



SCHOOL OF HUMANITIES AND LAW
DEPARTMENT OF GEOGRAPHY AND ENVIRONMENTAL
STUDIES

ASSESSMENT OF URBAN GREEN AREA DEVELOPMENT
AND MANAGEMENT IN WOREDA 06, ARADA SUB-CITY,
ADDIS ABABA

BY: EYASU BERHE TEFERI

AUGUST, 2018
ADAMA, ETHIOPIA

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**A THESIS SUBMITTED TO ADAMA SCIENCE AND TECHNOLOGY UNIVERSITY
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ENVIRONMENTAL STUDIES IN PARTIAL FULFILLMENT OF THE
REQUIREMENTS FOR THE DEGREE OF MASTERS OF ARTS IN GEOGRAPHY
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**AUGUST, 2018
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ADAMA SCIENCE AND TECHNOLOGY UNIVERSITY

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List of Acronyms

AACAILIC: Addis Ababa City Administration Integrated Land Information Center

AAMP: Addis Ababa Master Plan

BPCDMA: Beautification, Park and Cemetery Development Management Agency

BPCDMO: Beautification, Park and Cemetery Development Management Office

CBO: Community Based Organization

EPA: Environmental Protection Authority

FAO: Food and Agriculture Organization

FDRE: Federal Democratic Republic of Ethiopia

GCR: Green Coverage Ratio

GOS: Green Open Space

LDP: Local Development Plan

MOFA: Ministry of Federal Affairs

MOUDH: Ministry of Urban Development and Housing

MOUDHC: Ministry of Urban Development and Housing Construction

NGO: Non-Governmental Organization

ORAAMP: Office for Revision of Addis Ababa Master Plan

PASDEP: Plan of Action for Sustainable Development to End Poverty

SBPDA: Sanitation, Beautification and Park Development Agency

UGI: Urban Green Infrastructure

UNEP: United Nation Environment Programmed

UNPF: United Nation Population Fund

WHO: World Health Organization

Abstract

This study was conducted in Addis Ababa, Arada sub-city woreda 06 with the title “Assessment of urban green area development and management”. The prime objective of the study was to assess the problem facing urban green areas development and management. The study employed primary data and secondary data sources, qualitatively through interview, focus group discussion, photographs and field observation whereas quantitatively through questionnaires for the data collection. Purposive and simple random sampling techniques were used to obtain a sample of 196 households, business communities and teachers. In addition, 12 participants for interview and other 12 participants for group discussion were selected. The data were collected through questionnaire, key informant interviews, focus group discussions, and field visit observations. The collected quantitative data were analyzed through descriptive statistics whereas the qualitative data were analyzed through simple description, narration and interpretation of the situations. The assessment of the study revealed that the present status of green areas in the study woreda06 inadequate both in quantity and quality besides the lack of proper management and development. This is because there is low level of public awareness about the values, low level of public participation, poor implementation of government policies (rules and regulations), lack of enough budget, lack of skilled manpower, illegal settlements, problem of co-ordination and integration among different stakeholders, shortage of urban land areas and lack of political leader’s commitment. Following the assessment the study was forwarded the following recommendations; open and green space must be planned as use in its own right, the municipality should uprising awareness, set rule, regulations and by-laws with the participation of the whole population, the municipality should set specified standard of green space per capital for the inhabitant while ensuring it’s sustainable development, the benefits and values of green urban areas should be demonstrated in terms of economic valuation, and engaged in the green areas development and management practice with the sense of ownership.

Key words: assessment, development, management, urban green area, woreda 06

CHAPTER ONE: INTRODUCTION

1.1. Background of the Study

An urban area is a human settlement with high population density and infrastructure of built environment. Cities are the sites where diverse social and economic resources are concentrated, and that concentration can generate substantial social and economic benefits in the form of innovation and income growth (AACCA, 2014).

Environmental program discussed a city as a social, ecological, and economic system within a defined geographic territory. It is characterized by a particular human settlement pattern that associates with its functional and/ or administrative region, a critical mass and density of people, manmade structures and activities (UNEP, 2011). Although Cities cover less than five percent of the earth's landscape, it can accommodate substantial amount of the world's resources (Mensah, 2014).

Green space is the proportion of open space that is retained in a mostly undisturbed vegetation state (MUDHC, 2015). It can be partly or completely covered with grass, trees, shrubs, or other vegetation.

Public green open spaces in a city classified into recreational parks, right of way, river and canal corridors and lakes, open spaces in residential areas, open spaces in administrative and commercial areas, open spaces in industrial areas, schools and kindergartens, cemeteries and religious yards, outdoor sports fields and facilities, temporarily vacant land, natural and semi-natural land (urban forests and water lands), steep slopes and rocky land, urban agricultural and horticultural land, green roofs and living walls, urban seedling nursery, financial aspects of standards and institutional arrangements standards (ibid).

