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SUSTAINABILITY AND OPEN SPACE

THE SPATIAL SUSTAINABILITY OF OPEN SPACES IN NEW CONDOMINIUM NEIGHBOURHOODS OF ADDIS ABABA

By: Anteneh Getnet Birru

Housing and Sustainable Development
Masters In Science

July 2014
Addis Ababa, Ethiopia

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MASTER'S THESIS

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

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ADDIS ABABA

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July, 2014

Ato Yonas Alemayehu Soressa	----------	----------
Advisor	Signature	Date

Approved by Board of Examiners

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Chair Person	Signature	Date
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External Examiner	Signature	Date
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Internal Examiner	Signature	Date

Declaration

I declare that, this thesis prepared for the partial fulfillment of the requirements for the degree of MASTERS OF SCIENCE IN HOUSING AND SUSTAINABLE DEVELOPMENT entitled **"*SUSTAINABILITY AND OPEN SPACE: THE SPATIAL SUSTAINABILITY OF OPEN SPACES IN NEW CONDOMINIUM NEIGHBOURHOODS OF ADDIS ABABA*"** 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.

Anteneh Getnet Birru

Signature ——————————

Date ——————————

Certification

Here with I state that **Anteneh Getnet Birru** has carried out this research work on the topic entitled "*SUSTAINABILITY AND OPEN SPACE: THE SPATIAL SUSTAINABILITY OF OPEN SPACES IN NEW CONDOMINIUM NEIGHBOURHOODS OF ADDIS ABABA*" under my supervision and it is sufficient for submission for the partial fulfillment for the award of MSc Degree in HOUSING AND SUSTAINABLE DEVELOPMENT.

Yonas Alemayehu Soressa

Signature ——————————

Date ——————————

ABSTRACT

Neighbourhoods are becoming basic planning entities in the modern planning industry and there is a great attitude and tendency in the planning process to make neighbourhoods vital, safe, and beautiful places to live in. For this achievement greater significance is given to the design and management of public open spaces of neighbourhoods.

Addis Ababa, the capital city of Ethiopia and the diplomatic capital of Africa, is developing new neighbourhoods mainly through the grand housing program of the city. These new neighbourhoods in the perspective of the current open space problem of the city is a worth mentioning success. But in the arena of development it needs to be assessed and evaluated from the sustainability point of view.

The general objective of the study is evaluating and assessing the sustainability of open spaces in new condominium neighbourhoods of Addis Ababa. The study focuses mainly on their physical sustainability, which is one parameter to the three dimension of sustainable human settlement development: environmental/physical, social, and economic. Thus the study asses and examine the sustainability of open spaces of the new condominium neighbourhoods in Addis Ababa, with a focus on their spatial dimension, by taking Gerji neighbourhood as a case study site.

The study utilized a qualitative case study method. To do so interviews with the residents and personal long-term observation are carried on. The open spaces of the new neighbourhoods are analyzed according to the different activities exercised, landscaping objects, accessibility and security, and their distribution. By doing so, the study analyzes how activities and objects contribute to and accessibility, security, and distribution enhance the spatial sustainability of the open spaces.

The analysis and findings clearly show that there is a difficulty in planning, implementation, and management of the open spaces in the new condominium neighbourhoods. The open spaces currently do not have owner. Their utilization, for the different activities going on, is very arbitral and according to the interest of individual residents. There are no objects or landscaping elements in the open spaces. And their physical status is above left over spaces but not developed and administered to its minimum standard. The success on the distribution and potential on the accessibility and security shows the potential of the open spaces to be the would be places of the neighbourhood. In general terms, the results show that the open spaces have problems related with their spatial sustainability.

The study also draws lessons that will help in the formulation of policies and guidelines related to the issue of making and developing spatially sustainable open spaces. Therefore, the study recommends that the open spaces needs policies, directives, manuals and the like for planning, implementation and management to make them spatially sustainable.

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To my family, especially my mother, you have made my stay in Addis Ababa wonderful and worthwhile. To my wife Netsanet Mulu, your courage to drop down your office work and giving all your time to look after the whole family including me, you are worth your weight in gold. To K2N Architectural and Engineering Consultancy staffs, thank you very much, my stay in Addis will not be warm in your absence. Many thanks to the O NE for giving all these and the unforeseen.

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LOCAL TERMS

Lekso ------ Post funeral assembly

Edir -------- Local cooperation for funeral and post funeral assembly

Gihibbi----- King and descendant landlord's compound

Sefer------- Neighbourhood unit

Gebber-----Feeding the people by the King (descendant landlords)weekly or in anniversaries

Meskel----- The founding of the true cross

ABBREVIATIONS

MUDB -------Ministry of Urban Development Bureau

LDP----------Local Development Plan

GTZ----------German Techinical Cooperation

AAHDPO-----Addis Ababa Housing Development Project Office

BPCDAA-----Beautification Parks and Cemetery Development Administration Agency

MSE----------Micro and Small Enterprises

ORAAMP---- Office for the Revision of Addis Ababa Master Plan

GENERAL NOTE

All tables and figures without source are the author

The measurements used are all SI units

The calendar used is Gregorian calendar

CHAPTER ONE

INTRODUCTION

Chapter One

INTRODUCTION

1.1 Background

Open spaces are key cross cutting issues in the general frame work of sustainability that should be addressed concretely. Open spaces have a wide range of contribution in the development of sustainability in a community. It helps in neutralizing climate change (the worlds treat), improves the local air quality, promotes biodiversity, enhances economic development (mainly by giving the place an additional quality), increases urban regeneration, reinforces social inclusion, serves as environmental education platform, promotes individual and community health, place for relaxation and children play area etc (Campbell, 2001).

Open spaces gives a wide range of services to the community. As an environmental service it serves as air and water purification, wind and noise filtering, and micro climate stabilization. In the social service dimension it encourages residents to use out door space, which intern increases social integration among neighbours. Regarding the economic service open spaces reduces cost of pollution prevention by acting as natural air purifier, promotes cities to be tourist destination, and increases property value of an area (Gedikil, 2004).

In general terms open spaces are the main components in the development of quality of life in cities. They are also key element in the sustainable urban development process. Every physical planning of cities should aim to the creation of high quality and potentially sustainable open spaces, sometimes through innovative approaches.

Addis Ababa is one of the big and fast growing cities of Africa. It is the capital city of Ethiopia, the seat of the African Union (AU) and the United Nations Economic Commissions for Africa (UNECA).The disappearance of and extreme pressure on green/open areas of Addis Ababa is destroying the scenic beauty of its landscape; and decreases the ability of open spaces to perform their basic ecological, social and economic function; there by enhancing unsustainable urban growth of the city (Mpofu, 2013). When seen from this physical condition of the city the open spaces provided in the new condominium neighbourhoods of Addis Ababa can be seen as a worth mentioning success. But to make them as part of sustainable development of the city they need to be assessed from sustainable dimension. This study tries to assess the spatial sustainability of open spaces in the new condominium neighbourhoods taking Gerji neighbourhood as a case study area.

Box 1.1 Condominium definition

According to Federal Democratic Republic Of Ethiopia, Proclamation No. 370/ 2003 a "Condominium" is defined as a building for residential or other purpose with five or more separately owned units and common elements, in a high-rise building or in a row of houses, and includes the land holding of the building.

Condominiums in the current status of Ethiopia are Governmentally built public buildings, mainly for housing. They are intended for low and middle income people. They are constructed both in the inner cities as upgrading and in the outer skirts of urban centers.

Box1.2 Spatial sustainability definition

"Spatial Sustainability"

As defined by Pomeroy (2012) spatial sustainability is making spaces suitable for people to sense their community or environment. Spatial sustainability is a key for the success of urban habitats in fostering a great sense of community and thus turn space in to place.

1.2 Statement of the problem

Urban public open spaces in Addis Ababa are not operating properly or are not used appropriately. In most cases these spaces of the city have been seen to be unused vacant places which are bare of activities in most time of the day and inactive at night times. In addition, there are problems related to the extent of availability, practicality and geographic distribution of these spaces in the city.

At the local or small neighborhood level, there are many open and green areas which are used for festivals, children playgrounds and other social activities. These places are not yet designed or planned. Some of them are left out spaces between residential housing units and the ones which are distinguished as urban open spaces are not managed well. Most of these places are being either sold for private investors or used as housing plots for real estates and condominiums. The major public open spaces that we are having today are the streets, left over spaces, river sides, and very few square plazas. Due to these, children playing, religious festivals, community occasions, and the likes are either done on the streets (not safe and secure) or on left over spaces (if any is available – not safe and secure also).

The public open spaces incorporated in the new condominium neighbourhoods of Addis Ababa housing development program, when seen from the perspective of the current problem of loosing urban open spaces, is worth mentioning as a success. But in terms of development perspective, it needs to be assed from the sustainability point of view.

1.3 Principal Objective

The main objective of this research is evaluating and assessing open spaces in new condominium neighbourhoods with respect to their physical sustainability; which is one parameter to the three dimension of sustainable human settlement development: environmental, social, and economic. Thus, the principal objective here is to examine the sustainability of open spaces in the new condominium neighbourhoods of Addis Ababa, with a focus on their spatial dimension, by taking Gerji condominium neighbourhood as a case study site.

1.4 Specific Objective

- to identify the different functions carried on in the open spaces and their importance for spatial sustainability,
- to identify the different objects on the open spaces and tracing extra objects that have a role for the spatial sustainability of the open spaces,
- to determine the extent of the accessibility and security problems of the open spaces and mechanisms for enhancing them to ensure the spatial sustainability of the open spaces and
- to assess the need of distribution of open spaces in a neighbourhood and asses its contribution for spatial sustainability.

1.5 Broad Research Question

In order to achieve the principal and specific objectives, sets of broad and specific research questions have been raised to guide the study. The broad research question that will guide the study is: *How are open spaces in new condominium neighbourhoods of Addis Ababa are spatially sustainable?*

1.6 Specific Research Questions

As the topic and broad research question states, the targets of this research are to asses and evaluate the spatial sustainability of open spaces. Thus, five key issues that can asses and evaluate open spaces: Activities, Objects, Accessibility, Security, and Distribution are drawn for the study. Using these five key issues the specific research questions are formulated as follow:

- How do the different activities carried on and objects in the open spaces contribute for the spatial sustainability of the open spaces?

- How much do the accessibility, security and distribution of the open spaces enhance the spatial sustainability of the open spaces?
- What should be done to bring spatial sustainability in the open spaces of condominium neighbourhoods of Addis Ababa?

1.7 Significance of the Study

The Addis Ababa Integrated Housing Development Program (AAIHDP) is creating new condominium neighbourhoods to the city in a grand scale. In these neighbourhoods open spaces as gray and green areas are envisaged in a formal and designed manner. This study mainly helps to see the extents of spatial sustainability of newly created open spaces are, as they are results of development program. Moreover, the study will contribute in formulation of parameters, monitoring mechanisms, and proclamation development for the design and implementation of open spaces in new condominium neighbourhoods and the city as a whole. It will also serve as a reference for future researchers on green and gray spaces and parks of the city. Besides, it will contribute to the best success of AAIHDP in its future carrier.

1.8 Organization of the thesis

The thesis is organized in to five chapters:

Chapter 1 – Introduction

The introductory chapter gives a brief introduction to open spaces, mainly on their contribution to sustainable development of new neighbourhoods of Addis Ababa. It also includes objectives of the research, research question, and organization of the thesis.

Chapter 2- Methodology

This chapter provides an overview of the research methodology used the appropriateness of choosing this approach for the study, and a review of the implementation of the research.

Chapter 3 – Literature Review

The literature review incorporates discourses on open spaces and sustainability. Besides it tries to develop open space sustainability parameters as a checklist to evaluate open spaces.

Chapter 4 – Contextual back ground

The establishment and development of Addis Ababa, the current status of open spaces in the city are parts of the contextual background study.

Chapter 5 – Case study: Analysis, Discussions, and Findings

This chapter present analysis and discussion using the case study data, objectives of the study, the checklist developed and theoretical discourse of the literature review. And the finding of the research answers the research questions.

Chapter 5 - Recommendations and implications

The recommendations and implications forwards recommendations and policy and directive implications based on the findings of the study.

1.9 Research design/structure

The research strategy provided a frame work for designing a systematic study that would address the study's objectives and questions. This study conducted exploratory and descriptive research on the spatial sustainability of the new condominium neighbourhood of Addis Ababa Gerji. The study design below reflects the logical flow from the problem statement that initiated the study to the recommendations and implications.

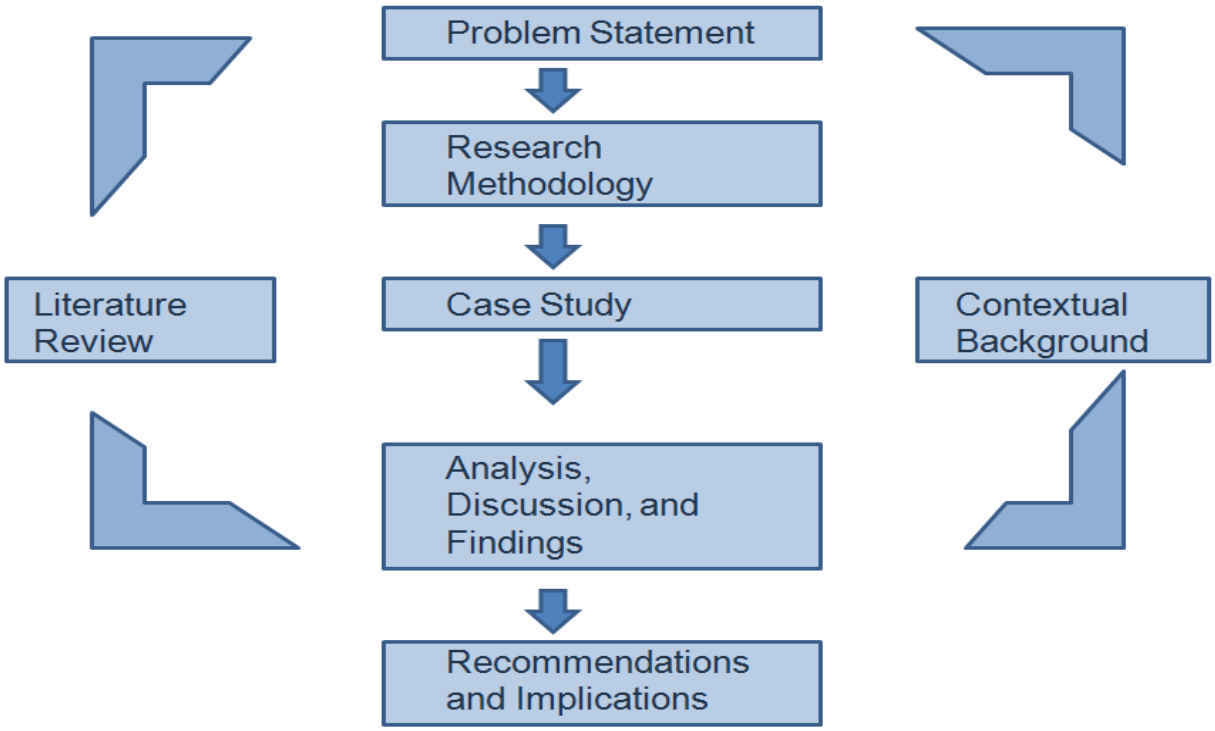

Figure 1.1: Study design of the research

CHAPTER TWO

Methodology

Chapter Two

METHODOLOGY

2.1 Introduction

This chapter provides an overview of the research methodology used, and approached applied. The site visit and observation undertaken, the interview process that was followed, the selection of data collection techniques, analysis and the limitations are all discussed.

2.2 Choice of Method

For this research a qualitative case study research method is selected as a major method. The reason lies on the nature of the research questions, earlier experience, and topic of the study. But for analysis and secondary data's quantitative approach is used.

Case study being defined by Gerring (2004) is an intensive study of a single unit with an aim to generalize across a larger set of units. Merriam (1998) explained that the single most defining characteristic of case study research lies in delimiting the object of study: the case. The case is a unit, entity, or phenomenon with defined boundaries that the researcher can demarcate or "fence in", and therefore, can also determine what will not be studied. The case is a thing, a single entity, a unit around which there are boundaries. A case can also be a person such as a student, a teacher, a principal, a program, a group, a specific policy, and so on. Case study focuses on holistic description and explanation. Yin (2003) clearly stated that case studies should be used when:

- The focus of the study is to answer 'how' and 'why' questions
- You cannot manipulate the behavior of those involved on the study
- You want to cover contextual conditions because you believe they are relevant to the phenomena under study
- The boundaries are not clear between the phenomena and context

On their conclusion, Pamela Baxter and Susan Jack (2008) had emphasized that case study method has the potential to deal with simple and complex situation, and it also enables to answer the 'how' and 'why' questions of researches.

Qualitative research is an effort to understand situations in their uniqueness as part of a particular context and interaction there (Merriam, 2002). The understanding does not attempt to predict what happens in the future necessarily, rather to understand the nature of the setting-what it means for participants to be in that setting, what their lives are like, what is going on for them, what their meanings are, what the world looks like in that particular setting. In qualitative

research the researcher is the primary instrument for data collection and data analysis. However, the human instrument has shortcomings and bias on the study. This biases or subjectivity should be identified and monitored during data collection and interpretation. Qualitative research is also inductive, i.e., researchers gather data to build concepts, hypothesis, or theories rather than deductively deriving postulates or hypothesis to be tested. The product of a qualitative research is very descriptive. It mainly uses words and pictures rather than numbers to convey what the research has learned about a phenomena (ibid, 2002).

A qualitative case study is then an intensive, holistic description and analysis of a single instance, phenomena, or social unit (Merriam, 1998). Particularistic, descriptive, and heuristic are basic characteristics of a qualitative case study. Particularistic means the focus of a study on a particular situation, event, program, or phenomena. The end product of a complete, literal description of incidents or entity being investigated is the descriptive characteristic. The heuristic characteristics mean illuminating the readers understanding of the phenomena under study.

On the following table, I have correlated the research questions and the cases to be studied qualitatively.

Cases	Research questions
1. The different activities exercised in the open spaces of condominium neighbourhoods and the objects inside the open spaces: their contribution for spatial sustainability	❖ How do the different activities carried on and objects in the open spaces contribute for the spatial sustainability of the open spaces?
2. The accessibility, security, and distribution issues of the open spaces and spatial sustainability	❖ How much do the accessibility, security and distribution of the open spaces enhance the spatial sustainability of the open spaces?

Table 2.1. Table showing research questions and the cases of the study.

2.3 Selection of Case Area

The case study is focused on the open spaces of new condominium neighbourhood at Gerji. It is one of the first condominiums built in the city. The case area is selected for the following reasons:

a. It was developed as a pilot project, so that the grand housing program of Addis Ababa will refer and learn from it.
b. I have experienced the place as resident during my educational stay.
c. It was the first inhabited condominium site (six years before).

2.4 Purpose of Data Collection

The purpose of data collection is mainly to understand the feelings and experience of the residents on the open spaces and to base the solution based on the outcome of the analysis besides my personal exercise. And to find out the legal and institutional frame work, if any is available, which guide and administer the open spaces.

The data collected were focused on the following key issues:

- The different activities carried on the open spaces
- Safety and accessibility of the open spaces
- Landscaping elements and their need by the residents
- Residents previous experience on open spaces
- What they fill about the open space (due to its presence in their neighbourhood)
- How the open spaces administered and developed.

2.5 Sources of Data and Collection Techniques

The research uses both primary and secondary sources of data. The primary data are collected through direct observation and picture taken from the site; interviews and discussion with the residents, neighbourhood representative committee, and government bodies. The secondary data are collected from manuals, previous studies, master (development) plan, satellite image (Google map), and relevant books.

2.5.1 Observation

Collecting relevant data for analyzing the current practice of open spaces in the new condominium neighbourhoods of Addis Ababa requires using or applying different methodologies. One of the best ways of obtaining a data on how urban spaces operate or used is by making site visits to the areas and observe what really is going on there i.e. through observing the relationships between activities and spaces. For instance, the Project for Public space (2005) indicates that when you observe a space you learn how it is actually used rather than how you think it is used.

For this study, therefore, a field observation on the selected case study area is used as one of the primary method of data collection. Accordingly, observation in all open spaces of the neighbourhood took place repetitively, and pictures of each open space are taken.

2.5.2 Interview

For this research, interviews were used to gather information that adds for the physical observation. The interview helps to measure the attitudes, perceptions and motivation of people about the open areas.

The type of questions that was asked in the interview generally falls into two categories:
1. Use - (For what purpose they use the open spaces).
2. Attitudes, opinions, and problems regarding the spaces.

In this regard a total of 13 interviews were conducted using semi- structured interview questions. Respondents were selected from all corners and floors of the neighbourhood. And they were only persons available at their homes.

2.6 Data Analysis Technique

Many of the interviews were transcribed in full, and the review of all the literature was quite in-depth, the result was a profusion of documented information. Thus, the analysis is focused around the research objectives and in finding answers to the research questions.

The first stage of data analysis involves sorting of all interview and observational data into themes that corresponded to the research objectives. The objectives were then refined to the themes and categories that emerged from the interview and observation. I also revisit the grey literature with a focused reading and review and extract the pertinent information that fit the research objectives. Throughout the review process, it was necessary to consistently return to the objectives so as not to become disengaged from them and to identify themes that were out of context. Steadily returning to and re-evaluating the central intention of the research and the resultant themes led to stronger and more focused objectives and analysis.

2.6 Scope and limitation of the research

2.6.1 Scope

a. Thematic scope

Issues raised around open spaces are very vast and complex. Economical, social, environmental, and health are some of the issues associated with open spaces. In this study the spatial aspect of the open spaces is taken as the core of the study. Specifically, the spatial sustainability of open spaces of the new condominium neighbourhoods of Addis Ababa is studied.

b. Spatial scope

The study is limited to the geographic boundaries of the Addis Ababa city and focused on open spaces of new condominium neighbourhoods. With this focus the Gerji condominium neighbourhood open spaces are drawn for the spatial scope of the case study. Gerji site is the pilot project by the Addis Ababa city government that launches the Grand Housing program of the city.

