሥራዎች/ድርጊቶች/ስለሆኑ እነዚህን ማከናወን የተከለከለ ነው ::
16.3 ድግስ፣ ለቅሶ፣ ሰርግ እና የመሳሰሉት ማህበራዊ ጉዳዮች ለዚህ ዓላማ እንዲውል ታስቦ በተከለለ ቦታ ካልሆነ በስተቀር በሌላ ቦታ ማድረግ የተከለከለ ነው፣
16.4 የጋራ ቤት ባለቤቶች ለጋራ መጠቀሚያነት እንዲውል ተከልሎ ከተሰጠው ቦታ ውጭ በመንገዶችና በህንፃዎች መግቢያና መውጫ ፊት ለፊት ድንኳን መትከል የተከለከለ ነው፣
16.5 የዲሽና የተላልቅ አንቴናዎች ተከላ የአጐራባች ነዋሪዎችን የኤሌክትሮኒክስ መሳሪያዎች /ቲቪና ሬዲዮ/ አጠቃቀም ሊያዛባ ስለሚችል ተከላ ከመደረጉ በፊት የአጐራባች ነዋሪዎችና የህብረት ሥራ ማህበሩ ስምምነት ማግኘት ይኖርበታል ስምምነት ከሌለ ግን መትከል አይቻልም፣
16.6 በመኖሪያ ቤት አካባቢ ወርክሾፕ ወይም የቅርፃ ቅርፅ መሥሪያ ወይም ለሌላ ለው የሚረብሽ ድምፅ ያለው ሥራ ማከናወን የተከለከለ ነው፣
16.7 ከምሽቱ 4 ሰዓት በኋላ በማንኛውም ሁኔታ ጮሆቤቶችን የሚረብሽ እና ድምፅ የሚሰጥ ጫማ መጠቀም እንዲሁም በንግድ ቤት አካባቢ ነዋሪዎችን የሚረብሽ የቴፕ፣ የሬዲዮ ይሁን የቲቪ. ድምፅ ማሰማት የተከለከለ ነው፣
16.8 የማንኛውም የጋራ ህንፃ ነዋሪ ልጆች እና ሠራተኞች የጐረቤቶችን ስሜት በሚጐዳ መልኩ መንጫጫትና መረበሽ የተከለከለ ሲሆን፣ ወላጆች/አሳዳጊዎች ይህን መከላከል ይኖርባቸዋል፣
16.9 በልዩ ሁኔታ ካልተፈቀደ በስተቀር የግል ጥበቃ ቀጥሮ ማስጠበቅ የተከለከለ ነው፣
16.10 ሌሎች የነዋሪውን ፀጥታና ሰላም የሚነሱ ሥራዎች መሥራት የተከለከለ ነው፣

አንቀጽ 17፡- የአካባቢውን ንጽህና እንክብካቤ

17.1 የጋራ ህንፃዎች ብዙ ለዎች የሚኖርባቸው በመሆኑ በጋራ መጠቀሚያ ለዚሁ ከተዘጋጀው ቦታ ውጭ እርድ መፈፀም የተከለከለ ነው፣
17.2 የልብስ፣ የቤት፣ የዕቃ ይሁን ሌላ አጣቢ ከፎቅ ወደ ታች መልቀቅ ወይም በማናቸውም ሁኔታ የግቢውን ንጽህና በሚጎዳ መልኩ መድፋት የተከለከለ ነው፣
17.3 በማንኛውም የውሃ ቱቦዎች /ፉካዎች/ ቆሻሻ መጣል /ማስቀመጥ/ ክልክል ነው፣
17.4 የመኪና ነዳጅ /የተቃጠለ ዘይት/ በማንኛውም ቦታ ማፍሰስ የተከለከለ ነው፣
17.5 ከህ/ሥራ ማህበሩ ፈቃድ ውጭ የመኪና እጥበት ስራ ማካሄድ የተከለከለ ነው፣
17.6 ፍቃድ ካልተሰጠ በስተቀር፣ የኮንዶሚኒየም ውጫዊ አካል በከፊልም ሆነ በሙሉ በግል ቀለም መቀባት ክልክል ነው፣
17.7 በማህበሩ ካልተፈቀደ በስተቀር በጋራ መኖሪያ ቤት ህንፃ ወይም ግቢ ውስጥ ማስታወቂያ መለጠፍ፣ መስቀል ወይም ታቢላ ማቆም የተከለከለ ነው፣
17.8 በጋራ ህንፃ ያሉ የአትክልት ቦታዎችን የማልማት፣ የመንከባከብና የመጠበቅ ኃላፊነት የሁሉም ነዋሪዎች በመሆኑ ማበላሸትና መቅጠፍ የተከለከለ ነው፣
17.9 በጋራ መኖሪያ ቤቶች ይሁን በማንኛውም አካባቢ ወይም የመንገድ ዳር የላስቲክ ቤት፣ የብረት ከለላ እና ዳስ የመሳሰሉ መጠለያ መሥራት እንዲሁም ንግድ ማካሔድና ለሌላ ተግባር ማዋል የተከለከለ ነው፣
17.10 የጋራ ህንፃ ባለቤቶች ቆሻሻውን በመያዣ በየቤታቸው ውስጥ በማጠራቀም ለደረቅ ቆሻሻ ሰብሳቢዎች መስጠት ይኖርባቸዋል፣ በየመንገዱ መድፋት ወይም በፌስታል በመጠቅለል መጣል ወይም በኮሪደር ማስቀመጥ የተከለከለ ነው፣