Green space is a part of city landscape and as one of real phenomena which human beings contacted from very beginning. This subject has different aspects like environmental, social, cultural and economic (Hassan and Hooman, 2012).

Importance of green space is that much high that is known as one of the indices of sustainability. The most important benefits of green space are to sink the carbon dioxide and other toxic gases and oxygen production, regulation and improvement of cities weather, noise pollution abatement and improvement of people's spirits, prevention of water and wind erosion, hazard abatement of probable floods, prevention of unsuitable urban development and creation of beautification landscape. Suitable green space in city is one of the effective factors in reduction of negative impacts of cities development

(collinns,2014). Urban green areas and forestry improve air quality and mitigate national and global climate changes (MUDHC, 2015).

Continued growth of urban population and urban living limits access to nature and can increase exposure to certain environmental hazards, such as air and noise pollution, physical inactivity, reduce mental health benefits, preserving ecosystems, slow global warming, living attractive and viable, maximize limited space and curtail greenhouse gas emission, cool cities, loss bio diversities, over time diseases and illnesses associated with overcrowding and poor sanitation (Collins,2014).

In recent decades, proper green area management has become a matter of utmost concern of both the developing and the developed world in order to ensure sustainable socio-economic development. Sustainable socio-economic development, basically, refers to the systematic design and integration of natural resources and aesthetics into development activities with the aim of creating a balance between the carrying capacity of the natural environment and the needs of human beings (Ghee, 1995).

As the experience of the green area in Addis Ababa concerned, Arada sub city, woreda 06 is the one which should first raise since it is found at center of the town. In fact, those green area developments obviously have own roles to environmental protections. However, green areas are not grown as supposed to be, regarding this Alamerew(2002) stated that Addis Ababa has exposed to high environmental deterioration. Similarly continued growth urban population has also potential to limits access to nature and may increase exposure to certain environmental hazards, such as air and noise pollution, physical inactivity, preserving ecosystems, high global warming (ibid).

1.2. Statement of the Problem

There is growing evidence of declining green spaces in many cities in Europe, North America, South America, Asia and Africa. The situation with Africa has been particularly more critical (Fuller & Gaston, 2009).

Challenges facing the development of urban green spaces in Africa broadly categorized under three main themes. These are the pressure of urbanization, insufficient operation of urban planning regulations, and socio-economic and political challenges. The predominant challenge that was found behind the deterioration of urban green spaces in Africa was rapid urbanization (Fuwape, and Onyekwelu, 2011).

In Addis Ababa, the capital city of Ethiopia, the consequences of rapid urbanization on the development of green spaces is alarming. Most of the urban trees both exotic and local species that were grown to enhance the greenery of the city and also to protect the natural environment have been destroyed or degraded due to rapid population growth of the city (Dubbaleet *al*, 2010). Currently, the green vegetation coverage of Addis Ababa including individual trees in private yards is estimated at 7,900 ha, covering only 14.6 % of the total land area, of which about 98 % are plantation forests mainly Eucalyptus. Indigenous forests remain only in small pockets, especially around churches and secured compounds, covering an estimated area of about 2250 hectares only. This is mainly because most of the urban trees have been cleared for housing purposes (ibid).

According to the Addis Ababa city administration reports, the per capital green space is 0.3 square meter per person which is very low compared with the per capital of UN standard which is about nine square meters per person at minimum. According to UN World Health Organization (WHO, 2017).What is available in Addis Ababa (0.3 square meter access to green areas and parks) is very low by international standards.

Areas which were designated by the Master Plan for greening and urban agriculture were used for different purposes, including condominium housing (UN Habitat,2010). Statistics show that out of the 22,000 ha of land designated for green area, only about 7,734 ha (35%) is estimated to have been covered by trees (including nursery site). In addition to this, the share of indigenous trees in those areas is only about 5% (i.e. about 400ha of land) (Alamerew, 2002). The city that has experienced

environmental deterioration and in some cases, the disappearance of its green areas, highly vulnerable to ‘illegal’ occupation, as a result of poor city land management practices, most of the areas designated for green areas have been left uncovered by vegetation(ibid).

The current researcher’s personal observation also holds such that; the accessibility, quality and quantity of green areas in Arada sub-city, woreda 06 are disappointingly poorer. It is well situated in the heart of the capital and one of the most densely populated area of the city. While its green area management is facing a number of daunting challenges; the situation is getting worse.

In addition to this there is also a study gap on assessment of facing urban green areas development and management within the sub-city and its woredas. For instance, the works of Fitsum(2008) and Amare(2008) focus only on level of sub-city not specifically on woredas. Besides, this study didn’t focus directly on the formidable challenges facing urban green areas development and management even though they are somewhat related. Thus, urban green area is an important issue that needs to be researched in order to identify the state, use, challenges and possible ways of solving the development and management of this study area. The above-mentioned problems initiated the study.