2.6.2 Limitation

The limitations for this research are mainly the lack of locally documented information on the subject of open space and the key informant interviews. The official body that administers and manages the open spaces is a recently organized agency and do not have a comprehensive documentation on the subject matter.

Regarding the interviewees, the key informant interviewees are only available and willing residents of the neighbourhood. And some of the interviewees were not comfortable to give the interview. Most of the interviewees were not willing to take digital records. If the interview was done also with different age groups, genders, educational background, owners and renters it will be magnificent for the study. To overcome all these limitations intensive observational data recording is done.

CHAPTER THREE

LITERATURE REVIEW

Chapter Three

LITERATURE REVIEW

3.1 Introduction

The literature review incorporates discourses on sustainability and open spaces. Besides it tries to develop open space sustainability parameters as a checklist to evaluate open spaces.

3.2 Sustainability

In its literal meaning sustainability is the capacity to maintain some entity, out come, or process over a long, perhaps even an indefinite period (Jenkins, 2009; Kuhlman and Farrington, 2010). Sustainability as a word reflects two time frames of everything in the world. One is the present and the other is the future. As present it indicates that we have now and also to be expected in the future. The future shows the availability of the present later time in the future.

Sustainability is mainly determined by space, time, and quality. It is when the quality of an entity remains equal or improved over time in a specific space that it could be said sustained. Quality is a subjective value which requires an in depth understanding and prioritizing. And space is all about the perceived environment from a small village or district to the whole world. And time is the consideration taken as a minimum required years to asses a trend of sustainability (Handicap international, 2012).

What must we sustain? From the very fact that sustainability is a goal that no one yet knows how to achieve is very difficult to answer (Kuhlman and Farrington, 2010). But must scholars answer to the question into two approaches (Jenkins, 2009; Kuhlman and Farrington, 2010; Goodland, 1995). The first one states that sustaining should give priority to the preservation of ecological goods, like the existence of species or the functioning of particular ecosystem, and they call it 'strong sustainability'. The second answer disregards specific obligations to sustain any particular good, instead it emphasizes that there should be general principle to leave future generations no worse off than the present generation, and call this 'weak sustainability'. To see the taught clearly we can take an example from old growth forests (Jenkins, 2009). The strong view might argue that should be protected, even if it requires foregoing development that would increase opportunities for future generation. Whereas, the weak view will attempt to measure the old growth forest future value created by development for the coming generation.

From the environmental ethics point of view there is a loose correspondence to ecocentric (ecological centered) and anthropocentric (human centered) views. The ecocentric view mainly

advocates a good ecological integrity instead of exclusive consideration of human interests, which corresponds to strong sustainability. But the anthropocentric argues that human dignity requires access to rich biodiversity or natural beauty, which implies the weak sustainability (Jenkins, 2009).

Jerkins (2009) have proposed three models of sustainability instead of organizing sustainability issues in dualistic terms like 'strong' and 'weak' or 'eco centric' and 'anthropocentric'. Economic, Ecological, and political are the headings of the three models proposed. In general terms this models are the exponents of the three pillars of sustainability; economic stands for itself, ecological is for environment, and political is for social.

The economic model of sustainability proposes to sustain opportunities in the form of capital. It tries to explore sustainability as an investment problem, in which new opportunities of equal or greater value will be created after the use of natural resources. The ecological model in contrary of the economic proposes to sustain the biological diversity and maintaining ecological integrity. Furthermore the ecological model focuses directly on the health of the living world instead of opportunities and capital. The third model, political, is concerned on the local and global environmental problems that jeopardize the human dignity. This model in depth proposes sustaining of the social system of the society.

3.2 Sustainable Development

The sustainability paradigm has emerged from increasing world population, depletion of resources and decreasing quality of human habitat. Sustainability in the arena of development was first introduced in the report of the Club of Rome: 'The Limit to Growth' in 1972 (Baker, Kousis et.al, 2005). The report mainly shows the unavailability of the present resources later in the future, which pushes the planet to perish in 100 years. As a solution it promotes limiting the growth of nations. But the solution, even if resting on facts, was unable to be swallowed by both developing and developed nations. This resistance and the very consciousness to environmental pollution need to think about the present and keeping for the future, which is sustainability.

The criticism on the 'Limit to Growth' : finite limit to non renewable resource stock, absence of possibility for substitution, the dependence of the model only on physical factors, future changes in the composition of outputs, and the rate of technical progress etc produce new development paradigm; Sustainable development (Cole, 1999). The terminology till 1987 was ambiguous as it has development and sustainability in it, but widely used in the environmental arena. The 1987

Brundtland report, which is a result of twenty three persons from twenty one countries led by Brundtland (former prime minister of Holland), called 'Our Common Future' defines sustainable development: 'development that meets the needs of the present without compromising the ability of future generations to meet their own needs' (WCED, 1987).

In different subject areas, following the Brundtland definition, different definition are evolved. This definition rotates around the three subject areas of development paradigms: Economical, Social, and Environmental. In economics it is defined as ensuring grater per capita income to future generation. The social dimension defines it as keeping the values, customs, and culture of the people to future generation. And in the area of environment the definitions stands for the protection of the biodiversity of biological species, essential ecosystem, and ecological processes (Ciegis et.al, 2009).

Analysis of sustainable development concept descriptions proved that none of hundreds of sustainable development definitions stated in the literature include all the aspects of the concept and provide perfect understanding of it. The most appropriate definition that best expresses the idea of sustainable development is provided in the report of the Brundtland commission (Ciegis et.al, 2009).

Sustainable development is complex and multi dimensional issue which incorporate efficiency and equity in intra and inter generation based on economic, social, and environment grounds. As development it is not based on the private performance of the three components, but rather it is on the integration of the components as a system.

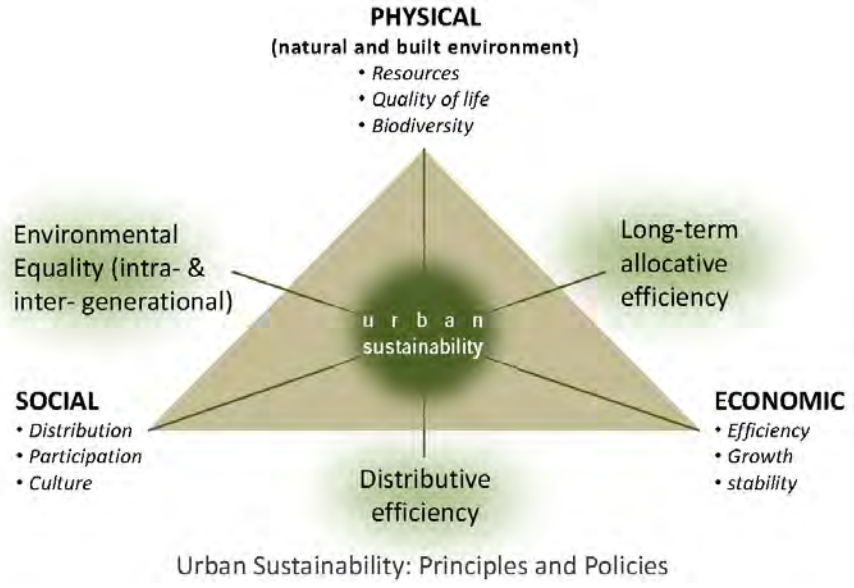

Fig 3.1. Diagram showing the integral performance

Source: Camagni, R., et al. (1998) and Goodland, R. (1994)

The concept of sustainable development provides a frame work for integration of environment policies and development strategies, which merely brings limitation. The limitation is not absolute limit, rather an imposed one by the present technology and social organization on environmental resources. And also it indicates the ability of the biosphere to absorb effects of human activity. This clearly shows that environmental protection is thus inherent in the concept of sustainable development, which leads that sustainable development should necessarily work to assure the long term growth of economies remain firmly attached to their ecological roots. Thus sustainable development is not a fixed state of harmony that can be achieved once and continue in the future, rather it is a process of change. It is a change which the exploitation of resources, direction of investments, the orientation of technological development, and institutional change are made consistent with future as well as present need. In its broadest sense sustainable development is the ability to maintain harmony among human beings and between humanity and nature (WECD, 1987).

3.3 Spatial Sustainability

Different terms and explanations revolve around to value and express spatial sustainability. Of the terms used: space and place are the very common once. For general understanding and to explore the meaning of spatial sustainability the terms are discussed below.

3.3.1 Space

The term space in its present scenario came to use in the seventeenth century (Agnew, 2011). According to Dursun (2009) space is more than a simple volume. He explained that space has physical form that can be easily described by length, width, scale, geometry, texture, colour, light, etc and abstract and complex characteristics. The abstract and complex characteristics constitutes: codes, rules, and abstract parts shaping meaningful things. As he further noted, the key element for understanding and discovering the spatial characteristics is working on the man-space relationship.

Space in the eye of Tuan (2001) is an abstract entity. It experiences openness, freedom, and treat. And it is where we live in. Space creates settings that can organize our lives, activities, and relationships (Lawson, 2005). They are key aspects of how the societies and culture are constructed in the actual world. According to Lefebvre (1998) space is a social product. It is produced, modified, and enhanced by the society.

Space is the core of Architecture (Dursun, 2009). Architecture exists when there is a space. In order to design it is fundamental to think and conceive the space by decoding its characteristics

and discovering messages revealed via its built form. Space is a laboratory which needs sophisticated mental process for manipulating various kinds of information (Dursun, 2009). In general terms space is a property of the natural world that can be experienced.

The physical structure of a space involves the amount of open space, the presence or lack of walls, the brightness of lighting, the presence of windows, doorways and other physical features which create a space. Human behavior can be influenced through the arrangement of physical space. The design of physical structures can affect an individual's mood and their perceptions of their surroundings. By influencing a person's mood and perceptions, physical structure can influence that person's behavior.

3.3.2 Place

The word place has been used as long as geography has been written, it is starting from 1970's that it is conceptualized as a particular location that has acquired a set of meanings and attachment (Cresswell, 2009). According to Yi-Fu Tuan (2001) place is specific and a particular lived space. It is characterized by security and stability. As he further explains, place is a stable object that catches our attention. It is an organized world of meaning. It is essentially a static concept. In contrary citing Dorren Massey Cresswell (2009) argues that thinking place static is traditional approach. He explained that places are not clearly bounded, rooted in place, or connected to single homogeneous identities but produced through connections to the rest of the world and therefore are more about routes than roots.

Place is a meaningful site that incorporates location, locale, and sense of place (Cresswell, 2009). The location represents an absolute point in space, the locale denotes material setting for social relations, and sense of place express the feeling and emotion a place evokes. These three points are also well explained in the place formation of Montgomery and sense of place development of Punter as shown below (Montgomery, 1995 ; Punter, 1990). In the place formation diagram of Montgomery, the location is represented by form, the activity denotes the locale, and the image is the result of sense of place. Similar to Montgomery, Punter also uses the activity for locale, the location as physical setting, and sense of place as meaning. In both diagrams place is illustrated as a meaningful site. Besides, in both diagrams it is clearly shown that places incorporate the three pillars of sustainability. The environmental dimension is expressed as form and physical setting, the activity mainly denotes the economic dimension, and the social dimension is represented by image and meaning. Place is described as the area

in which people establish economic, social, psychological and environmental ties to support their daily life (Kural, 2007).

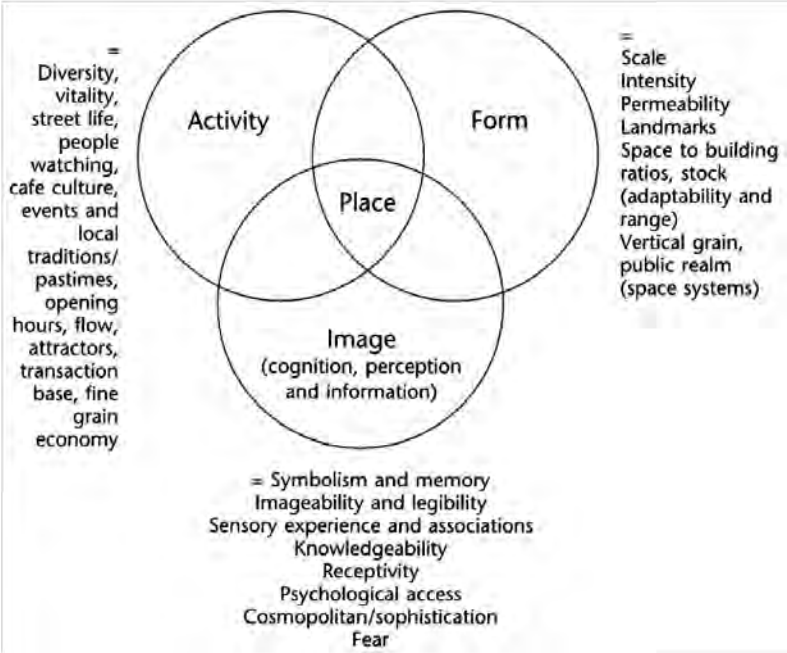

Fig 3.2. Place formation

Source :Montgomery 1995

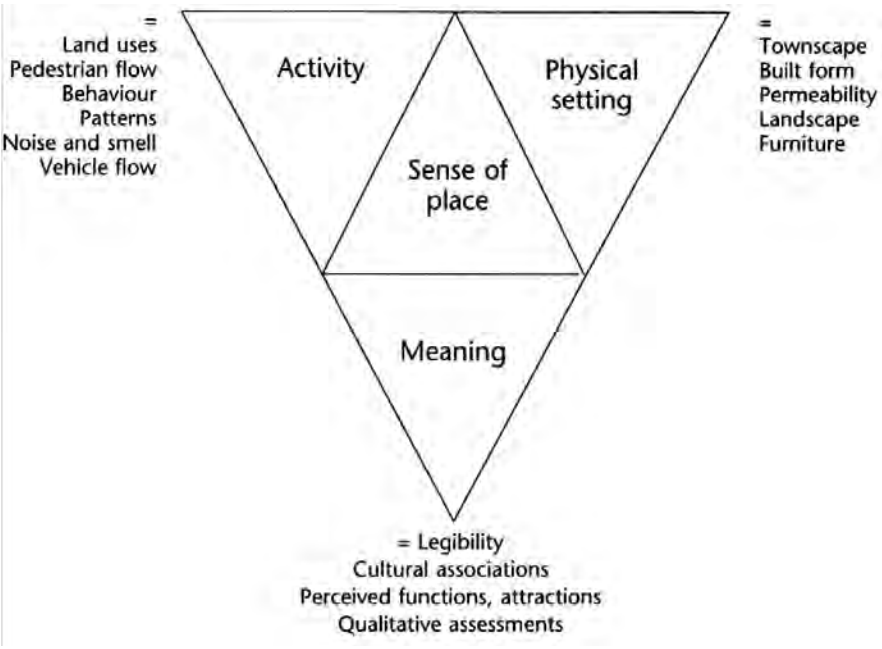

Fig 3.3. Sense of place development

Source :Punter 1990

3.3.2 Spatial Sustainability

Space and society are intrinsically linked, and one cannot have a discourse about society and the way people interact without also discussing the space in which they can do this. Spatial sustainability is thus making spaces suitable for people to sense their community or environment (Pomeroy, 2012). Spatial sustainability is a key for the success of urban habitats in fostering a great sense of community and thus turns space in to place.

According to Peter Nijkamp, et.al (1996) spatial sustainability refers to an ecologically compatible spatial and socio-economic development in a spatial system. As they further elaborate it is all about achieving quality of life in the spatial system. It means that one development in a specific space should not jeopardize the interest of other land users now and in the future.

A spatial concept can be expressed in words and image based on an understanding of a planning or design issues and the actions necessary to address it (Leitao and Ahern, 2002). In the area of open spaces the spatial dimension of sustainability is the relationship between land use, ecosystem and biotopes. Land use planning is the optimized distribution of different functions in a limited space (ibid, 2002). And its main objective is to allocate land uses to meet the economic and social needs of the people while safeguarding future resources. An ecosystem is an interacting functional unit of plants, animals and micro organisms. The biotopes indicate the biological community and used in most cases interchangeably with habitat.

Definition relevant to this thesis: Spatial sustainability is making spaces suitable for people to sense their community or environment and thus turn space in to place.

3.4 Open space

Open spaces are a vital, valued and daily part of the urban environment. The fundamental importance of open spaces over and above sport and recreational use must be recognized in order to bring about a better quality of life in the built environment. Open space amenities create benefits not only for the enhancement of the quality of life of residential areas but also provide opportunities for recreational activities, improvement of health, ecological and environmental preservation as well as education. Furthermore, open space aids a sense of place while promoting social and community inclusion and sustainable development in residential developments. It is now increasingly recognized that green space or open space has environmental, social and economic benefits and is therefore an essential component of

sustainable development. Green space is aesthetically attractive and can provide valuable semi natural habitats of wildlife. It also provides ecological systems that absorb pollutants and rain water, mitigate flooding and provide shade and cooling (Warwick District Council, 2009).

3.4.1 Definition of Open space

Different terms and definitions are used to value and view open space and open space systems. Of the terms used: green space, open space or open areas and public areas are the very common ones. For general understanding and to explore a definition relevant to this thesis I will discuss the terms below:

3.4.1.1 Green Spaces

Kahalid (2008) defines open spaces as '*Any vegetated land or structure, water or geological feature within urban areas'*. On similar path, but in an articulated manner, the European Commission defines green space as, 'a network of 'green' elements, i.e. a physical infrastructure playing a role in water management, in the urban microclimate and in bio diversity'. Both the above definitions correlate the term with the urban context. Whereas the Warwick council incorporating the rural context defines it as 'aesthetically attractive and can provide valuable semi natural habitat of wild life interest with an urban and rural context' (Warwick District Council, 2009).

Green spaces could be natural or semi natural ecosystems of cities. In urban context they serve as a bridge between nature and the cities. These green spaces are mostly the continuation of landscapes around the city. Green spaces provides lots of benefits, such as ecological value, increase the societies quality of life, sustainability issues, increase property value of the built environment around them etc (Bilgili and Gökyer, 2012).

Green space can provide neutral territory where different groups of people can meet and play, so contributing to social inclusion. Through the opportunities it provides for peace, reflection and leisure activity, green space can also enhance physical and mental health. The proximity of green space also raises property values and can therefore provide a spur to regeneration. Green spaces therefore can serve a wide range of different functions and have a central role to play in addressing many of our current concerns: climate change, social cohesion, healthy lifestyles and regeneration (Warwick District Council, 2009).

Even though the depth of the definition, the terms included, and the context consideration varies all the above definitions argue that a green space is a space dominantly covered by green vegetations.

3.4.1.2 Open space /area

Ahern Jack (1991) defines open spaces as 'areas that are intentionally left un-built as fields and forests while the land around them is developed in to buildings and pavements'. Alabi Olyede Michael (2009) defines it as 'a vacant land, either built up on or developed as gardens and recreations grounds or underdeveloped land which has value for recreational purpose, amenity, conservation and other natural resources, historic or scenic landscapes or areas of outstanding natural beauty such as water bodies, valleys, hills, mountains' in an urban setting.

Enclosing the open spaces in neighbourhoods, Al Hagla Kahalid (2008) defines it as 'any un-built land within a boundary or designated envelope of a neighbourhood which provides or has the potential to provide environmental, social and /or economic benefits to communities'.

From the above scholars, open space in general can be classified in to four main types: urban parks, children's play areas, amenity open space and pitches or playing fields. In addition, open space is almost always regarded as vegetated, with little or no consideration given to hard surfaced urban squares, pedestrian streets and other civic spaces.

3.4.1.3 Public space /area

Public open spaces are un-built lands in the built environment for public use, access or visual or ecological reasons. It has a significant contribution for culture and quality of life. Besides it is the communities' green infrastructure asset, which contributes for the quality of the environment in its locality (Australian Institute of Landscape Architects, 2010).

Towards an Urban Renaissance, the final report of the United Kingdom's Urban Taskforce: defines public space as an outdoor room with in a neighbourhood accessible to all community members for sport and play as well as civic and political activities and walking and enjoying the outdoors, it includes streets, squares, parks, and less defined common spaces (Urban Taskforce, 1999).

Definition relevant to this thesis: - Open spaces are outdoor spaces in a neighbourhood accessible to all community members for playing, congregation, recreation and the likes.

3.4.2 Types of Open Spaces

Open spaces are classified according to their function, location, ecology, nature, level of use, level of intervention etc. The Ada County group depending on the level of intervention broadly classifies open spaces as natural and developed open spaces (Ada County, 2009). Kahalid (2008) depending on their nature divides the open spaces as green and grey spaces. Other scholars and groups depending on different criteria's have brought their classifications, but for this paper the following table is developed from categorizations set out by the Ada County group and Al Hagla Kahalid.

Type	Characteristic	Example
Natural Open space	Open Space consisting of natural, undisturbed landscape set aside for the purpose of preservation or conservation of natural resources, natural features or scenic/aesthetic values.	• native vegetation • geologic landforms • historic/cultural sites • water bodies /wetlands / riparian areas • wildlife habitat • hillside slopes • ridgelines • scenic buffer areas • agricultural land
Developed Open space	Open Space consisting of enhanced or developed landscape set aside for the purpose of active or passive recreation. This classification requires improvements necessary to accommodate and promote higher levels of use.	• Parks and Gardens • Children play area • Sport facility • Civic squares and plazas • Market places • Streets • Amenity green space

Table 3.1. Classification of open spaces:

Source: Ada County group, 2009 and Kahalid, 2008.