17.11 በየመንገዱ መሸናት /መፀዳዳት/ የተከለከለ ነው፣
17.12 በማንኛውም የህ/ሥራ ማህበሩ ነዋሪ ቤት ውስጥ ሺሻ ማጨስ፣ ጫት ማስቃም ወይም በህግ የተከለከለ አደንዛዥ እፅ ይዞ መገኘት፣ መሸጥ እንዲሁም ሌሎች ህገወጥ ሥራዎች ማከናወን በጥብቅ የተከለከሉ ናቸው::
17.13 ማናቸውም የቤት እንስሳት በግቢው ውስጥ ማራባትም ሆነ ግቢው ውስጥ መልቀቅ /ማሰማራት/ የተከለከለ ነው:: ባለቤት የሌላቸው እንስሳት ከጤና፣ ግብርና ሌሎች የሚመለከታቸው መ/ቤቶች ጋር በመሆን እንዲወገዱ ይደረጋል::
17.14 በግቢው ውስጥ በማናቸውም ቦታ ለቆሻሻና ተረፈ ምርት መጣያና ማጠራቀሚያ ከተዘጋጀው ቦታ ውጭ ጥራጊ፣ ፌስታል፣ ላስቲክ፣ ሶፍት፣ ቅጠላ ቅጠል ወዘተ መጣል የተከለከለ ነዉ::

አንቀጽ 18፡- በጋራ ህንፃ የቤት ባለቤቶች የውስጥ ለውስጥ መንገዶችና የመኪና ማቆሚያ ቦታዎች አጠቃቀም፣

18.1 በሕ/ስራ ማህበሩ ግቢ የሚገኙ ዋና ዋና መንገዶች ላይም ሆነ በመተላለፊያ ቦታዎች ኪስ መጫወት የተከለከለ በመሆኑ የቤት ባለቤቶች/ነዋሪዎች/ አብረው የሚኖሩ ልጆች/ወጣቶች/ የመቆጣጠር ኃላፊነት አለባቸው::
18.2 ተሽከርካሪ ያላቸው የቤት ባለቤቶችም ሆኑ ሌሎች እንግዶች በጋራ ህንፃ መጠቀሚያዎች የሚገኙ የትራፊክ ምልክቶች ማክበር አለባቸው፣
18.3 አሽከርካሪዎች የነዋሪውን ደህንነት በሚጐዳ መልኩ የመኪና ሞተር ድምፅ ከፍ አድርገው በማስጮህ በጋራ መጠቀሚያዎች አካባቢ መንዳት የተከለከለ ነው፣
18.4 በአደጋ ጊዜ ካልሆነ በስተቀር ከፍተኛ ድምፅ ያላቸው

ጡሩንባንና የሳይረን ድምፅ በጋራ መጠቀሚያዎችና ህንፃዎች አካባቢ ማስጮህ የተከለከለ ነው፣
18.5 ማንኛውም ሰው በማንኛውም የጋራ መጠቀሚያ አካባቢ የተሽከረካሪ ጥገና ማካሔድና የተሰባበሩ የመኪና አካሎች ሜዳ ላይ መበተን የተከለከለ ነው፣
18.6 የቤት ባለቤት /ነዋሪ/ ህ/ሥራ ማህበሩ ፍቃድ ሳይጠይቅና የጽሑፍ ማስረጃ ሳይዝ ትላልቅ የጭነትና የሕዝብ ማመላለሻ መኪናዎች በጋራ ህንፃ /መጠቀሚያ/ አካባቢ እና ግቢው ውስጥ ማቆም የተከለከለ ነው፣
18.7 በመተላለፊያ እና በእግረኛ መንገድ መኪና ማቆም የተከለከለ ነው፣
18.8 በጋራ መጠቀሚያ ህንፃዎች አካባቢ ያለፈቃድ ሞተር ሳይክል ወይም ብስክሌት እንዲሁም መኪና መለማመድ/ማለማመድ የተከለከለ ነው፣
18.9 በጋራ መገልገያዎች /መኖርያ አካባቢ/ የተጣሉ አሮጌ ተሽከርካሪዎች ያለቦታቸው በመቆማቸው ምክንያት ባለንብረቱ እንዲያነሳ የሚያደርግ ሲሆን ይህ ካልሆነ ግን ህ/ሥራ ማህበሩ በባለንብረቱ ወጪ ከአካባቢው እንዲነሳ ያደረጋል፣
18.10 የሕ/ስራ ማህበሩ ከሚያዘጋጀው የመኪና ማቆሚያ (Parking Lot) ውጭ መኪና ማቆምና ማሳደር የተከለከለ ሲሆን ስራው ሲጀምር ክፍያም ይኖረዋል:: ዝርዝሩ በመመሪያ ይወሰናል::

አንቀጽ 19፡- ድርሻን /ጥቅምን/ ስለሚተላለፍበት ሁኔታ

በመተዳደሪያ ደንብ አንቀጽ 25 እና 26 የተደነገገው እንደተጠበቀ ሆኖ፣
19.1 የህ/ሥራ ማህበሩ አባል በሞት ሲለይ መብቶቹና ግዴታዎቹ በሕግ ለወረሱ ወራሾች ይተላለፋል፣
19.2 አንድ አባል ድርሻውና ጥቅሙን የሚከበርለት በህ/ሥራ