Therefore, this study aims to examine the existing situations, the challenges facing green space development management and also tries to recommend possible solutions to overcome the challenges for advancing the development and management of green areas in Arada sub-city, woreda 06.

1.3. Objectives of the Study

1.3.1. General Objective

The general objective of this study was to assess the challenges facing urban green area development and management of woreda 06, Arada sub-city, Addis Ababa.

1.3.2. Specific Objectives

In light of the literature review and gaps identified in the existing literature, the specific objectives of the study were to:

- To assess the effects that was created by insufficient green areas in woreda 06, Arada sub-city.
- To identify major challenges facing green areas development and management in woreda 06, Arada sub city.
- To suggest possible solutions for challenges facing urban green areas development and management in woreda 06, Arada sub-city.

1.4. Research Questions

To conduct some theoretical and empirical tests, this study was based on the following research questions:

- How would one explain the current of green areas development in woreda six, Arada sub-city?
- What are the most formidable challenges facing the development and management of urban green areas in woreda six, Arada sub-city?
- What about the possible interventions to tackle those problems?

1.5. Significance of the Study

The major significance of the study is to identify the challenges facing urban green areas development per capital status and managing problems. The outcome of the study is expected to help sub-city managers to consider the overall green area development and management system, since development of urban infrastructure and green areas are crucial steps for immediate bureaucratic action. This study will contribute to map out relevant ways of solving the current practical challenges in developing and managing green areas in the sub-city, woreda 06. It also helps as input for consideration of urban policy

makers and planners on planning and designing urban green areas. Not least, it will also help as a reference material for further researchers who are interested in the same area of study.

1.6. Scope of the Study

As the title of this study indicates, the core intent of the study is to assess urban green areas in woreda 06, Arada sub-city. Thematically, it also focuses on assessment the major challenges facing green area development and management capacity or skills. This research solely considers an assessment of the state of urban green areas in woreda06, Arada sub-city. Thus, data is collected particularly from Woreda 06 in considering land area population and other sectors. The results of the study seek to contribute towards addressing significant issues concerning assess challenges facing urban green areas development and management in case of woreda06, Arada sub-city.

1.7. Limitation of the Study

It is impossible to conduct the investigation with absolute perfection. Some major problems constrained this study including;

- Lack of good will on the part of some participants to fill the questionnaires and to give necessary information in the interview and focus group discussion
- Unavailability of organized data in the woreda as well as in the concerned institutions
- Problems of conducting and collecting data as some responses of households and business community were busy

However, the diverse tools and methods employed including convenient timing have facilitated the process of a reliable data collection at our disposal. So much so serious attempts were made to mitigate the implications of the constraints to organize and materialize the current study.

1.8. Organization of the Study

This study is organized into five chapters: chapter one deals with introduction that consists of the background, statement of the study, objectives including general and specific, research questions, significance of the study, scope of the study, limitation of the study and organization of the study. Chapter two treats the review of related literature that situates the study within the proper context of previous relevant studies. Chapter three entertains materials and methods including: description of the study area, research methodology, the demographic characteristic in relation to urban green area and the way the data was captured and processed, the method employed to analyze the data and

presentation procedures. Chapter four focuses mainly on discussions, results and analysis related to the challenges of urban green area in woreda six, Arada sub-city, Addis Ababa. Chapter five deals with findings and conclusions believed to be through provoking for stakeholders so as to use for bringing change.

CHAPTER TWO: REVIEW OF RELATED LITERATURE

In this chapter, different scholar's view of green space in cities are presented and conceptual frame works on identifying and solving challenges of urban green areas development and management are explained.

2.1. Conceptual Framework

2.1.1. Definition and Concepts of Green Spaces

2.1.1.1. Definition

Urban green spaces are urban areas which are natural or semi natural ecosystems and they are converted in to urban spaces by human influence. Urban green spaces provide the connection between urban and nature. It refers to those land uses and land cover that are covered with natural or man-made vegetation in the city and planning areas (Cemil and Gokyer, 2012).

While these are wider literary conceptions, different scholars give a more specific definition for urban green spaces. Urban green spaces are a sub-set of open space, consisting of any vegetated land or structure, water or geological feature within urban areas (Hudekova *et al*, 2009). Also as Wilson defined urban green spaces include everything in cities that has vegetation. Collectively it is sometimes referred to as "Green infrastructure", encompassing the entire working landscape in cities that serve roles such as improving air quality, flood protection and pollution control (Wilson, 2006).

Urban green space is a component of "green infrastructure". It is an important part of public open spaces and common services provided by a city and can serve as a health-promoting setting for all members of the urban community. It is therefore necessary to ensure that public green spaces are easily accessible for all population groups and distributed equitably within the city. Urban green space interventions are defined as actions that significantly modify the quality, quantity and accessibility of urban green space (WHO, 2017).