Park type	Size	Service Area	User	Possible facilities
Linear parkway	15-30 m	Linkage to other park types	All users and ability levels	Paved/ unpaved pat hways, landscaping, buffers f rom adjacent users.
Pocket park	4000 m^2	400m	Immediate neighbourhood, individuals, families, small group	Play ground equipment, Landscaping, surfaced courts, paved path ways, open play areas, benches, civic plaza
Neighbourhood parks	4000-24000m^2	1600 m	Neighbourhood or several clusters	Play ground equipment, Landscaping, surfaced courts, paved path ways, open play areas, benches, civic plaza, sport practice, picnic shelter, rest rooms, drinking water, public parks.
Community park	24,000-100,000 m^2	9000 m	Both neighbourhood and community, families, groups, sport teams, reservation /user fee options	Play ground equipment, Landscaping, surfaced courts, paved path ways, open play areas, benches, civic plaza, sport practice, picnic shelter, rest rooms, drinking water, public parks, ball fields, sport courts, pools, amphitheaters, multipurpose shelter.
Regional park	10 - 1,200 km^2	24-32 km	Serve the need of all persons within the service area, reservation / user fee options	Multi use facilities, multi active and passive facilities, benches, restrooms, drinking water, and public park.

Table 3.2. Classification of open spaces by facilities and users Vs. Area matrix

Source :Ada county group, 2009

3.4.3 Open Space Services

Open spaces are important providers of different goods and services, such as foods, fiber, recreation, soil for agriculture, water, building materials, flood control, prevention of soil erosion etc. These diverse services of open spaces are categorized as : direct beneficiary services (the direct consumption or use of resources, e.g. water for consumption and plants for fuel and food); and indirect beneficiary services (non-consumptive use of resources to provide a cost saving or benefit to urban residents, e.g. wetlands reduce flooding and trees provide shelter); option beneficiary services (resources protected for future use); and existence beneficiary services (the existence of un-spoilt landscapes) for a feeling of well-being, identity, sense of place and improve the overall quality of life (eThekwini municipality, 2002) .

Considering the different function entertained on the open spaces Fausold and Lilieholm (1996) classifies them in to four groups: regulation function (a service used to maintain quality of air, water, and soil), carrier function (provision of space for recreation, cultivation, and habitat services), production function (for the production of food, fiber, energy and genetic material), information function (providing opportunities for reflection, spiritual enrichment and cognitive development) .

Type	Service characteristics
Environmental	Gas regulation, microclimate regulation, disturbance regulation, water regulation, water storage and supply, erosion control, soil formation, nutrient cycling, waste treatment, pollination, biological control, habitat nature conservation, air and water purification, wind and noise filtering
Economical	production of food, fiber, energy and genetic material; wetlands reduce flooding and trees provide shelter;
Social	opportunities for reflection, spiritual enrichment and cognitive development; space for recreation; existence of un-spoilt landscapes for a feeling of well-being, identity, sense of place and improve the overall quality of life

Table 3.3. Table showing the different functional services of open spaces
Adapted from: eThekwini municipality, 2002 and Fausold and Lilieholm, 1996.

3.4.4 Valuing Open Spaces

It is morally wrong to value something by its nature is invaluable. One of the invaluable resources that we have is the open spaces. Open spaces always possess intangible values that may be calculated for it. Some of the intangible values as discussed by Rolsten (1998) are:

- Scientific value – understanding nature and how it came to be.
- Aesthetic value – appreciating the beauty of a natural feature independent of its utility.
- Genetic diversity value – maintaining the capacity to adapt to environmental changes.
- Historic value – understanding ourselves by understanding our natural heritage.
- Cultural symbolization value the contribution of geomorphic, faunal or floral features to our sense of identity.
- Character building value – the opportunity to test and learn one's limits and abilities.
- Stability and spontaneity values – Nature is both constant and infinitely variable.
- Dialectical value – the value that derives from overcoming oppositional forces.
- Spiritual value – the deep introspection inspired by wild lands and sanctuaries.

In the literature there are four main approaches to valuation of open space, each with its own interpretation of the variety of functions that open space provides. They are the economic approach, the development approach, the ethical or moral approach and the utilitarian approach, and are summarized below.

3.4.4.1 The Economic Approach

When seen in an economic lens open spaces provide different types of values to private and society at large. Open spaces are mainly considered as a 'non market' environmental resources. Valuing it in monetary terms is developed starting from 1970's, and nowadays there is a strong consideration of the environmental resources for public investment, management, and in regulatory decision making (Smith, 1993). However it is difficult to monetarize the whole values of the open spaces that they offer: including ecosystem, social, cultural and economic function, these services are often not incorporated in to economic valuation methods at all (Fausold and Lilieholm, 1996).

Of the various methods used for quantifying the economic or monetary benefits of open space includes market and enhancement value, production value, and natural system values (Fausold and Lilieholm, 1996). The market and enhancement value of open space is its real estate market value i.e. the cash price that an informed and willing buyer pays for it (Fausold and Lilieholm, 1996 ; Alabi, 2009). The production value is the production of goods and services

valued and exchanged in markets. In addition, direct and indirect production supports jobs and related income that are valuable to local, regional and national economy (ibid, 1996). Natural system values of the open space directly benefit the society. It is the support of the natural system of the open spaces for ground water recharge, climate moderation, flood control and storm water prevention, and air and water pollution abatement. The monetary system value of these supports could be calculated indirectly by the cost damage that could be occurred due to the availability of the natural system (Fausold and Lilieholm, 1996 and Alabi, 2009).

Generally speaking the nature of the economic approach is the value of open spaces that could be expressed in monetary terms. It is this aspect of the economic approach which is most problematic. It has inequality in what is valued and who the owner of these spaces is. From the sustainability dimension this approach mainly tends to the 'weak sustainability'. Instead of preserving it for future generation it tends to develop it. The taught here inclines development for intra and inter generation.

3.4.4.2 Development Approach

Preserving open spaces for future development is the development approach to value open spaces. Here it is the monetary benefits of development that are valued, it is an approach linked to economic approach and most often taken by developers and public entrepreneurs (Maruani and Choen, 2007). Real estate value of land for developers is increased by preserving the adjacent open spaces, which enhance the aesthetic appeal of the surrounding landscape (Babbit, 2005). In order to increase the real estate value of open spaces preservation is advocated in a development approach. However, it is more often that the economic benefit of developing open areas outweighs these considerations. Once already developed, the value of an area will depreciate over time, whereas a preserved open space value increases overtime (Fausold and Lilieholm, 1996). Although there has been some limited success in environmental pricing, there is an inherent difficulty in attempting to price environmental services such as biodiversity or habitat protection, and thus what is quantifiable, such as development, will almost always win-out (Schmidt, 2008).

This approach in the eye of sustainability seems the pragmatic middle view of Jenkins (2009). Jenkins states that there is a middle view between the strong and weak sustainability views. As he states the middle view proposes that we must sustain conditions for the ongoing debate over sustainability. Preserving open spaces for future developmental decision will give a chance for the debate on to what to sustain.

3.4.4.3 Ethical/ Moral approach

This approach views the intangible value of open spaces. It stretches from the concept that nature is to be exploited, to nature is to be used wisely, to nature has value independent of any utility to humans. The value of open space will increase when the ethical thought and ecological knowledge is advanced (Fausold and Lilieholm, 1996).It is also an approach that stands for the right to exist of non-human life forms such as animals, plants and other ecosystem components. It stands for the non-human life to be respected regardless of the services they provide to people (Maruani and Choen, 2007; Schmidt, 2008). Nash (1989), in his work on the right of nature and history of environmental ethics illustrates that the rights of nature are currently contested; in the future they will be normalized and accepted. Nash also stated that appreciation for intrinsic value of nature is a result of the advancement in the science of ecology. Similarly, Leopolds (1994) express his bio-centric view on "land ethic" that human beings are part of the environment, rather than separated from it. He acknowledges also that the entire biotic community is more important than any individual component, including humans (Fausold and Lilieholm, 1996).

In general terms the ethical /moral value approach is all about natural values are invaluable. Many Authors also argues that it is morally wrong to attempt to place a monetary value for it (Fausold and Lilieholm, 1996). This more eco-centric view of the environment urges a primary and deep respect for nature and ecosystem (Schmidt, 2008). This ideology raises strong challenge on the economic and developmental value systems of open spaces, as expressed above. Although the ethical/moral approach in urban planning and management is not widely used from its thought point of view, many components of the approach is accepted by many planners and it has relevance to the ways in which we approach open space planning. The non-human life should be respected approach in the sustainability arena clearly stands for the strong sustainability view. The rich biodiversity and natural beauty are very vital for human dignity.

3.4.4.4 Utilitarian Approach

The exclusive valuing of open space according to its benefits and services for the society is what we call the utilitarian approach (Schmidt, 2008). Of the values of this approach the natural system approach is the most obvious one. The natural system supports the ecosystem function with numerous direct and indirect benefits to the society, such as ground water recharge, climate moderation, flood control and storm damage prevention, and air and water pollution abatement. Even though it is difficult to assign a definite finite value to open spaces benefits and services as stated in the ethical approach, it can be argued that humans cannot survive without

them. When seen in the eye of these invaluable natures, the value of the open space is infinite (Fausold and Lilieholm, 1996).

The utilitarian approach views open spaces as service providers, and emphasize the need to conserve a basic level of open spaces in order to continue the provision of these benefits and services to the society (Maruani and Choen, 2007). But this tendency of the approach to preserve spaces that can be readily identified as having human utility, which has a connotation of disregarding other types of values and function of open spaces, is a dilemma. The preservation of the open spaces by default is preservation of the ecosystem, which implies protection. This is also the strong sustainability view on the open spaces.

3.4.6 Open space planning models

There are two prominent approaches for planning open spaces in general - the demand approach and the supply approach (Maruani and Choen, 2007). The demand approach mainly exercised by planners and geographers is a response about recreation, amenities and environmental quality need of the society. The demand approach relates the target population size, demographic variables, values and preferences, and residential distribution and density. The supply approach differs from the demand approach in that it gives priority to the conservation of open spaces for protecting existing landscape and natural values. This supply approach is mainly used by ecologists and conservationists. The conceptual expression of recreation and conservation function are the main differences of the demand and supply approaches, respectively (Maruani and Choen, 2007).

The knowledge accumulated through time and the experience gained in the planning of open spaces has brought different planning models in the arena of open space planning. The different planning models developed depend on the planners' attitude, experience, taught, and existing condition of the site. The models developed falls in one of the major two approaches expressed before (the demand and supply approach).

3.4.6.1 Opportunistic model

The open space resulting from opportunity rather than a systematic planning process is termed as opportunistic model. It also includes the space left over after planning, where parcels of land that were left after the different functions are allocated, such residual parcels are small, irregular, sometimes inaccessible for users, and poorly suited for open space uses. The first known parks given by the king of London for the society is one of best example of this approach (Maruani and Choen, 2007; Schenker, 1995).

This opportunistic approach may result both from the demand or supply oriented planning of open spaces, but it is not a systematic model by itself to insure an effective use of open spaces or to be used as planning principle.
In this model, sustainability in the open space development is expected to happen very spontaneous. It is by chance that the social, environmental and economic aspects are addressed by the open spaces. The model weakly resembles to Jerkins (2009) economic model of sustainability, which propose to sustain through opportunity, usually in the form of capital.

3.4.6.2 Space standards model

The guiding principle for this model is the quantitative relationship between the open space and their population. It is a popular planning model, which is usually expressed in terms of land area per person. This planning model was first introduced by Sir Raymod Unwin for allocating open spaces in the city of London at the turn of 20th century (Turner, 1992).

Space standard model is very easy to implement in the process of planning, as it is based on quantitative data only and does not require much understanding and incorporation of the complex social and ecological systems. For example, in 1944 Abercrombie suggested in his Greater London Plan an average standard of 10 acre per 1,000 inhabitants in residential neighbourhoods (Tardin and Costa, 2010). In order to entertain the social and ecological systems further elaboration and techniques were envisaged. The elaborative version of the model tries to address aspects of the society's needs and open space types, such as service range, minimal size, spatial distribution, residential densities and types of activities. However, there is still lack of addressing high quality landscape, heritage values, and potential ecological and environmental uses and benefits of a specific site (Maruani and Choen, 2007).
Here the economic and social aspects are addressed in a better way. But it lacks to deal with the environmental aspect in depth like that of the others. Even though the model reveals the absence of integrated social and ecological system it resembles to the Political model of sustainability of Jerkins (2009).

3.4.6.3 Park System model

A park system is a set of functionally interrelated open spaces, sometimes interconnected physically, in a given geographical area (Maruani and Choen, 2007). It includes local pocket gardens of limited function up to major urban parks which serves a large population. This planning model relates open space plans to the spatial distribution of neighbourhood units, this make it popular and a widely used planning model in open spaces planning process. This

approach begins towards the end of the 19th century. Similar to the spaces standard model the park system model does not protect natural landscape or ensure ecological and environmental benefits of open spaces, it mainly emphasizes the need of the society (Maruani and Choen, 2007).

The deep consideration of the society, which is one main pillar of sustainability, mainly match with the sustaining the cultural conditions needed to realize ecological personhood, civic identity, or even personal faith through ecological membership of Jerkins (2009) Political model of sustainability.

3.4.6.4 Garden City model

The garden city model was first introduced by Ebenezer Howard in the late 19th century. It was on the era of uncontrolled urban growth, where the overcrowding and unsanitary living was the major characteristics of emerging cities. Besides in the cities there was much social stress, high housing price and land speculation, air and water pollution, and lack of open spaces (Maruani and Choen, 2007; and Gossop, 2006). The garden city planning model is the one of the corner stone's in modern planning to alleviate the above said problems of the uncontrolled growing cities (Alexander, 1992). In general this planning model represents a comprehensive approach to urban planning, which considers open space as an integral part of development. Sustainability in this model is the core point. The open spaces are considered for the integral sustainable development purpose. Open spaces are considered here as a tool for sustainability.

3.4.6.5 Shape Related Model

The 'Green belt', 'Green heart', 'Green fingers', and 'Green ways' are the best known principles used in this planning model. It is the spatial arrangement of the built environment and other elements which defines the shape of open spaces. The green belt model was a response to the uncontrolled urban sprawl in the late 19th century. The main purpose of the green belt was to prevent expansion of cities and merging with small nearby settlements. In the contrary green heart is a planning model where the open spaces are encircled by the built environment. (Maruani and Choen, 2007; and Mekkes et.al, 2011)

The radial strips of open spaces that penetrate the built up area is the green finger model. In green finger the accessibility of open spaces from the inner core of the city is an extra advantage entertained. The green ways are linear shaped open spaces that usually found along roads, railways, or natural elements such as streams or ridges (Taylor, 1995).

The shape related model , as they did not need understanding of social or ecological process , as a whole are easy to apply based on maps and aerial photos. But there is a great believe in having open spaces in cities and protecting the rural environment, which tends to environmental sustainability dimension of sustainable development.

3.4.6.6 Landscape Model

Preserving highly valued landscapes, especially mountain escapes and views of streams and water ways near city centers is the main conceptual approach of the landscape planning model (Aelan, 1992). Similar to other models it was started in the late 19 th century. The scenic landscape, streams, and water ways in many instances are outside of highly populated areas, which make the application of the model limited. Recently there is a remarkable recognition given to rural areas as highly valued landscapes (Cook, 1991). This recognition is making the model more useful in the future as many rural open spaces areas are engulfed by urbanization. This model mainly corresponds with the ecological model of Jerkins (2009), which propose to sustain biological diversity and ecological integrity.

3.4.6.7 Ecological Determinism

Planning in ecological determinism starts by collecting and analyzing data's on the natural features of the intervention area. Planning by ecological determinism is determined by the natural characteristics of the land; it requires high level of expertise and experienced professionals. Once the area of ecologically valued are identified and preserved the rest of the land will be allocated for development. This planning model, even though it ensures the preservation of high environmental and ecosystem values of an area, is very expensive and complicated to implement. Similar to many models it does not consider the social and cultural values considerably (Hough, 1984). Like that of the landscape model this model totally corresponds with the ecological model of Jerkins (2009) sustainability.

3.4.7 The Role of Open Spaces for Sustainable Neighbourhood

Open spaces in neighbourhoods are very vital for its sustainability. They have a significant contribution for the achievement of the three pillars of sustainability. Open spaces enhance mental and physical health, helps for the amelioration of the environment, brings opportunities for social cohesion and inclusion, and has economic benefits to the communities. Open spaces are places for vegetation and parks also. As a land covered by vegetation they attract birds and other fauna, reduces storm water runoff, mitigate air pollution, reduce urban heat effect, make

the society feel comfortable and safe, and encourages shopping and sociability (Pincetl and Gearin, 2004).

Open spaces as explained above are one of the planning objectives under Amenity/ Quality of life issues in bringing sustainability. Open spaces are key elements in defining the quality of the residential environment. Apart from the direct provision of active and passive recreation, open spaces create sense of identity, community spirit, and improves the image of an area. Besides open spaces provides a space to meet, interact, exercise and relax; which intern have a positive impact on physical and mental health (Government of Ireland, 2009).

Kahalid, Al- Hagal (2008) have sated three roles that an open space play in the sustainability of neighbourhoods. The first one is space management; it is all about function and management of the open spaces. In this consideration human elements (like life style, sense of place, community participation), recycling (use of local and recycled materials, reducing inputs of non renewable resources, managing resources carefully) and environmental issues (like eliminating or reducing the use of herbicides and resources that affect other ecosystems and encouraging habitat creation and native planting) are listed as points to be considered for bringing sustainability using open spaces in a neighbourhood. Secondly, circulation of people and permeability mainly on the neighborhood road network has also its impact in bringing sustainability. This role concentrates on the reduction of car reliance, reduction of the need to travel - with the social benefits of increasing transport choice for all groups in the population, and enhancing local security and community. The third role expressed is the landscaping elements found or to be found in the neighborhood. Landscaping elements play a significant role in the development of sustainability. Landscaping elements helps to bring sense of place, to keep the distinctive character of the open spaces, to reduce the consumption of natural resources and energy, and maximizes resilience and dynamic stability in the landscape in such a way that each element fulfils several functions and each function is undertaken by several elements. Besides they create place for the interaction of the community with the environment and the community for themselves.

3.4.8 Open Space Sustainability parameters

To develop an open space sustainability parameter (checklist) in a neighbourhood Kahalid (2008) has followed three steps. The first is determining the type of open space under study. Determine the type will lead to what the goals will be, as each type of open space has its own purpose. Thirdly, from the goals established for the specific type of open space, the objectives to be attained in the goals will be derived.

3.4.8.1 Type of open space determination

The type of open space is determined based on its nature and size Kahalid (2008). For example the type of open space under study is a pocket park type of the Ada County (2009). Here possible facilities like play ground equipments, vegetation, surfaced courts, paved path ways, open play areas, benches, and civic plazas are components of the pocket park open space. Pocket parks are urban open spaces designed on a small scale. These mini-parks provide a safe and inviting environment for surrounding local population. Ideally, pocket parks are closely tied into the neighborhoods they serve. They also meet a variety of needs and functions including: small event space, play areas for children, spaces for relaxing or meeting friends, taking lunch breaks, etc. The benefits of these unique urban spaces according to Blake (2013) often include one or several of the following:

- Benefit the overall ecology of the surrounding environment
- Help protect and conserve local wildlife, landscape, and heritage
- Reduce pollution, traffic, and consumption of resources such as oil
- Empower local residents to make decisions that affect their community
- Make communities safer and more sociable
- Improve fitness and health
- Regenerate run-down areas
- Reinforce relationships between local authorities and communities

Though pocket parks do vary according to their specific purposes and locations, there are numerous characteristics that most have in common. Users of pocket parks should not have to walk more than 5 to 10 minutes to reach their destination. Parking may or may not be provided and parks should be accessible by both foot and bike. Ideally, they should not require the use of a car. Parks should serve a resident population of approximately 500 up to 1,000 persons and should strive to accommodate as many different users as possible. Successful pocket parks have four key qualities: they are accessible; allow people to engage in activities; are comfortable spaces and have a good image; and finally, are sociable places: one where people meet each other and take people to when they come to visit. According to Olmos (2008) parks may have one or several of the following features:

- Flowers or trees
- Seating for adults
- Play space and/or equipment for children
- Gazebos or similar shade structures

- Picnic tables
- Signage and security lighting

As Pocket Parks Research Brief, Kronkosky Charitable Foundation (2009) states to ensure maximum safety and security, pocket parks should be designed so that they comply with the following criteria:

- Active, frequent use
- Regular maintenance
- Heavy pedestrian traffic
- Opportunities for recreational activities
- Community groups and stewardship initiatives
- Formal or informal surveillance(supervision)
- Access to help if needed (telephones)
- Proper signage and park information
- Ample lighting

3.4.8.2 Sustainability goals and objectives

Goals

The goal of sustainability is very clearly stated in the definition of WCED (1987): meeting the demands of the present generation without compromising the future generation to meet their needs. As being stated above on sustainability and sustainable development discourse, the integral achievement of the three pillars is sustainability. Development to be said sustainable should be environmentally sound, socially equitable, and economically feasible. This implies that goals of sustainability should originate from the pillars of sustainability. Below are the goals of open space development scanned by the pillars.

NO	PILLARS	GOALS
1	Environmental	❖ Reduction of carbon gas emission ❖ Closing local resource loop (reduction of non renewable resource utilization) ❖ Enhancing local environment and reduction of environmental health hazard. ❖ Creation of healthy and safer environment.
2	Economical	❖ Local work opportunity ❖ Enhancing the value of local community ❖ Increasing local self-determination

3	Social	❖ Increasing street safety ❖ Increasing accessibility and freedom of choice ❖ Equity and social inclusion

Table 3.4. Goals of Sustainability

Adapted from: Ada county (2009) and Kahalid (2008)

Objectives

Objectives are derivates of goals for the achievement of the goals. The table below shows the objectives for the open space sustainability.

GOALS	OBJECTIVES
Reduction of Carbon gas emission	❖ Reduce the need to travel ❖ Reduce car reliance ❖ Increase energy efficiency in buildings
Closing Local resource loops	❖ Reduce demand for non renewable resources ❖ Reuse and recycling of resources locally ❖ Local water sourcing, treatment, and aquifer ❖ Local low input food production
Enhancing local environment and reduction of environmental health	❖ Promote local distinctiveness and heritage ❖ Create an attractive public realm ❖ Enhance local habitat diversity ❖ Improve local air quality ❖ Promote an active life style ❖ Encourage consumption of fresh fruits and vegetables
Increasing street safety	❖ Reduce the chance of vehicles / pedestrian accident ❖ Reduce the fear of violence
Increase accessibility and freedom of choice	❖ Choice of transport mode for trips ❖ More facilities accessible locally
Equity and social inclusion	❖ Choice of facilities with easy walking distance ❖ Viability of public transport
Local work opportunity	❖ Accessible jobs for those tied to the locality ❖ Reduce transport emission

Enhancing the value of local community	❖ Facilitate accessible social network ❖ Promote mental health
Increasing local self-determination	❖ Increase user / citizen control ❖ Management of decentralize system

Table 3.5. Objectives of Sustainability

Adapted from: Ada county (2009) and Kahalid (2008)

3.4.8.3 Checklist Development

The open space sustainability parameters checklist is developed by overlapping the goals, objectives, and type of open space as follows:

Goals	Objectives	Pocket Park Evaluating Matrix
Reduction of Carbon gas emission	❖ Reduce the need to travel ❖ Reduce car reliance	
Closing Local resource loops	❖ Local water sourcing, treatment, and aquifer ❖ Local low input food production	
Enhancing local environment and reduction of environmental health	❖ Promote local distinctiveness and heritage ❖ Create an attractive public realm ❖ Enhance local habitat diversity ❖ Improve local air quality ❖ Promote an active life style ❖ Encourage consumption of fresh fruits and vegetables	

Increasing street safety	❖ Reduce the chance of vehicles / pedestrian accident ❖ Reduce the fear of violence	
Increase accessibility and freedom of choice	❖ More facilities accessible locally	
Equity and social inclusion	❖ Choice of facilities with easy walking distance	
Local work opportunity	❖ Accessible jobs for those tied to the locality ❖ Reduce transport emission	
Enhancing the value of local community	❖ Facilitate accessible social network ❖ Promote mental health	
	❖	

Table 3.6. Checklist for Neighbourhood Open space spatial sustainability

CHAPTER FOUR

Contextual Background

Chapter Four
Contextual Background

4.1 Introduction

Addis Ababa, one of the big cities of Africa, is the capital city of Ethiopia, the seat of the African Union (AU) and the United Nations Economic Commissions for Africa (UNECA). It constitutes 22.9% of the national urban population (CSA, 2007) and 80% of the city's population lives in what is believed as slum (UN Habitat, 2006). Un-employment rate of the city is 40-50% is without fixed employment (ibid, 2006). Addis Ababa is a chartered city: having three layers of government; city government at the top, 10 Sub-city administrations, and 28 Woreda administrative units at the bottom.

Addis Ababa was founded at the end of 19th century by emperor Menelik and his wife empress Tiatu. The city is located almost at the geographical centre of Ethiopia (8º55′–9º05′N and 38º40′–38º50′E). The municipal boundary is estimated to enclose a total area of 540 km², of which 18.2 km² are considered to be rural (Yirgalem, 2007). Situated at the foothills to the south-east of Entoto Mountain, the physical landscape of Addis Ababa is characterized by rugged topography in the northern and central part of the city while the southern part is predominantly flat. The altitude of the city ranges between 2,200 m in the south-east to 3,000 m above mean sea level in the north. Due to the influence of altitude, Addis Ababa experiences lower temperatures than might be expected in tropical Africa: the annual maximum and minimum temperatures average 26ºC and 6ºC respectively (Yirgalem, 2007).

Following the feudal – oriented system (1880 – Italian invasion 1930) the city has undergone in three different governments ideologies:

1. Capitalist oriented ideology (1930 – 1974)
2. Marxist oriented ideology (1974 – 1991)
3. Free market oriented ideology (1991- to date)

During the two earlier regimes six master plans were developed, but the implementation and the attitude towards planned settlement was not satisfactory. In the third regimes, the seventh revised master plan is developed in 2003 and it is the legal frame work of the city till today (Yirgalem, 2007).

While studying the current condition of open spaces in the new neigbourhoods of Addis Ababa, there are some important points to be mentioned. These include; the city's early urban development pattern and the different urban planning practices that had been playing a

fundamental role in guiding its urban development. As a Consequence, discussing these factors in brief might help to have a general insight about the provision, growth and development of open spaces in Addis Ababa since the establishment of the city.

4.2 Historical Open Space Development in Addis Ababa

4.2.1 Open spaces during the city establishment

The establishment and growth of Addis Ababa has been debatable as to whether it is a spontaneous settlement (Kumlachew, 2007) or the outcome of careful planning by Emperor Menelik II (Yirgalem, 2007). The initial area chosen for establishment was on top of Entoto Mountain in 1878, a mountain found on the northern part of today's city (Kumlachew, 2007). There he built two churches and a palace on top of Entoto. But due to the rugged topography and extremely cold climate discourages the king to live and moves south wards to Finfine. This place of settlement was mainly chosen by Empress Taitu (wife of Menelik II). The empress was very much attracted by the suitable climate and the hot spring of Finfine. Consequently the first house was constructed near to the hot spring water (Kumlachew, 2007; Yirgalem, 2007; Dirk and Elias, 2012).

The general organization of the settlement was three institutional nodes and many 'sefers' (neighbourhood like camp). The institutions were the castle of the King (Ghibbi), the church (Saint George Church), and the large open market called Arada. The 'sefers' were established by the allotted plots of lands to the king's major chiefs. Between the 'sefers' there were considerable distances to avoid possible conflicts, which intern gives a chance for the residents to have their own open green spaces for their day to day activities (Yirgalem, 2007; Mikiyas, 2011).

Kings castle (Ghibbi):-the grand palace has a very huge open space compound. This open spaces serves for different purposes, mainly for feeding all people weekly and occasionally (it is called Geeber).

Saint George church:- the church had its own big open space outside. In this space the worshippers gather for different religious events like Meskel (the founding of the true cross).

Arada Market: - it is a very big open market. Besides as a market place it also serves the people for different public activity. It can be said that it was the only public space in the era.

It is unarguable that these open public spaces played a fundamental role in the early development of Addis Ababa. However, the quality of their physical and spatial development in terms of urban space was very poor (Yirgalem, 2007).

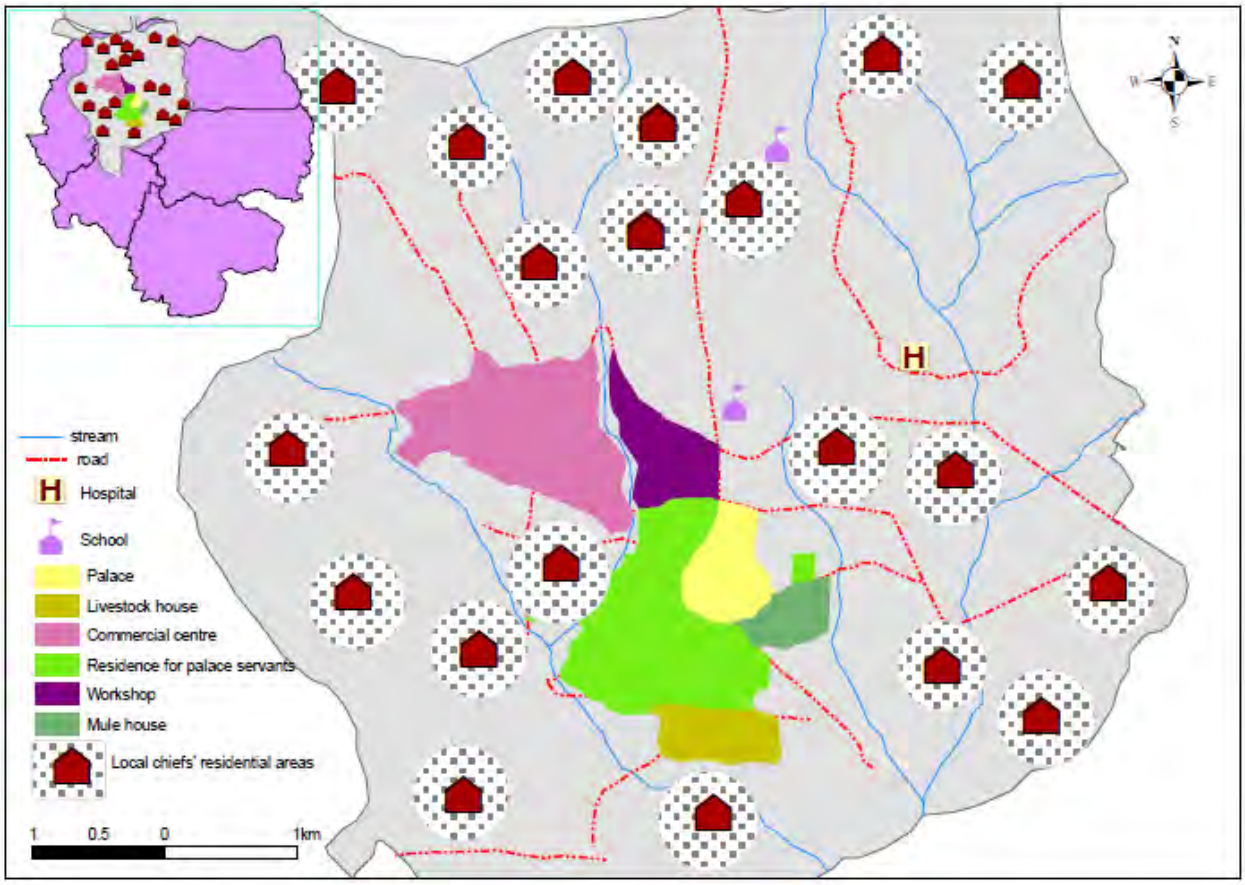

Fig 4.2. Early settlement of Addis Ababa: Source Yirgalem, 2007

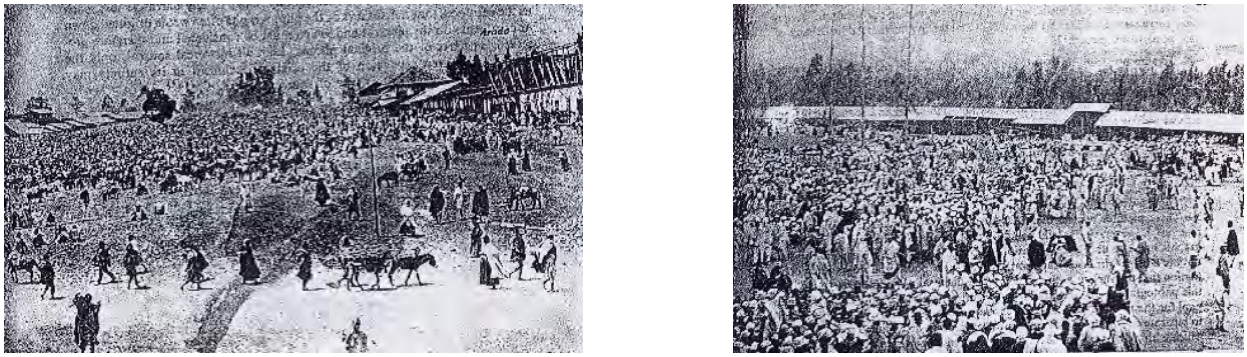

Fig 4.3. Early settlement of Addis Ababa Left side Arada market, right side Gihibbi

Source: Kumlachew, 2007

4.2.2 The city open spaces after master plan development

4.2.2.1 Capitalist Oriented Government

Even though the city has established its own civil administration starting from 1907 it did not have a master plan until the Italian invasion (1936-1941). During the early months of their invasion the Italians had a strong intention to make the city modern that can accommodate 250,000 European populations. Besides they have had a vision to make the city the capital of all the lands they concurred in the East Africa (Kumlachew, 2007).

Based on their ambitions the Italians had prepared the first master plan to the city of Addis Ababa. The master plan was proposed by the famous French Architect Le-Corbusier, who was assigned directly by Mussolini. Le- Corbusier had prepared a guide line sketch type proposal only by observing the city from the air. His attitude was to make the city as a monument structure. On his sketch public open spaces and green areas were considered well. But due to absence of consideration of the topography of the city it was not accepted (Yirgalem, 2007; Kumlachew, 2007; Mikiyas, 2011).

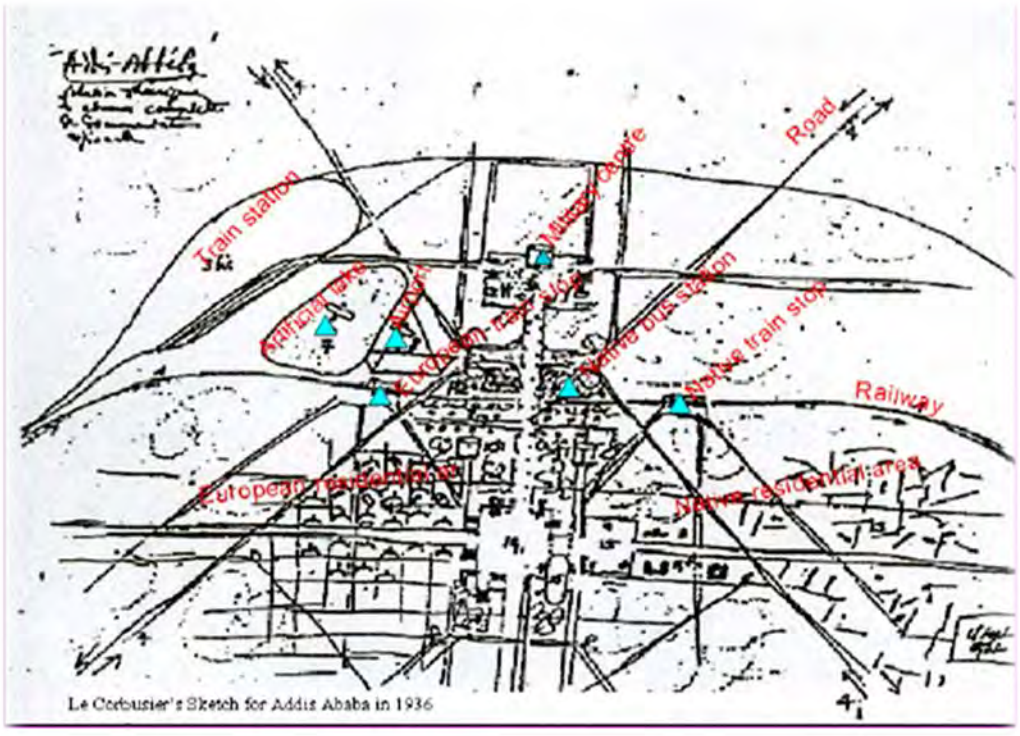

Fig 4.4. A Le Corbusier Sketch for Addis Ababa in 1936

Source : Yirgalem, 2007

The second and accepted master plan for the city of Addis Ababa was prepared by I.Guidi and C.Vale. Their proposal was the first one in the history of the city used to structure it in a modern manner. Modernist idea of making the city a garden city was the core of the proposal. The proposal clearly segregates the different functions on the city and separates the residence area of the local dwellers from foreigners. Regarding open spaces, public open spaces with strong monumental character and landscapes were introduced in the proposal. Green areas were also part of the master plan mainly on the separation of the residences. Despite all the efforts exhausted by the planners to make the city modern only a small portion is implemented. The gridiron plan for Addis Ketema and two axes (Arada to railway station and political axis east of Arada) are ruminants left till today (Yirgalem, 2007; Kumlachew, 2007).

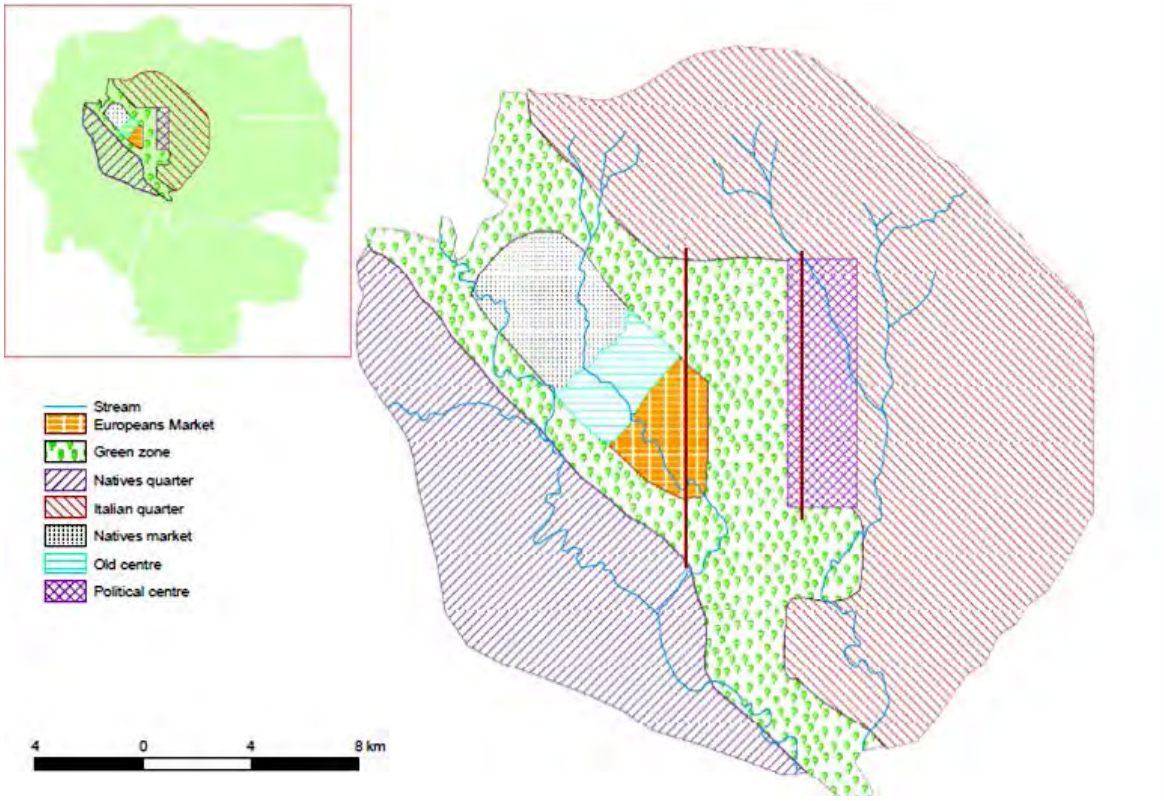

Fig 4.5. Proposal of I.Guidi and C.Vale in 1938
Source: Yirgalem,2007

After the Italian defeat in 1941 the second master plan was prepared by Patrick Abercrombie, a planner from great London invited by emperor Haileselassie. Abercrombie's proposal was prepared on the basis of four objectives: introducing arterial roads, controlling the land use, preservation of open spaces, and the development of neighbourhood units. Even though because of his death before the preparation of the detail plans, green park way around

neighbourhood units were components of his proposals. Besides satellite cities to accommodate population ex ceeding t he m aximum l imit (460,000) w ere al so p roposed on hi s m aster pl an (Yirgalem, 2007; Kumlachew, 2007).

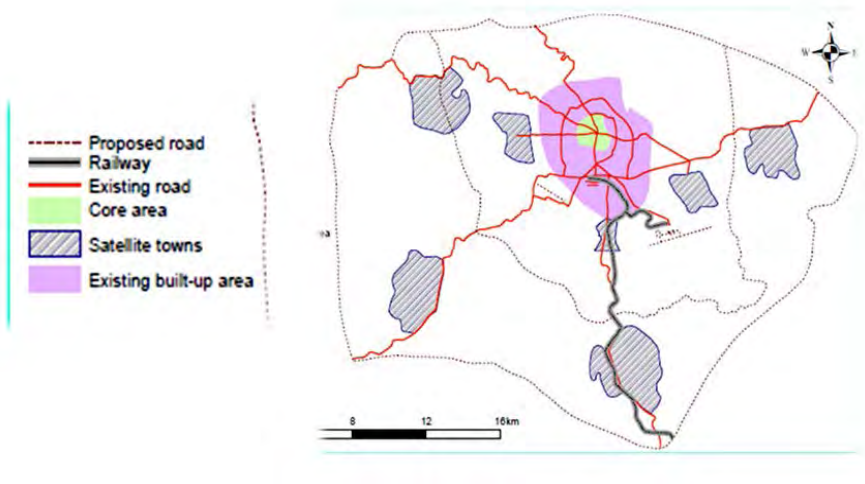

Fig4.6.Proposed satellite cities of Abercrombie

Source: Yirgalem,2007

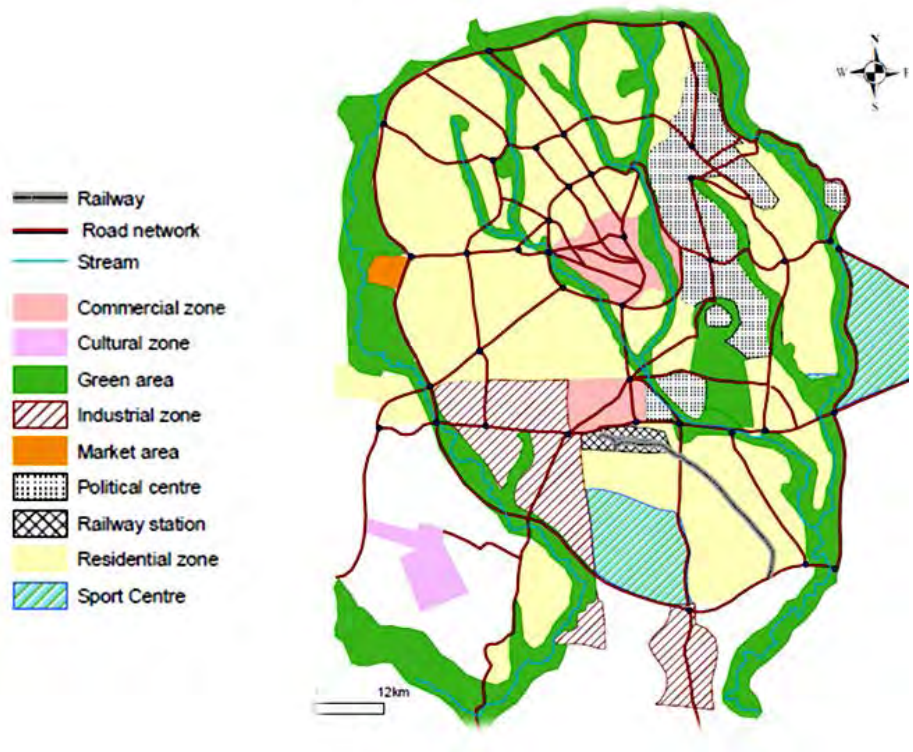

Fig 4.7. Abercrombie's Proposal 1954

Source: Yirgalem,2007

In 1959 Bolton Hennessy and partners (British consultants) had prepared the third master plan of Addis Ababa. The main assignment of the consultant was to revise Abercrombie's proposal, specifically to elaborate the proposed master plan for greater population (i.e. more on the satellite cities proposed). Due to the target this master plan did not contribute a noticeable work on the open spaces of the city (Kumlachew, 2007).

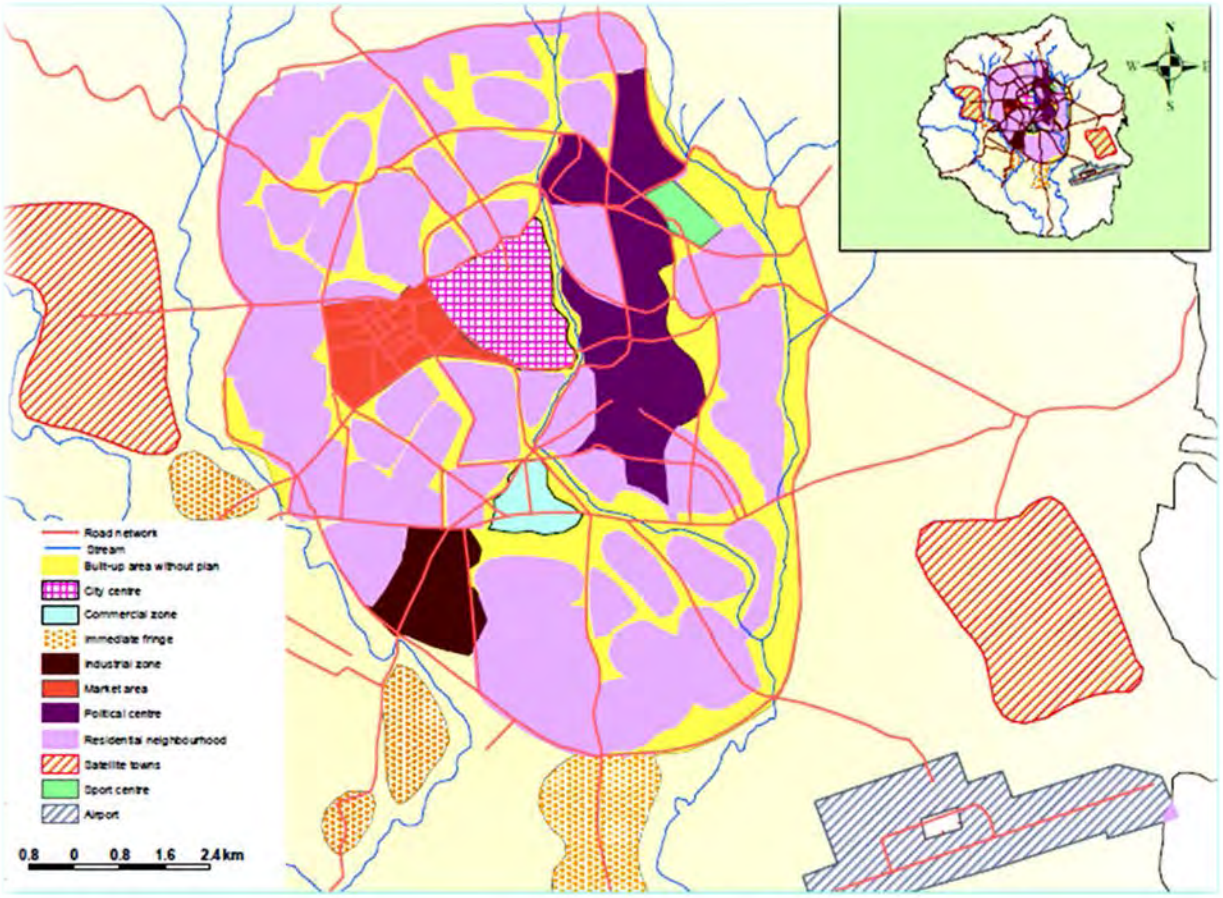

Fig 4.8. The growth of Addis Ababa after Hennessy and partners revised master plan
Source: Yirgalem, 2007

A proposal focused on the Arada center and the Churchill road was the fourth master plan prepared by the French mission for urban studies and habitat led by L. De Marien in 1965. In the master plan sub centers, new university sites, wide ring roads based on the previous master plan, and better water and sewerage network were proposals included in the master plan. The contribution of the proposal to the development of public open spaces was too little to be said. Due to the change of political system in the country its implementation was too little (Yirgalem, 2007, Kumlachew, 2007, and Mikiyas, 2011).

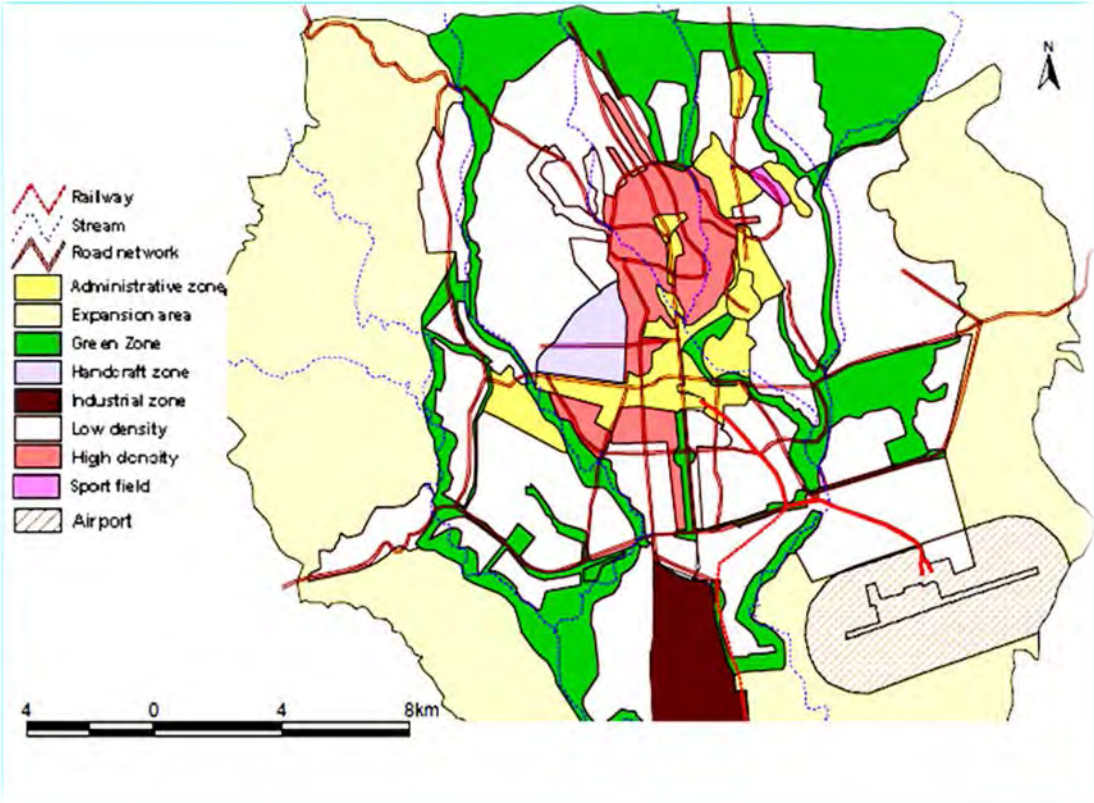

Fig 4.9. Proposal of L. De Marien 1966-1974

Source: Yirgalem Mahiteme,2007

4.2.2.2 Socialist Oriented Government

In 1974 the political system of the country is changed from the Kingship leadership to a socialist government called 'Derge'. On this new political system two master plans were proposed for the city of Addis Ababa. The first, which is the fifth for the city, was prepared by a Hungarian planning professor called C.K Polanyi in collaboration with the ministry of urban development Bureau (MUDB) of the ruling government. The focus of Polanyi's proposal was on two major points; linking the city with other towns and rural areas, and developing the city's central areas. With regard to open spaces the proposal had develop a public square on the former Meskel square of the city . This public square was the first one for the city to be developed in a modern style, and the square was named 'Abiyot Adebabay' meaning Revolutionary Square. The square besides its political purposes (political gathering, a forum for communist political leaders to address the public and show their military pride) it is also used for different public uses on the day to day life of the people (Yirgalem, 2007; Kumlachew, 2007; Mikiyas, 2011).

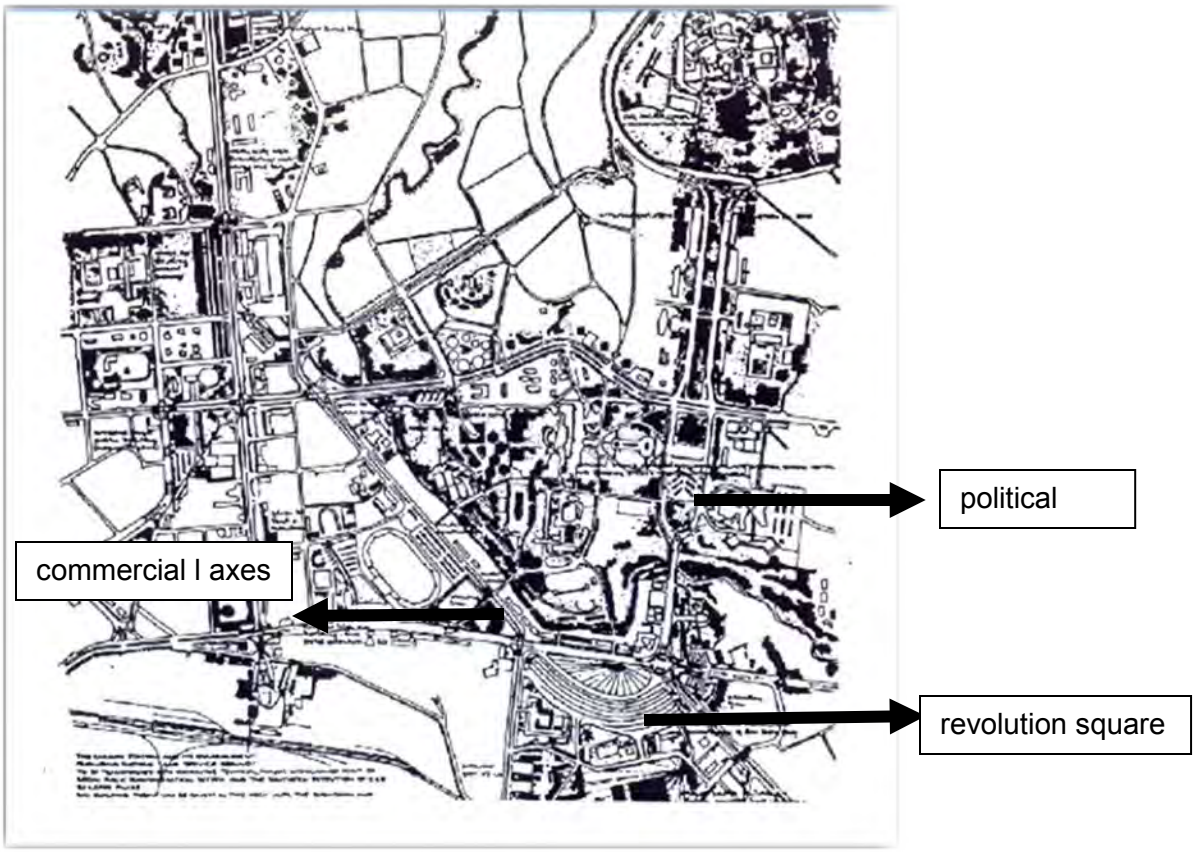

Fig 4.10. Addis Ababa city centre, by C.K. polonyi, 1978. The 'Abiot Adebaby (revolution square) is designed with its emphasized link to the commercial and political axes
Source: Kumlachew, 2007

In 1986, the second for the government and the six for the city, a master plan was prepared by the Addis Ababa master plan project office. The project office was established by Italo-Ethiopia cooperation. The c ooperation t eam w as c omposed o f 75 I talian's and 45 E thiopian professionals. The focus of the proposal was on the new large residential sites on the outskirts of t he c ity. A s t he ba ck g round study s tates o pen s paces and t ress a re c onsidered a v ery important elements in developing a green city. This back ground study was implemented on the proposal by protecting green areas along rivers, introducing avenue trees, and preserving wood lands of the city. The master plan was introduced in 1994. But it can be said that none of proposal on open s paces were implemented (Kumlachew, 2007; Mikiyas, 2011; Dirk and Elias, 2012).

4.2.2.2 Free market Oriented Government

The seventh and the current master plan (even though it is under revision by now) are prepared after t he c hange i n t he pol itical s ystem o f t he c ountry from s ocialist phi losophy t o m arket economy by E PRDF (Ethiopian P eople's R evolutionary D emocratic Fr ont) in 1994. The c ity administration has initiated a revision in 1994, and the revision was started in 1998 by Ethiopian professionals in collaboration with German's. The vision of the revision was to produce a structure plan that can accommodate the progressive change of scale of the city and defining the growth direction and setup of the city. Regarding open spaces one of the main components of the master plan is the consideration of social and municipal services. This deals with making the city's open public spaces equitably distributed, and making services affordable. In order to bring such proposal on the ground the revision has introduced a new type of implementation tool called Local Development Plan (LDP). However absence of general policy guide line coupled with capacity and financial limitations, the implementation is not satisfactory. Currently it can be s aid t hat LD P's are f ailed i n br inging the ur ban q uality t hey a re i ntended t o br ing (Kumlachew, 2007; Dirk and Elias, 2012).

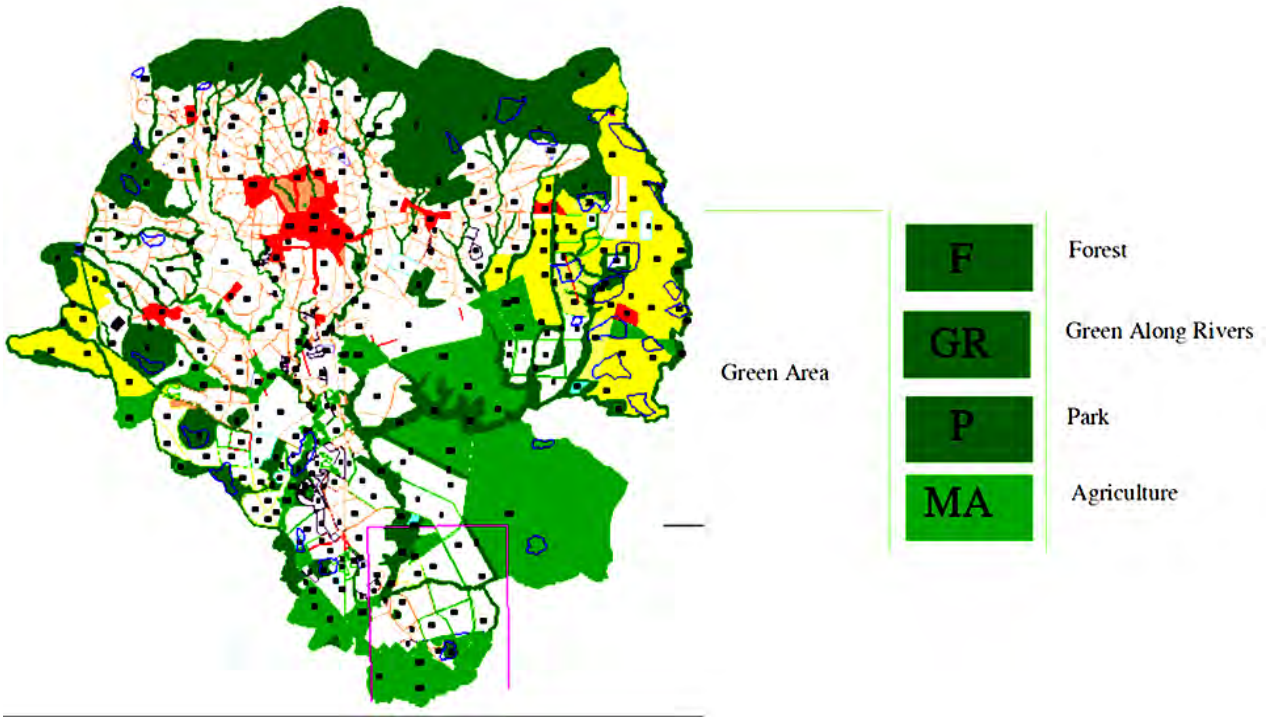

Fig 4.11.Current status of Addis Ababa city:
Source: ORAAMP, 2003

Year		City plans	Open spaces
Feudal oriented	1878	The city is established by Emperor Menillke	
	1900	The first civil administration of Addis Ababa city is established by Emperor Hailesilassie	
Italian Invasion	1936	The first plan proposed by Le-Corbusier	A sketch done based on air side visit of the city(not implemented)
	1938	I. Guidi and C. Vale proposal	Garden city model, intended to make the city green
Capitalist oriented	1954	Abercrombie's Proposal	Preservation of open spaces and introduction of green parkways around neighbourhoods
	1959	Hennessy and partners proposal	No noticeable work on open spaces
	1965	L. De Marien Proposal	Little work on sub city open spaces
Socialist oriented	1978	CK Polny in Collaboration with Ethiopian MUDB proposal	Public square: Abiyot Adebabay(Revolutionary square)
	1986	Italo Ethiopian Cooperation team proposal	Protecting greens and development of green city by providing open spaces and trees
Free market	2002	Ethiopian's with German cooperation proposal	The first open space to person ratio is proposed
	Current status		Open space deterioration and emerging condominium open spaces.

Table 4.1. Time line of Addis Ababa open space development

4.2.3 Current Status of Open Spaces in Addis Ababa

In Ethiopia, the urbanization phenomenon has brought environmental problems in most urban centers, including Addis Ababa. Among the main environmental problems the degradation of open green areas are worth mentioning. The urban green areas are consumed by industrial,

commercial, residential, infrastructural developments, and spontaneous and illegal settlements (Mpofu, 2013).

The disappearance and extreme pressure on green/open areas of Addis Ababa is destroying the scenic beauty of its landscape; and decreases the ability of green areas to perform their basic ecological, social and economic function; thereby increasing unsustainable urban growth of the city (Mpofu, 2013). Most of the social gatherings and children are forced to use the circulation roads; which intern disturbs the transportation system and the safety of children. Besides, it forces the youth to find a playing field out of their neighbourhood, which is difficult for their parents to control.

Ethiopia after the Rio-Summit held in Brazil in 1992, have tried to address the environmental deterioration in many regards. The first and major decision is putting an article (Article 44) on the country's constitution in 1995. The article clearly states that the people of Ethiopia have the right to live in a healthy environment. Following the article the country establishes Environmental Protection Authority (EPA) in the same year. The environmental policy of the country was also developed after two years in 1997 (Mpofu, 2013).

In Addis Ababa, to improve the environmental degradation following the above decisional move a remarkable work was done on the master plan revision held on 2003. In the master plan out of the 54,000 hectares of the city 22,000 hectares or 41% was assigned for greenery purposes. And besides, Greening and Beautification office is established. But, the difficulties encountered on determining the ownership rights of several pieces of land by city's land administration have brought problems for new Greening and Beautification Office in implementing the Development plan. This in turn obscures the implementation on the ground, the vivid intention seen on the Development plan on open spaces (Mpofu, 2013; Mikiyas, 2011).

4.3 Institutional Frame work

As stated earlier, to insure the implementation of the green areas in the Development plan the city government has established Sanitation, Beautification, and Parks Development Agency in 2002. After two years due to lack of focus and negligence on parks and green area, and due to the critical sanitation problem of the city, the sanitation part of the agency is segregated and a new one called Beautification, Park, and Cemetery Development and Administration Agency (BPCDAA) is established by Proclamation number 35/2004 of the city government. The established agency has received the power of developing and administering green areas, parks,

and cemeteries of the city. Some of the powers and functions of the Agency stated on the proclamation are:

- Develop, administer, and control, recreation places, zoos, cemetery, and river banks under the ownership of the city government in accordance with the city plan.
- Develop closed parks, open green areas identified for park purpose, festival and plaza squares, river banks, and cemetery; contract out the administration of the above places to voluntary developing investors; follow up; control the service delivery in accordance with the contract; take back their possession on lapse of the contract period.
- Prepare regulations, consistent with the policies, strategies, programs and laws issued by Federal Government, that are related to the development of recreation centers, cemetery, residence areas and green areas on the bank rivers. In addition to this, prepare and issue directives, standards and manuals.
- Install and implement procedures of follow up and control in relation to the development, preservation, care and use of cemeteries, recreation centers, residence and green areas on the banks of rivers, and squares in cooperation with concerned bodies to improve the service delivery.
- Provide education to service beneficiaries to protect the developed places.
- Prepare design of recreation centers, cemeteries, and squares; dividing road lines; if necessary contracting out their development works; and follow up and control construction works in accordance with the contract.

Regarding the management structure, the agency is established under the city manager on the municipal service organogram diagram below. To implement the goals and objectives of the agency on the ground Beautification, Parks, and Cemetery Development and Administration Office at Sub-city level and a case team at Woreda level are established.

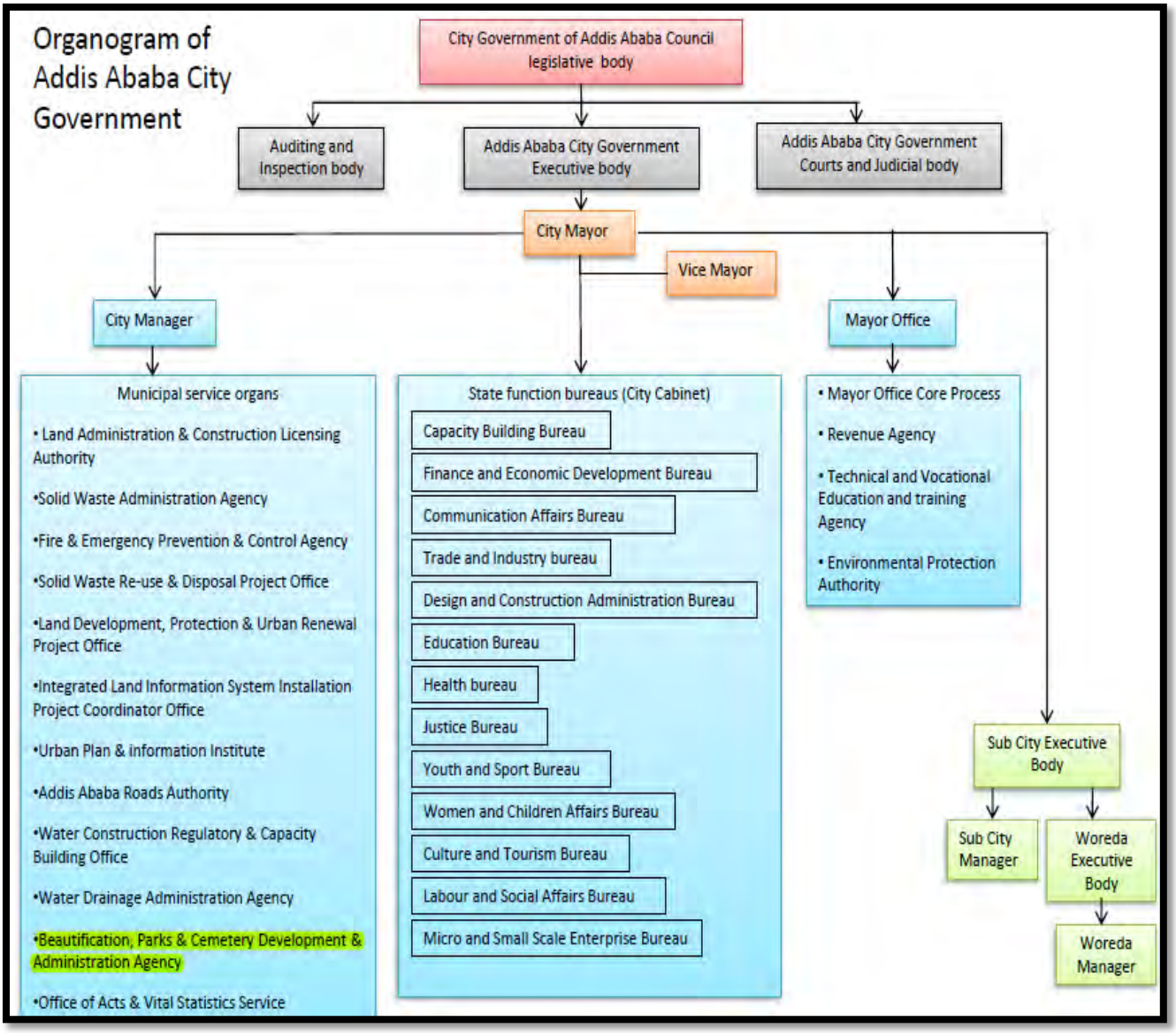

Fig 4.12. Organogram of Addis Ababa city administration

Source: www. addisababcity.gov.et

4.3.1 Policy

Public policy seeks to achieve a desired goal that is considered to be in the best interest of all members of society (Torjman, 2005). BPCDAA, even the country itself, did not have policy regarding open spaces. The relevant policy that the country has is only environmental policy. Besides, according to the officials at the agency, it does not have an approved rule and regulation to perform its duties and responsibilities. There are also no implementation guidelines

and technical manuals produced. It is the absence of recognition of open space benefits that is responsible for all this. The institution has got recognition recently, mainly before two years.

4.3.2 Socio-Economic condition

Social Aspect: The agency, according to the proclamation has a responsibility to work with other government or ganizations, non government organizations, pr ivate s ectors and the l ikes. Currently due to the absence of approved rules and regulation and other binding guidelines they are working on the development of governmentally owned parks, road side parks, and the likes.

Economic Aspect: Until the previous two years the budget allocated for the Agency is not more than the salary of the employees. This had hindered the progressive development of the agency. On these two years a large amount of money has been allocated for the agency. The agency besides its allocated budget it generates some modest revenue from out sourced open spaces and parks. The out sourcing not only helps as income to the agency but it also creates employment opportunities for the public.

4.3.3 Actors, Approaches, and Processes

The main actors stated in the agency proclamation for the development process, especially in green open a reas, ar e g overnment or ganizations, non government organizations, pr ivate sectors, and i ndividuals. I n t he d raft r ule a nd r egulation o f the a gency i ndividuals ar e responsible to develop their frontage.

As t he dev elopment and adm inistration o f ope n ar eas i s new t o t he c ountry t he appr oach developed by the Agency for implementation is supportive approach. The Agency has designed to s upport the di fferent stakeholders by pr oviding p rofessionals and di fferent materials for the development and administration of open spaces.

To familiarize the objective and goals of the agency different forums are undertaken for different stakeholders. On the new neighbourhoods, even though implementation guide lines and technical m anuals ar e not pr oduced yet, t he aw areness pr ocess i s started. D ifferent condominium associations and individuals are part of the awareness process.

4.3.4 Challenges

The Agency often encountered a number of challenges and limitations that made it difficult to achieve their goals and objectives. These included institutional, social, and financial/economic constraints.

Institutional Constraints: The Agency is experiencing delays in land delivery from the Land Administration Authority of Addis Ababa. This was due to the difficulty the City's Land Administration Authority had in determining the ownership rights of several pieces of land within the municipality. The absence of guide-lines and technical manuals had also hindered especially the development of open spaces.

The other major constraint of the institution is a high staff turnover of professional workers who left for more paying jobs. This affects' the capacity of the agency to cover and work all its duties and responsibilities over the whole city.

Social Constraints: The coordination between the agency, Sub-city offices and Woreda case teams is weak in the development process of open spaces. As stated above, due to lack of guide lines and manuals the private sector participation is also very much limited. Private sectors are majorly limited to the development of street parks.

Financial/economic Constraints: The inefficient use of financial resources is one of the major constraints in park development and management of green areas. The budget allocated to the agency for investment purposes to enhance and upgrade parks, green areas and cemetery development was hardly ever fully utilized. The agency had failed to use the allocated budget earlier times, but nowadays there is a remarkable progress in the utilization of the allocated budget.

CHAPTER FIVE

Case Study

Data, Analysis, and Findings

Chapter Five

CASE STUDY

5.1 Background study

5.1.1 The Grand Housing Program of Addis Ababa

The Grand Housing Development Program of Addis Ababa is aimed to bridge the existing housing backlog of 350,000 units by constructing up to 50,000 housing units each year. This program is intended to build 250,000 housing units within five years time (Lealem, 2008). The program is designed to envisage with two issues of the city. The first is affordability: in this regard the mass housing system, the modular system, and the subsidy of the government has played great role in reducing the cost of construction and increasing the employment opportunities. The second is land saving: due to the population inflation of the city land available for housing projects is becoming scares. To address this, vertical growth with multi story condominium houses is introduced.

To build the desired housing units the housing development has undergone many different processes:

Design

The design of the housing units has been done by Addis Ababa Housing Development Program Office (AAHDPO) and its private partners (consulting firms). The design proposals were based on the logic that because the houses themselves could not be of such fine quality because of the low-cost nature of the project, ample outdoor green space had to be provided onsite to make residents feel proud of their surroundings and remove the stigma of housing for the poor (UN-HABITAT, 2011).

Different typologies have been produced considering an ideal flat land as a site. These typologies integrate studio, one-bedroom, two-bed room, and three-bed room types in their internal subdivisions. Most of the designs are 3 to 5 storey building typologies and in there LDP they accommodate 54 to 380 households per hectare (Neighbourhood Manual, 2006).

Construction

Construction companies which are registered under Ministry of Works and Urban Development with Grade 6 and above were involved in the construction. The basic task assigned to the contractors has been the structure of the building. The finishing works (including block work), electrical works, and sanitary fixtures are aimed to be done by the Micro and Small Enterprises

(MSE). Consultants are hired to oversee construction and maintain its quality. A very distinctive feature of the project is that the bid document is prepared with fixed price. It is only when the contractor fills comfortable that he will sign the contract. There was no open or selected bid process carried.

Implementation

Before going to the implementation of the grand program a pilot project was carried on. It was in Addis Ababa Bole Gerji. The contractor was GTZ (German Technical Cooperation). Learning from the failures and use of the project the grand housing project was started (UN-HABITAT, 2011).

5.1.2 Neighbourhood Manual

For the design, construction, and implementation of the grand housing program the city of Addis Ababa has produced a neighbourhood manual. The neighbourhood manual constitutes scope of the neighbourhood planning, planning and designing principles, planning and designing process, guide lines, norms, standards, and sample illustrations.

The maximum study area for neighborhood planning and design project is set as 10 hectare. Creating sustainable neighbourhood is the design and planning principle to be used. A holistic approach for the planning and designing process that integrates all the necessary facts and aspects regarding a selected project site selection, analysis; and development impact assessments on the surrounding environment is the preferred one. The aspects considered in the guide line norms and standards section includes: density, typology, open space, building layout and orientation, set back regulation, road, utility line, and service.

Open space provisions in the manual are supposed to maintain the previous living qualities at a certain level. This intention is implemented by providing space for children playing, meeting, Edir, holiday celebration and the likes. For this the following standard is developed.

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 inhabitants (250-350 Household)	-Center of catchments area, -Not adjacent to collector street

Play lot (at residential cluster)	0.3 - 0.4 ha	400 m radius	5,000 – 10,000 inhabitants (1,000 – 2,000 Household)	- Within the catchments area

Table 5.1: open space standard in residential areas

Source: Addis Ababa Neighbourhood Manual.

A variety of condominium building typologies are being used by the AAHDPO that are economical and s uitable t o t he di fferent i ncome g roups. M ost of the c ondominium building typologies are of 5 storey and the open space requirements are as shown below.

Density Zone	Density: House hold /Hectare	Density :Inhabitants / Hectare
Core area	190-380	950-2000
Intermediate	120-190	600-950
Periphery	54-120	270-600

Table 5.2 : Proposed population density levels in Addis Ababa

Source: Norms & standards of the Addis Ababa city structure plan and its components

No.	Housing component	Proposed percentage from the total specific settlement area		
		Core	Intermediate	Periphery
1	Residence	35-45	40-50	50-65
2	Administration, Commerce including mixed commerce, service, and other compatible uses.	20-30	15-25	5-10
3	Services	10-20	15-25	5-10
4	Manufacturing (only non-polluting compatible activities should be allowed in core and intermediate areas)	0-5	0-5	5-10
5	Recreation, and green areas	5-10	5-10	10-15
6	Roads (local access and collector streets)	15-20	15-20	15-25

Table 5.3. Land use mixity standards

Source: Norms & standards of the Addis Ababa city structure plan and its components (2002)

5.2 Case study

5.2.1 Introduction

Public open space can have a positive impact on physical and mental well being as it provides spaces to meet, interact, exercise and relax. It needs to be appropriately designed, properly located and well maintained to encourage its use. It is one of the key elements in defining the quality of the residential environment. Apart from the direct provision of active and passive recreation, it adds to the sense of identity of a neighbourhood, helps create a community spirit, and can improve the image of an area (especially a regeneration area). Well-designed open space is even more important in higher density residential developments.

The main objective of this chapter is analyzing the data collected based on the research objectives stated, and drawing findings that answers the research questions of the study. Besides, the contextual background is also used to analyze the research objectives and drawing some findings.

5.2.2 General Description of the case study neighbourhood

Bole Gerji in Addis Ababa was the first condominium project to be constructed in Ethiopia. It was initiated by Addis Ababa city administration and GTZ in 2002, following a request from the mayor of the time Erkeb Eqibay (UN Habitat, 2011). Studio, one and two bed room type typologies were designed. Due to the collaboration, it only took Eight months to finish the major works. The built housing units were given to government employees living in Gerji, business men, architects, and lawyers.

The neighbourhood is bordered by local streets in its four sides, and surrounded by existing neighbourhoods. The neighbourhood has a total area of 19,200 m2. From this area the open spaces took 20% (which is 3,850 m2), the buildings cover around 32% (which is 6,200m2), and the rest is parking and pedestrian walk ways. The site has 16 condominium blocks with four stories. Each block constitutes 20 housing units. That implies the neighbourhood has 320 housing units. Taking the average house hold size five, the population size of the neighbourhood will be 1,600.

The open spaces of the neighbourhood constitute 12 fragmented spaces. Of which, two of them are around 820m2, two 525m2, two 340m2, two 125m2, two 60m2, and the last one 90m2. Each of them are segregated by the foot paths and the inside parking's of the neighbourhood. According to ORAAMP (Office for the Revision of Addis Ababa Master Plan, 2002) report the neighbourhood green area is more than the average stated (i.e. 0.5-1 m^2 for a person).

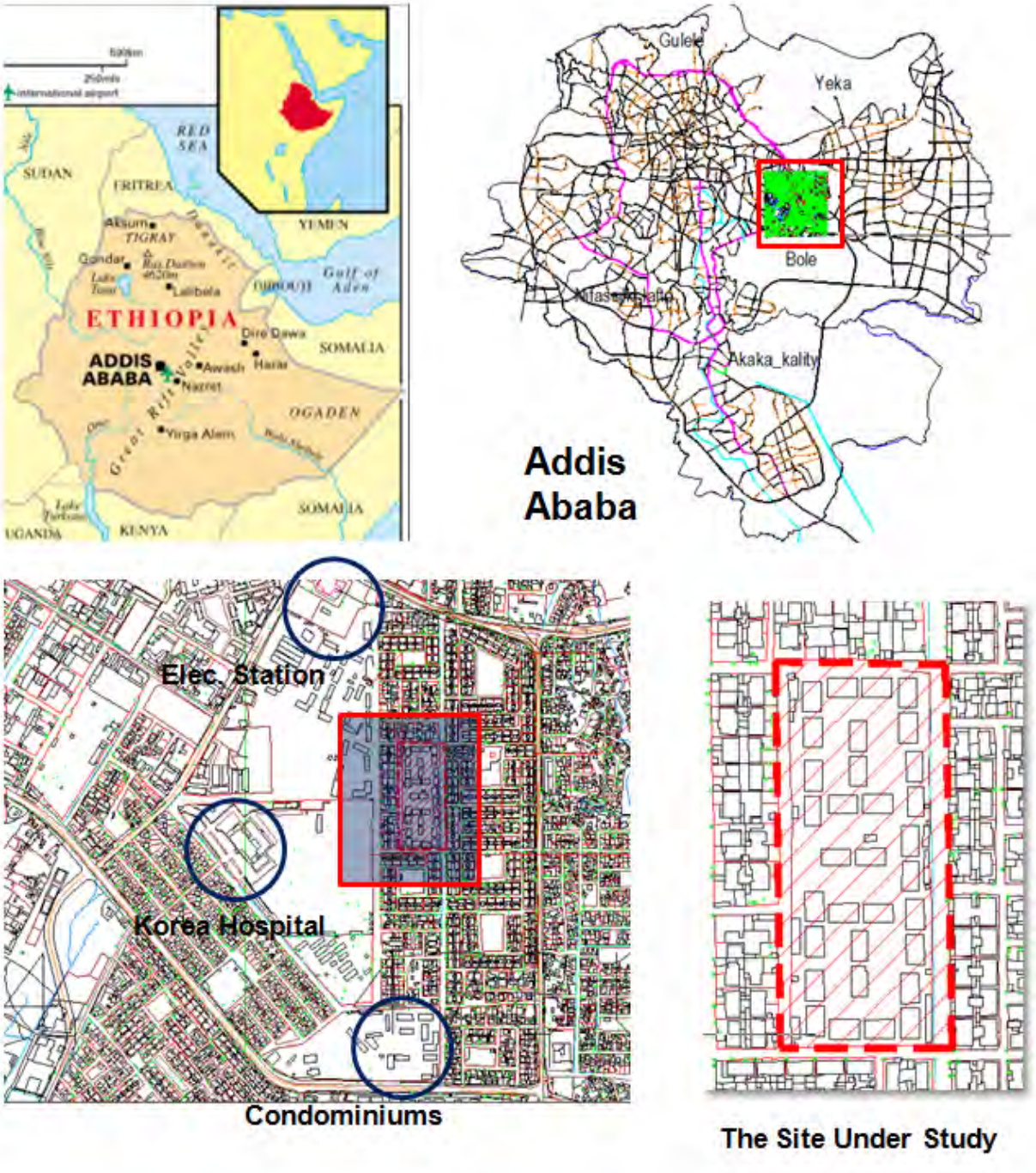

Fig 5.1 Location of the Neighbourhood under study

Fig 5.2 Google map of the neighbourhood under study

Fig 5.3 Nortek adapted map

Fig 5.4 Photo of the neighbourhood from adjacent East Side Street.

Fig 5.5 Observational photos showing the physical set up of open spaces in the Neighbourhood

Fig 5.6 Observational photos showing the physical set up of open spaces in the Neighbourhood

5.3 Interviewee Description

To analyze the information of the respondents, at first having a brief background of the interviewees is helpful. All the interviewees are residents of the neighbourhood under research (Gerji condominium neighbourhood). And these respondents were chosen based on the following parameters:

- Place and story of living: the respondents are chosen from different corners of the neighbourhood and from each flat of the condominium.
- Marital status and presence of kids: even though it was difficult to have unmarried (single) person for the interview, categorizing those with kids and without kids is done.

A total of thirteen / 13 formal interview was conducted for the research. As mentioned on the limitation section the respondents are those who were available at their homes and willing for the interview. The interview data shows the perspective of the respondents irrespective of their nature. In many respects they are similar or with little deviation, which needs due consideration.

Name	Gender	Marital status	Children	storey	Ownership
1. Martha Argaw	Female	Married	yes	Ground	Renter
2. Asmamaw Silesh	Male	Married	yes	Ground	Renter
3. Alemayehu Desta	Male	Single	No	Ground	Owner
4. Woderyelsh Mulugeta	Female	Married	No	Ground	Renter
5. Alemtsehay Teka	Female	Married	yes	First Floor	Renter
6. Fetiah Kedir	Female	Married	yes	First Floor	Renter
7. Asrat Tessema	Female	Married	yes	First Floor	Renter
8. Belay Gemechu	Male	Married	yes	First Floor	Owner
9. Elephaz Solomon	Female	Married	yes	First Floor	Renter
10. Abinet Wondimu	Male	Married	No	Third Floor	Owner
11. Lelesei Mengesha	Female	Married	No	Third Floor	Renter

12. Emebet Abayneh	Female	Married	yes	Third Floor	Owner
13. Woyneshet Akalu	Female	Married	yes	Third Floor	Owner

Table 5.4: Interviewee information

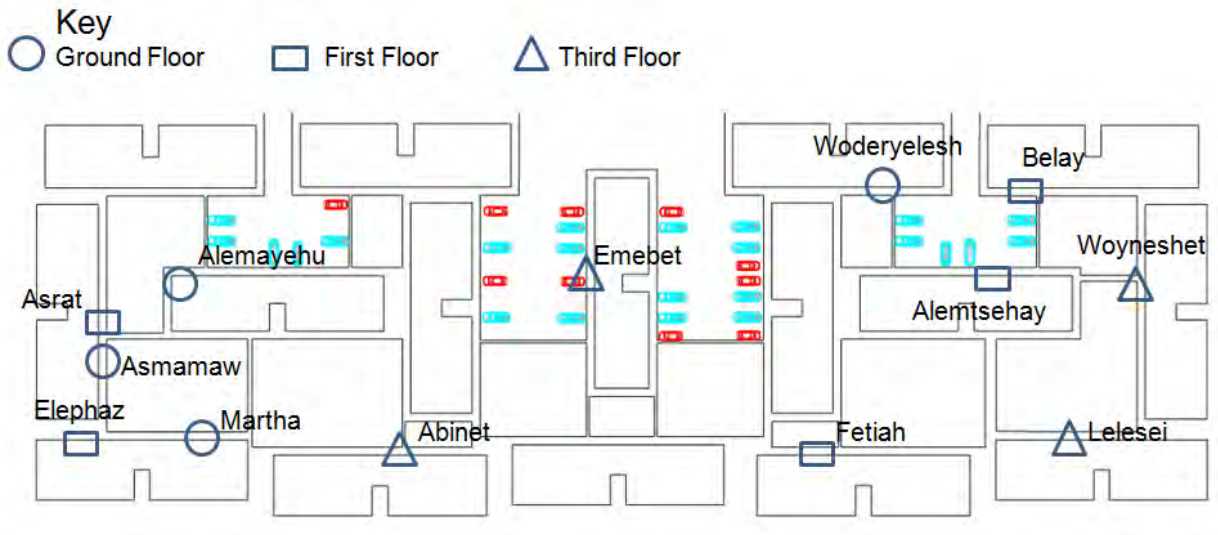

Fig 5.7 : Interviewee location

5.4 Life Stories and perspective of the Interviewees

Thirteen households were participated in the interview process as seen in the above table. But six of them are only presented below comprehensively. The choice is random.

1. Martha Argaw (Ground Floor)

Fig 5.8. Interviewee location

Martha Argaw is female and 28 years old. She is married and has one child. She lives with her husband, one child and a servant. She has completed her high school education and has a two

year diploma education. She is a renter and has started to live in the neighbourhood before three years. In her childhood she has been raised in a fenced compound. Her open spaces experience was limited only in her school hood. After her marriage when she experienced it in this neighbourhood she told me that it was a pity not to have it in her childhood. She is very comfortable on the presence of the open spaces and appreciates it also. Her child plays on it regularly. She also used it as temporary waste storage. Besides, with her neighbours, she used it for meskel ceremony, weeding, Lekso (post funeral assembly that last long for a minimum of three days) and the likes. But she strongly comments on the absence of functional segregation, seating chairs for elders (as she wants to take care her child seating there), and flowers. And also she has a fear of reptiles in the open spaces, as the grass is very large in size most of the times. Concerning the size of the open space she feels very comfortable.

2. Asmamaw Silesh (Ground Floor)

Fig 5.9. Interviewee location

Asmamaw Silesh is male and aged 35. He is married and has three children. He lives with his wife, three children's and a servant. He has completed his high school education and has got MSc degree from Addis Ababa University. He is a renter and has started to live in the neighbourhood before four years. His childhood was in the countryside. He spent most of his time in the open spaces of the countryside for different purposes. He is very comfortable on the presence of the open spaces and appreciates it also. His children play on the open space regularly. He used it as temporary waste storage, for cereal and cloth drying. Besides, with his neighbours, he used it for meskel ceremony, weeding, Lekso and the likes. But he strongly comments on the absence of functional segregation (mainly using the area as abattoir), seating chairs for elders, and playing equipments for kids. And also he has a strong opinion on the presence of construction wastes in the open spaces. Concerning the size of the open space he feels that they are not enough for the different purposes exercised on it.

3. Alemayehu Desta (Ground Floor)

Fig 5.10. Interviewee location

He is 27 years old. He is not married. He lives with his 75 years old mother, two elder brothers, one female extended family member and a servant. He has completed his high school education. He is the son of the owner of the house and has started living in the neighbourhood before six years. He had used to play on open spaces of his earlier neighbourhood during his child hood. He is very comfortable on the presence of the open spaces and appreciates it also. They use the open space as horticulture, for cereal and cloth drying. Besides, with his neighbours, he used it for meskel ceremony, weeding, Lekso and the likes. But he strongly comments on the presence of sewerage system inside it, absence of seating chairs for elders and playing equipments for kids. And also he has a strong opinion on the presence of construction wastes in the open spaces. Concerning the size of the open space relative to other neighbourhoods he feels comfortable.

4. Woderyelsh Mulugeta (Ground Floor)

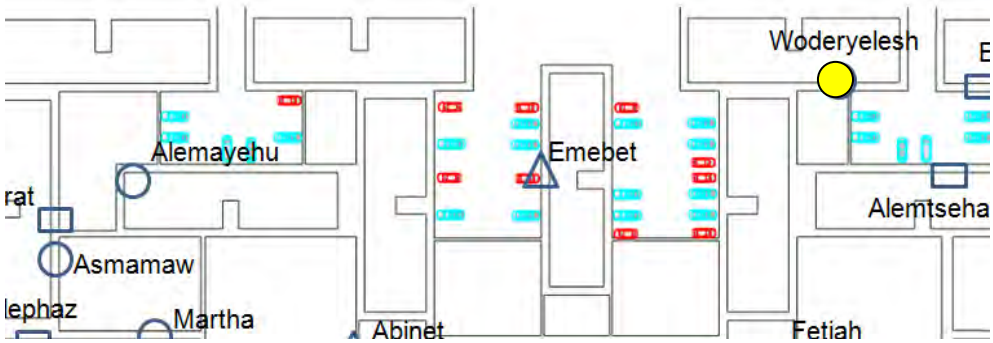

Fig 5.11. Interviewee location

She is 28 years old. She is married. She lives with her husband and a servant. She has completed her high school education and got a diploma from Addis Ababa commercial college. She is a renter and starts living in the neighbourhood before a year. She had used to play on

open spaces of her earlier neighbourhood during her childhood. She is very comfortable on the presence of the open spaces. It's presence as she added enhances the social interaction of the residents. She used the open space for only parking till now. She feels the open spaces seem a left over space. She said it is neither designed nor kept well. The open space as she commented needs to be designed by incorporating small foot ball field for kids, space for drying cereals and cloth, and for refreshment. Concerning the size of the open she said it is enough if it is properly utilized.

5. Alemtsehay Teka (First Floor)

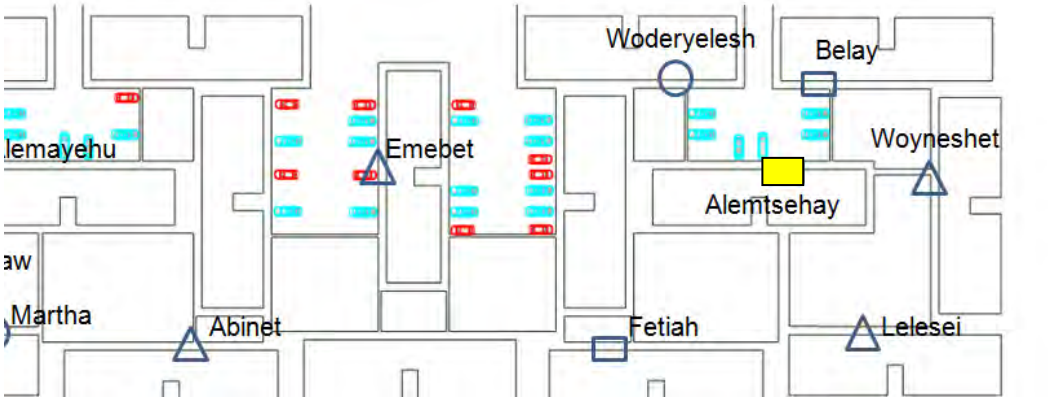

Fig 5.12. Interviewee location

She is 35 years old. She is married. She lives with her husband, two children and a servant. She has completed her high school education and got a diploma. She is an owner and starts living in the neighbourhood before four year. She had used to play on open spaces of her earlier neighbourhood during her childhood. But she told me that her earlier neighbourhood open space is no more open, it is being used for different purpose now. She uses the current open space for car parking, drying clothes, and her children play there. Besides she has seen that the open space also serves for Lekso and abattoir. She is very comfortable on the presence of the open spaces, but she feels that the open spaces look a street child. Nobody cares for it. As she advises, the open space needs to be designed by incorporating small foot ball field for kids, space for drying cereals and cloth, for social services and for refreshment. In addition a good management system should be established. Concerning the size of the open she said it is not enough, unless and otherwise it is managed properly it is not also safe. As I observed also she was looking at her children's from the first floor verandah, and also she was shouting to regulate them.

6. Woyneshet Akalu (Third Floor)

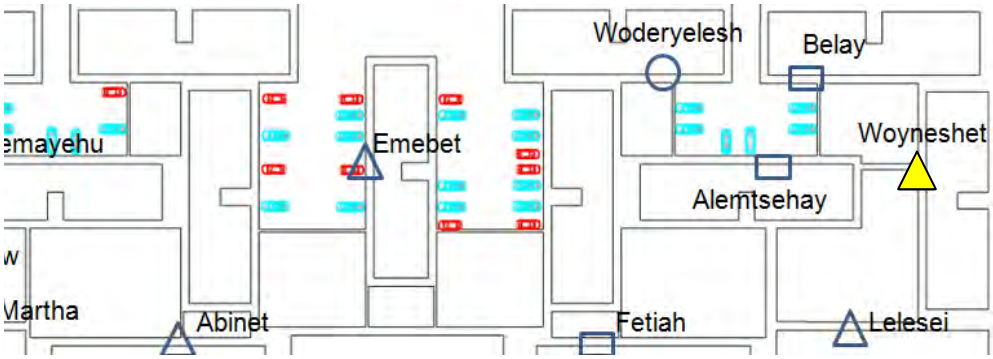

Fig 5.13. Interviewee location

She is 32 years old. She is married. She lives with her husband, one child, her mother and a servant. She has completed her high school education and got a two years diploma. She is an owner and s tarts living in the neighbourhood before six year. She had used to play on open spaces of her earlier neighbourhood during her child hood. She uses the open space for drying clothes and c ereals, and to her kid to play. Besides she has seen that the open s pace also serves for Lekso, wedding and aba ttoir. She has attended one w eeding ceremony held on the open space. She is very comfortable on the presence of the open spaces. Concerning the size of the open she said it is not enough. And she has also raised a safety issues due to the mismanagement.

5.5 Analysis and Discussion

This section presents the analysis and discussion of the data collected. As being expressed in the methodology the data collected are qualitative. They are entirely from the interview and observation. For the a nalysis and di scussion the dat a o f t he i nterviews ar e i nterpreted quantitatively. Besides the obj ectives of the study, the checklist dev eloped, and the literature reviews are used to sort the analysis and discussion of the study.

5.5.1 The Objectives

5.5.1.1 Activities

- **To identify the different activities carried on in the open spaces and their importance for spatial sustainability**.

Information about the use of the open spaces is mainly traced from the respondents and visual observation of t he ac tivities on s ite. Accordingly Children pl aying, C ereal and C loth dr ying,

Horticulture, Social ceremony, and Abattoir were the main activities indentified. The table (5.2) below summarizes the different activities carried on in the open spaces of the neighbourhood.

NO	Activities	% of the respondents	Remark
1	Children Playing	77%	Recreational
2	Cloth drying	54%	Functional
3	Ceremony	46.2%	Social
4	Cereal Drying	38.5%	Functional
5	Horticulture	15.4%	Functional + Biodiversity
6	Waste storage	15.4%	Functional
7	Abattoir/ Slaughtering	-	Observational

Table 5.5. Activities on the open spaces

Children playing: One of the major functions of pocket type open spaces is play area for children. As being vivid from the interview result and my observation in the open spaces of Gerji neighbourhood the most frequently mentioned and observed activity are children playing. The children in the neighbourhood play on the open spaces almost every day out of school time. Even though not many in numbers kids below school age plays any time and almost every day. Of the open spaces one, two, nine, ten, and eleven are used for the children playing.

Fig 5.14. Children playing in the open spaces

Cloth drying: The other majorly practiced activity that took place in the open spaces is cloth drying. Most of the residents dry their cloths by sunlight. Everywhere in the open spaces there

are lots of drying wires stretched on steel and wood poles. In almost all days most of the wires are fully used for the clothes.

Fig 5.15. Cloth drying in the open spaces.

Social ceremonies: Different religious and non religious ceremonies are carried on in the open spaces, such as meskel, lekso, wedding, etc. Meskel, which means cross in Amharic language, is a national celebration that reverses the finding of the true cross. Every year on September 27 this religious ceremony is held on in the open spaces in mass congregation. Lekso and weeding happens on the frontage open spaces of the residents.

Fig 5.16. A tent in the open space for Lekso.

Cereal drying: There is a respected tradition of in-house food item preparation in Ethiopia. One of the techniques used to prepare is drying cereals by sunlight. The cereals are dispersed on a mat and lay where there is a chance to get the sunlight. This is also one significant activity exercised.

Fig 5.17. Cereal drying in the open spaces.

Horticulture: Regardless of ownership right there is a horticulture practice in the neighbourhood. Residents, even from upper storey, use their immediate frontage and back yards of buildings for the horticultural activity. Cabbage, lettuce, enset (false banana), and the likes are among the crops grown in the open spaces.

Fig 5.18. Horticulture in the open space.

Waste storage: Wastes in the neighbourhood are collected periodically by organized young groups from outside. Till the day of collection the residents store their wastes individually. Almost all of the ground floor residents use their immediate frontage open space for temporary waste storage.

Fig 5.19. Temporary waste in the open space.

Abattoir/ Slaughtering: Similar to cereals there is a tradition of preparing meat from animals individually, especially in holidays of the country. For these activity there is a tree assigned by the residents as an abattoir. The tree is found inside the open space. Besides my personal observation, the ropes tied on the tree clearly show the function of the tree.

The activities exercised in the open spaces directly or indirectly have recognizable economic, social and environmental benefits.

Economic: The cloth and cereal drying, and horticulture have direct economic benefit to the residents. But other activities have an indirect economic impact.

Social: Open play grounds and social ceremonies play a major role for social interaction. Playgrounds cater to young children and provide opportunities for growth and development. A playground with a wide variety of activities is vital to a child's cognitive, emotional, physical and social development.

Environmental: Even though the ecological functions of pocket parks are limited as they are typically designed for heavy use by people, the horticulture exercised and trees grown enhance the environmental quality of the neighbourhood by regulating the microclimates and as patches for some animals, particularly birds.

Activities, as Montgomery and punter indicated, are basic constitutes in forming and developing a space in to place. And one of the key qualities of pocket parks is allowing the people to engage in activities (Olmos, 2008). But the activities in the case study are confronting inconvenience due to overlapping and functional discrepancy. The drying activities did not go friendly with children playing in the open spaces. The arbitral location of cloth drying wires, animal slaughtering trees (abattoir), and the temporary wastes is significantly decreasing the comfortableness and good image of the open spaces. The presence of debris in some open areas hinders many activities on them.

Fig 5.20 Observational Photos showing the functional discrepancy on the open spaces

The lack of spatial allocation for the different activities remarkably deteriorates the quality of the open spaces for different economic, social and environmental activities. The problem associated with the functional allocation is mainly due to absence of planning and management. The planning work only constitutes allocating the open spaces in the neighbourhood, and the open spaces did not have a management body till time of this study. In general the absence of quality in the open spaces is hindering the capacity of the activities in transforming open spaces to places.

Sample activity layout plan analysis

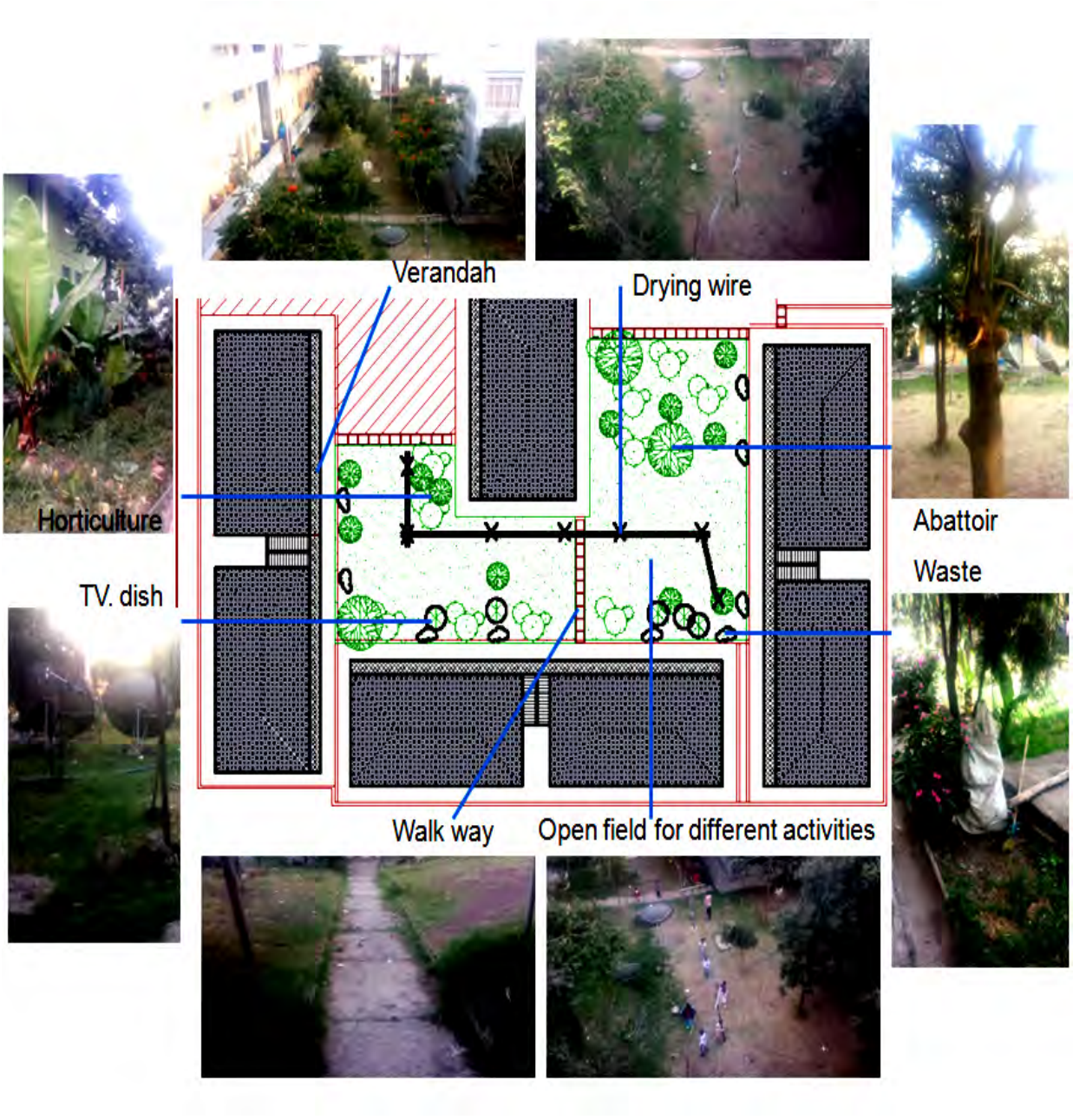

Fig 5.21 Activity layout plan of Open space 1 and 2

To see the different activities and there functional allocation the study used a sample activity layout plan. The sample drawn is random. The sample spatial layout plan above shows the different functions exercised in the open spaces. Open area for different activities, abattoir, temporary waste storage, horticulture, TV dish placing, and the like are functions happening in

the open spaces. Open area of the open space serves as children playing, cloth and cereal drying, social ceremony (example Lekso), and the like.

Fig 5.22 Photos showing the open area services of the open spaces.

As vividly seen in the layout plan, the open spaces are not designed for the different functions exercised. There is no functional allocation for the different activities. The activities exercised in the open spaces uses the open spaces arbitrarily. The phenomenon clearly indicates absence of design and planning of the open spaces. In result it diminishes the quality of the open spaces.

5.5.1.2 Objects

- **To identify the different objects on the open spaces and tracing extra objects that has a role for the spatial sustainability of the open spaces.**

Objects or landscaping elements are the basic constitutes of any open spaces (Khalid, 2008). They can contribute to perceptions of satisfaction, safety and use. The importance of different open space objects (landscaping elements) is critically underlined by the respondents of the study. They strongly argue that the absence of basic elements in the open spaces makes the open spaces as left over spaces and underutilized by the inhabitants. Except the irregularly planted trees there is no landscaping element in the open spaces.

As seen from the photos below the main elements found in the open spaces are wastes, TV dishes, stones, open air cloth drying wires, car tires and the like. The wastes include small temporary waste in a plastic like container and thrown worn out bath taps.

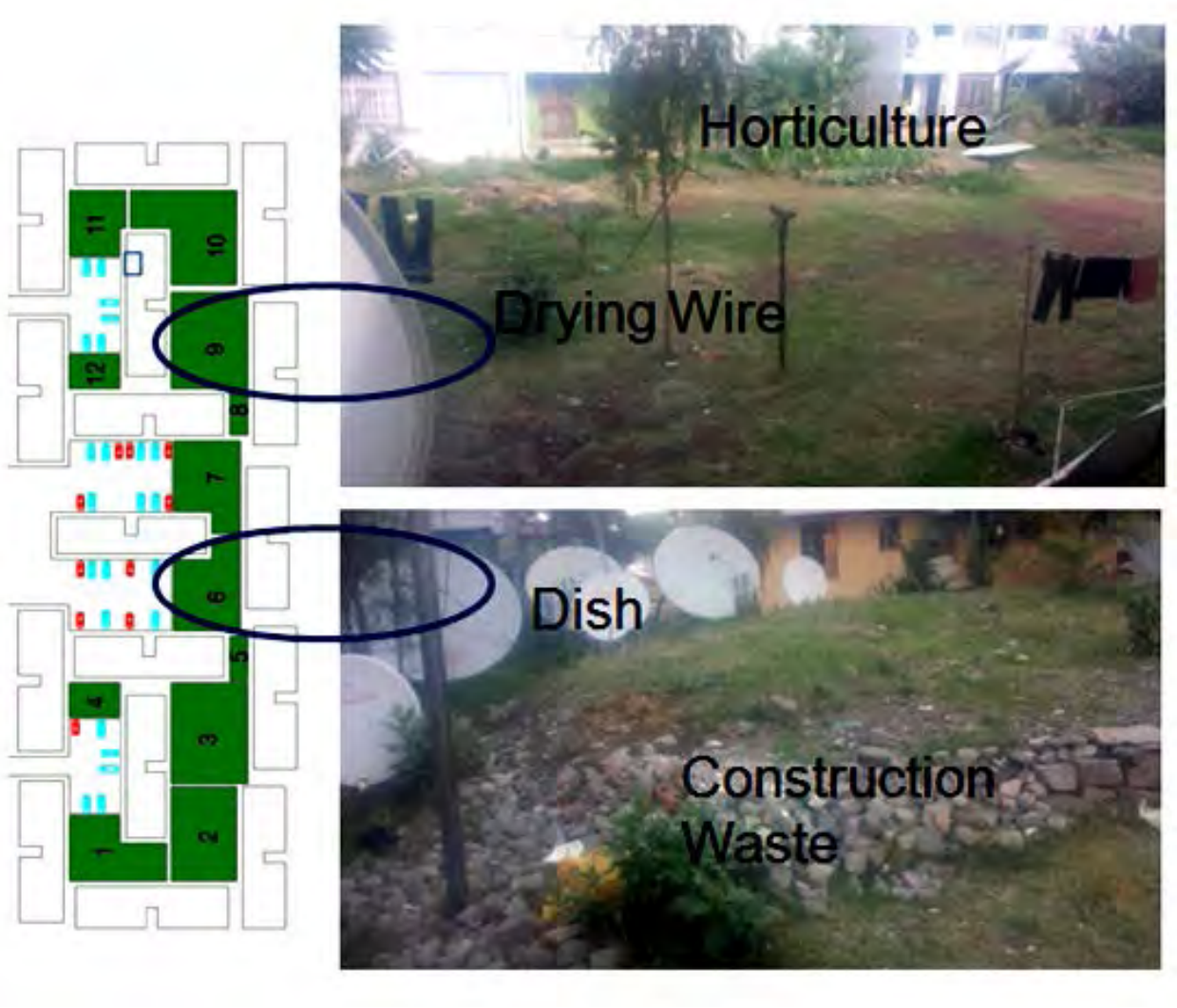

Fig 5.23. Observational Photos showing objects on the open spaces

Fig 5.24. Observational Photos showing objects on the open spaces

To trace extra objects needed for the open spaces indirect assessment is done by asking the respondents to state their aspiration of objects to be part of the open spaces. Having good green area for refreshment and children playing equipments were the main concerns of the

interviewees. The following table shows the aspiration of the interviewees on objects/ landscaping elements in the open spaces.

NO	Landscaping elements	% of the respondents
1	Green space for refreshment	77%
2	Play ground equipments	69.2%
3	Benches /chairs	46.2%
4	Social space /civic plaza	46.2%
5	Formal cloth drying	23.1%
6	Slaughter house(Abattoir)	23.1%
7	Open play areas for sport facilities of children	15.4%

Table 5.6. Basic landscaping elements aspired by respondents

Green space: Community gardens have a variety of purposes for the people they serve; they unite residents of all ages in fun and productive outdoor activities and facilitate the growth of community solidarity and neighborhood revitalization (Olmos, 2008). Access to, use of and engagement in green space in neighbourhoods can contribute to people's levels of satisfaction and sense of community. The absence of designed green space in Gerji neighbourhood indicates the planning and implementation problem of the open space. The inhabitants demand green areas that are comfortable and with good image. The green areas are very arbitral and not in a standard of usability resulting in dissatisfaction of the respondents.

Playing equipments: Playing equipments are common amenities of all types of parks. Their presence in the open spaces attracts and simplifies the children playing. In the Gerji condominium neighbourhood there are no equipments furnished for children to play, which some respondents express as a problem.

*Benches for elders: O*ne of the several features of pocket parks is seating for adults. The seats promote social interaction and cohesion. But in the neighbourhood similar to the above objects there are no formal or informal seats to adults. This excludes the frequent participation of the adults in the open spaces.

Appropriate cloth drying: Pocket parks should be created with the specific interests and needs of the contiguous community i.e., the near by individuals and families for whose use it was originally intended (Olmos, 2008). One of the big interests of the local community is to have an appropriate cloth drying space. Cloth drying wires tied on poles are here and there in the open space of the neighbourhood. But their inappropriate location deteriorates the quality of the open spaces, and brought functional conflict.

Social space: Social space or public plazas are centers for social integrations. In the neighbourhood lots of social events took place in the green areas of the open spaces. Even though the events are not frequent like other activities they may spoil the green feature of the open spaces. One component in the functional discrepancy of the open spaces is the social events practiced in the neighbourhood.

Abattoir: Most of the condominium neighbourhoods of Addis Ababa have communal buildings for the traditional activities of the society, but Gerji condominium does not. The lack of the communal building dictates the residents to use trees of the open spaces as abattoir (very common practice in privately fenced compounds of old neighbourhoods).

Open play area: Children are one of the priorities to be considered in pocket parks design (Blake, 2013). Open play areas in pocket parks mainly serve children to play. Open play areas should be at the heart of pocket parks. The open play areas of the case study are mixed with the green areas, social spaces, and trees of the open spaces. No functional allocation is carried in the open spaces.

Almost all the respondents have a very good attitude towards the presence of the open space in their neighbourhood. But as they mention the absence of landscape elements hinders them to enjoy it, and further it also discourages them to let their children play on it. One of the very reasons for the under utilization of the spaces they mentioned during the discussion is absence of ownership. To date there is no body that owns and administers it. Nobody cares about it. The trees were only planted by the contractor and individuals that have belongingness and passion to it. Nowadays the committee of the neighbourhood administration is trying to have an ownership authority on it and there are some works going on, but as they said it is not a simple task.

5.5.1.3 Accessibility and Security

- **To understand the extent of the accessibility and security problems of the open spaces and mechanisms for enhancing them to ensure the sustainability of the open spaces.**

The accessible environment designed with regard to the needs of the users should be the important part of the sustainable planning and designing process of open spaces (Ana Gačić 2010). Accessible and safe green spaces are important to people's sense of well being and mental health and have a positive influence on levels of physical activity.

Accessibility

Nearness, visual obstruction, and physically challenged are main points that are considered for accessibility. Information about the first two is obtained from physical observation of the neighbourhood, whereas the third one is both from the respondents and physical observation.

Nearness

Green space within a 5-10 minute walk from home increases the possibility that people, including children and older people, will use it (Olmos, 2008). The open spaces in the case study are results of the condominium building blocks. They are all on the immediate frontage of many of the houses in the neighbourhood. Due to this there is no travel distance there for the residents to access the open spaces. They are very near to be touched.

Visual obstruction

The benefits of neighbourhood green spaces can start with a view from a house to a green space, which might contain shrubs, flowers, trees or woodlands. Except some houses in the ground floor and on the edges of the buildings (as one of the respondents indicated) there is no visual obstruction on the residents towards the open spaces. Almost all verandahs of the houses are facing the open spaces.

Physically challenged

It is also imperative that the layout and equipment of a playground be both accessible and functional for children and adults with a wide variety of disabilities. The uncovered ditches and absence of proper walk ways on the open spaces makes them difficult for physically challenged persons. Explicitly speaking the physically challenged persons are forgotten or neglected on the neighbourhood design process. No consideration is seen either on the buildings, walk ways, or open spaces. Even though I did not met physically challenged or a parent with physically

challenged child the respondents acknowledges the absence of accessibility for the physically challenged persons is a problem.

Fig 5.25. Photo showing the uncovered ditches and manholes around the open spaces; open space two and three.

Security

The ability to live with a feeling of comfort and safety in the residential area is an essential component of sustainable communities. The design of the built environment can contribute to this by creating a sense of security and ownership within residential areas. Playgrounds should be carefully sited within residential areas so that they are both easily accessible and overlooked by dwellings, while not causing a trouble to nearby residents (Government of Ireland, 2009).

The open spaces on the neighbourhood are not cleaned properly after the construction is finished. There are lots of trashes on the open spaces. Due to the trashes the residents do not feel free to let their children play everywhere in it. As some of the respondents explained there are broken glasses, reinforcement bars, and other health hazard debris on the open spaces. But the presence of the grass and trees on the site most times hide them. As the respondents

indicated and my personal observation, there are also frequently exercised activities like cloth and cereal drying, children playing and the like. The physical facing of external verandah to the open spaces helps the residents to watch their children easily. The presence of good visual contact from most of the houses towards the open spaces reduces the theft of cloths, which is the second most important activity of the open spaces. Even though there are no lighting, signage, and the like of requirements to ensure maximum safety and security in pocket parks indicated by Kronkosky Charitable Foundation (2009) there are guards to watch the neighbourhood. But as I observe, the guard persons are not efficient in doing their tasks.

5.5.1.4 Distribution

- **To understand the need of distribution of open spaces in a neighbourhood and asses its relevance with sustainability.**

One of the different factors for bringing equitable human settlement is an open space. Fair distribution is one mechanism to make open spaces accessible for all members of a neighbourhood. In the neighbourhood under study, based on Norms and Standards of Addis Ababa Structure plan components (ORAAMP, 2002) minimum total area to open space ratio, the open spaces can be said distributed fairly and equitably. As explained in the background earlier the standard 0.5 to 1m^2 open space per person is minimum average, but the neighbourhood has about 2 meter square per person.

The Gerji neighbourhood is located on the intermediate zone of Addis Ababa and with about 1,600 inhabitants. According to ORAMMP the required open space should be between 5-10 percent and 0.1 up to 0.2 hectares. But the open spaces of neighbourhood under study constitute 20% (0.385 hectare) of the total land, i.e. more than the standard allocated.

5.6 Analysis based on Checklist

The checklist here is used to evaluate the sustainability of the open spaces. The marks given in each column are based on the analysis and discussion above and my physical observation:

Goals	Objectives	Pocket Park			
		Poor	Fair	Good	Excellent
Reduction of Carbon gas emission	❖ Reduce the need to travel				
	❖ Reduce car reliance				

Closing Local resource loops	❖ Local water sourcing, treatment, and aquifer				
	❖ Local low input food production				
Enhancing local environment and reduction of environmental health	❖ Promote local distinctiveness and heritage				
	❖ Create an attractive public realm				
	❖ Enhance local habitat diversity				
	❖ Improve local air quality				
	❖ Promote an active life style				
	❖ Encourage consumption of fresh fruits and vegetables				
Increasing street safety	❖ Reduce the chance of vehicles / pedestrian accident				
	❖ Reduce the fear of violence				
Accessibility and freedom of choice	❖ More facilities accessible locally				
Equity and social inclusion	❖ Choice of facilities with easy walking distance				
Local work opportunity	❖ Accessible jobs for those tied to the locality				
	❖ Reduce transport emission				

Enhancing the value of local community	❖ Facilitate accessible social network				
	❖ Promote mental health				

Table 5.7. Open space sustainability checklist

As evident from the table a lot of draw backs are there on the open spaces. The open spaces are not designed, planned, and administered for sustainability parameters. Absence of design has affected utilization of local water sources (mainly of rain), local distinctiveness, attractive public realm, active life style, and the like. Besides, the poor landscaping and functional allocation reduces the value of the local community, the horticulture activity and the biodiversity quality of the open spaces.

5.7 Findings and Discussion

Before going to the discretion of the findings with regard to the research questions it is better to examine the physical condition of the open space based on the literature review; how it is approached and the planning model used.

To speculate the planning approach and planning model used for the open spaces of condominium neighbourhoods it is fundamental to see the following explanations from the contextual back ground of the thesis. Open space provisions in the manual are supposed to maintain the previous living qualities at a certain level. This intention is implemented by providing space for children playing, meeting, Edir, holiday celebration and the likes (Neighbourhood manual, 2006). The design proposals were based on the logic that because the houses themselves could not be of such fine quality because of the low-cost nature of the project, ample outdoor green space had to be accommodated onsite to make residents feel proud of their surroundings and 'remove the stigma of housing for the poor' (UN-HABITAT, 2011). And most of the designs are 3-5 story buildings individually and in there LDP they accommodate 54 – 380 households per hectare (Neighbourhood manual, 2006).

From the above explanatory statements it is clear that the major approach for the provision of open spaces is the economic approach. And the model used is mainly the space standard model.

Keeping in mind the economic approach and space standard model used in the open apace provision of the neighbourhood we can examine the open spaces for the findings.

In this section, as indicated above, I will try to answer the research questions forwarded in the first chapter.

- **How do the different activities carried on and objects in the open spaces contribute for the sustainability of the open spaces?**
- **How much do the accessibility, security and distribution of the open spaces enhance the sustainability of the open spaces?**
- **What should be done to bring spatial sustainability?**

The case study answers the first two questions of the research. The answers are in a numbered bulleted form. Each number represents the key issue of the research questions. The third research question is answered in the recommendation and implication chapter.

First Research Question

- **How do the different activities carried on and objects in the open spaces contribute for the sustainability of the open spaces?**

1. Activities

Activities, as many scholars indicate, are basic constitutes in transforming spaces to places (spatial sustainability). As evident in the analysis there are lots of activities carried on in the open spaces. But lack of design, planning, and management (for the spatial allocation for the different functions) negatively affects the quality of the open spaces for different social, environmental, and economic activities. This phenomenon is hindering the contributions of the activities for place formation or bringing spatial sustainability in the open spaces.

2. Objects

As being explained above in the analysis, landscaping elements are the basic constitutes that an open space should contain inside it. But the open spaces of the condominium neighbourhood are very poorly landscaped. There are only randomly planted trees and grass on the open spaces. No element is there on the open spaces, which enhances the people to chat, meditate or play with their children, except the green grass. The economic activities like drying cereals and cloth, abattoir and the likes are happening on the green grass. In general terms the absence of landscaping elements is decreasing the economic value, hinders the social activities, and affects the environmental quality of the open spaces. This poorly landscaped open space greatly reduces the belongingness or meaning of the residents to the space, which in turn affects its contribution to the spatial sustainability of the open spaces.

Concluding Remark

The presence of activities is one potential for the development of places, but absence of functional allocation (design and planning) and landscaping objects in the open spaces limits the contribution of activities for place formation (spatial sustainability).

Second Research Question

- **How much do the accessibility, security and distribution of the open spaces enhance the sustainability of the open spaces?**

1. Accessibility

The open spaces of the neighbourhood are pocket type open spaces created by the arrangement of condominium buildings. As the open spaces are on the frontage of most of the residences no as such travel is needed to use the open spaces. But absence of covers on the ditches around the open spaces and lack of ramps makes the open spaces inaccessible for physically challenged persons.

2. Security

Regarding security issue the open spaces are safe in their physical setup. Most of the residents have a direct look towards the open spaces from their external doors. But the open spaces need lighting, active stewardship and the likes for its best achievement. Besides trashes inside the open spaces needs to be cleaned to make the spaces safer to use, especially for the children to play.

3. Distribution

The open spaces in the neighbourhood can be said equitably distributed. The residents in the neighbourhood did not need to travel to use the open spaces; they are on their frontages or backyards. The open space to person ratio is good. This equitable distribution is a good potential for the achievement of the three pills (economic, social, and environmental) of sustainability. With all its draw backs this phenomena may dictates to praise the space standard approach to achieve equitable distribution of open spaces.

Concluding Remark

The success on the distribution and potential on the accessibility and security shows the potential of the open spaces to be the future places of the neighbourhood (spatial sustainability).

CHAPTER SIX

Recommendations and Implications

Chapter six

RECOMMENDATIONS AND IMPLICATIONS

6.1 Recommendations

6.1.1 Introduction

Beyond assessing and evaluating the spatial sustainability of open spaces in new condominium neighbourhoods of Addis Ababa, the aim of this study is also to make suggestions on the open spaces in order to improve their weaknesses and to protect or enhance their positive attributes. The third research question is devoted for this:

- **What should be done to bring spatial sustainability in the condominium neighbourhoods of Addis Ababa?**

Within the framework of the study carried out at Gerji condominium open spaces, issues regarding the different activities and objects; accessibility, security, and distribution have been assessed and evaluated. According to the results these open spaces have problems related to their spatial sustainability. Therefore; in order to improve their quality, open space policies must be formulated and implemented with contemporary planning approaches. In this regard, the study presents the recommendation to answer the third research question. The recommendation is divided in two sections. In the first section the recommendation address the case study area Addis Ababa Gerji condominium neighbourhood. And the second section extended to the open spaces of the new neighbourhoods of Addis Ababa.:

6.1.2 Section one - Recommendations on the case study area

The planning and management of the open spaces in the Gerji neighbourhood seems to be stopped incidentally after allocating the open spaces. No functional allocation is done on the open spaces. The trashes during the construction period are not properly cleaned. Ditches all over the open spaces and buildings are not covered. There are no landscaping elements introduced. The irregularly planted trees cover a significant amount of the open spaces. Every resident and children uses any spaces they got free of activity. All social activities like Lekso, weeding, religious festivals and the likes happen on free open spaces available. Taking their presence and good distribution as a positive quality, the study suggests the following recommendation to enhance the spatial sustainability of the open spaces under study.

1. Proper planning

The open spaces in the neighbourhood lacks proper planning. No landscaping work is done. In the absence of planning, open spaces are treats of the society in many regards. They are treats of health, robbery, abandoning etc. To add the quality of life of the community and to make them meaningful spaces they need proper planning. The planning should consider the value and tradition of the local community. In doing so, the community should have to participate in the planning process.

2. Proper Management

There was no legal entity to manage the open spaces during the study. As stated in the contextual background BPCDAA is the legal owner to manage it with different stakeholders. But till the study is conducted there are no policies, directives, and manuals produced to administer such pocket parks. Even due attention is not yet given to the open spaces. This makes the open spaces mean value in the continuum of space and place of a neighbourhood. A public private partnership with the community is one means for the proper management of the open spaces. Pocket parks are long-term commitments which require leadership initiative from the community.

6.1.3 Section two - General Recommendations

Open spaces both at a city and neighbourhood level are significant contributors' of sustainable city (Gedikli, 2004). Open spaces provides environmental, health, social service and economic benefit to the society. Keeping in mind all concepts and taught about the open space in this study in general terms, the following recommendations are given to overcome problems associated with the open spaces spatial sustainability.

1. Researchers on open spaces should be encouraged and promoted. Open spaces in relation to environment, social service, and economical benefit according to our context should be critically assessed to bring sustainable development.
2. Policies on open spaces based on our context needs to be formulated the soonest possible time before they are abandoned. To develop back once lost attitude is a very tough task, which is in many regards sensitive to failure.
3. In the planning and designing stage of neighbourhoods and cities the quality, quantity, and distribution of open spaces needs due attention. The integral approach of the quality, quantity, and distribution is the source for sustainability of open spaces.
4. Landscaping elements based on open space requirements and cultures of the society are basic instruments for proper utilization of open spaces. It is the presence of the landscaping

elements that makes open spaces vital for the development of spatially sustainable urban development.

5. The different functions exercised and their space requirements based on our context needs deep study. However, because space is restricted and user needs are both diverse and vary throughout the day, conflicts can sometimes arise between different groups. Thus, in organizing pocket parks, designers must often work out a delicate balancing act so that all groups can use the space in peaceful co-existence.
6. Last but not least suggestion is the management system. Open space are public, this nature if not supplemented by management is liable to misuse. The creation and implementation of a written constitution and management plan are important to ensure park sustainability. However, in order for a pocket park to be truly successful, it is imperative to involve community interest, support, and participation in the planning and maintenance process. Defined management system and scope of work should be prepared to administer open spaces.

6.2 Implications

Well designed and maintained public spaces should be at the heart of any community. They are the foundation for public interaction and social integration, and provide sense of place essential to engender civic pride.

The open spaces provided in the new condominium neighbourhoods of Addis Ababa when seen from the misused open spaces of the old ones are success of the city's urban development. But they are not done to their satisfactory level for usability by their residents. Extra effort and attitude is needed to make the open spaces part of the development of the grand housing program of the city.

The findings and analysis clearly shows that there is a problem of planning, implementation, and management of the open spaces in the new condominium neighbourhood of Gerji and others as a whole. The problems seen are results of lack of policies, directives, manuals and the likes.

In the open spaces a lot of social, economical, and environmental activities are underway. Some of the activities are tradition based. To ensure a high performing open spaces policy based on the context of Ethiopia should be made. The policy needs to consider long term demands of the society, provision and improvement of access for physical challenged persons, protecting and enhancing the biodiversity, engaging the community in the process, securing long term resource and management (acquisition, operation, and maintenance), etc.

Ideally, pocket parks are closely tied to the communities they serve. The design of the park should reflect the specific interests and needs of the residents of the local community. In order for a pocket park to be truly successful, it is also imperative to consider community interest, support, and participation in the planning and maintenance process. For this, directives and operational manuals should be the main concern of BPCDAA (the owner).

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APPENDICES

As being stated in the methodology for the study interviews, observation, and secondary data were used. The interview techniques help to measure the attitudes, perceptions and motivation of the residents about the selected case study open spaces.

Appendix A

Semi Structured Interview

Name

Sex

Marital status

Educational Background

Number of house hold

Ownership (Renter/owner)

Functional usage

- For what purpose they use the open spaces
- What extra activities they observe in the open spaces

Previous open space experience

- How they were raised in their childhood concerning open spaces

Aspiration on/about the open spaces

- How they fill about the open space presence in their neighbourhood
- Over all feelings on open spaces

Comments and suggestions on the open space services

- Their opinion on the different open space services of the neighbourhood
- What functions are missing in the open spaces?
- What extra objects (landscaping elements) are vital to the open spaces?

Opinion on the size of the open spaces

- Activity and size relationship
- Overall aspiration about the size

Appendix B

Interviewed persons

Name	Gender	Marital status	Children	storey	Ownership
1. Martha Argaw	Female	Married	yes	Ground	Renter
2. Asmamaw Silesh	Male	Married	yes	Ground	Renter
3. Alemayehu Desta	Male	Single	No	Ground	Owner
4. Woderyelsh Mulugeta	Female	Married	No	Ground	Renter
5. Alemtsehay Teka	Female	Married	yes	First Floor	Renter
6. Fetiah Kedir	Female	Married	yes	First Floor	Renter
7. Asrat Tessema	Female	Married	yes	First Floor	Renter
8. Belay Gemechu	Male	Married	yes	First Floor	Owner
9. Elephaz Solomon	Female	Married	yes	First Floor	Renter
10. Abinet Wondimu	Male	Married	No	Third Floor	Owner
11. Lelesei Mengesha	Female	Married	No	Third Floor	Renter
12. Emebet Abayneh	Female	Married	yes	Third Floor	Owner
13. Woyneshet Akalu	Female	Married	yes	Third Floor	Owner