2.1.1.2. Concepts of Urban Green Space

Urban green space can be understood as an integrated area comprising natural, semi-natural, or artificial green land, providing manifold benefits to different groups of people within the city extent

(Zhou and Rana, 2011). Green spaces represent an important environmental asset of urban areas that covers all open spaces primarily covered by vegetation; these are directly active or passive recreation or has an indirectly positive influence on the urban environment available for use (Mensah, 2014).

An urban open space is any large, medium sized or small area of land or water in or near an urban area that can be used for recreational, aesthetical, or ecological functions (Mpofu, 2013). The concept of greening of the city, or green urbanism, shows an important design approach to the sustainable urban development form (Suparwoko, 2013).

Urban areas are made up of the built environment and the external environment between buildings (see fig.1). The external environment consists of two main entities, “green space” and “grey space”. The green space may either be linear (occurred along transport routes such as roads, railways), semi-natural (wetlands, woodland), functional (allotments, churchyards, school grounds) and amenity (parks and gardens). The second component of the external environment which is ‘grey space’ covers land that to a greater extent sealed, impermeable and has ‘hard’ surfaces such as concrete, paving or tarmac. The grey space is of two types, functional grey space (which provide a specific purpose such as roads, pavements, car parks and other hard surfaced areas related to different types of built development) and civic grey space (publicly accessible areas planned basically for public enjoyment such as town squares, plazas and esplanades).

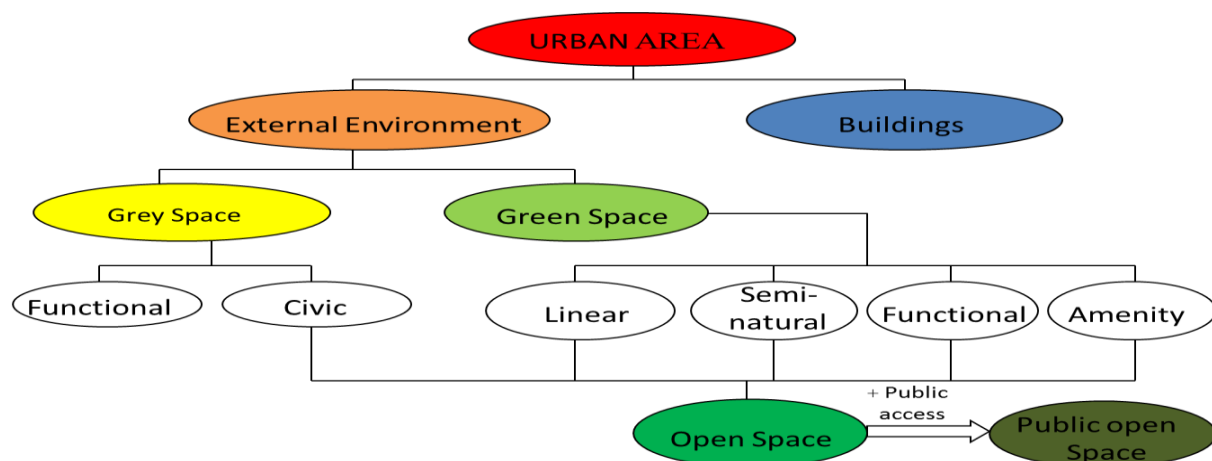


Figure 1: Description of green spaces in urban landscape

Source: Swanwick et al. (2003)

In view of this classification, Swanwick et al (2003). described urban open space as a combination of green spaces and civic grey spaces and defined it as that part of urban land that contributes to its amenity, either visually by contributing positively to the urban landscape or by virtue of public access. All open spaces that the general public have access to are referred to as public open spaces (Swanwick, et al, 2003).

Green space in cities exists in a broad variety of types spanning from the high maintenance urban park to natural areas and buffer space between noisy infrastructure and other land uses (Paniduro and Veie, 2013). The quality and viability cities depend largely on the design, management and maintenance of urban green as well as of open and public space in order to fulfill their role as an important social constellation and a visual focus (Levent and Nijkam, 2004).

Urban green space as analysis of the current green space situation should deal with the physical quality, functional, economic aspects of green space in the city (Hans et al, 2006). Also Hans explain the idea of this in the same way as the important physical aspects of urban green spaces that should be checked and analyzed are mostly quantity aspects like the distribution and supply of public green spaces percentage of all the city area; the area of urban green space per inhabitant; the distribution and supply of natural and landscape resources such as wood lands, grass lands and water areas (especially those with high recreational and landscape values); also the structure and morphological characteristics of green spaces including relief features and corridors (Hans et al, 2006).

Furthermore, according to Bacyan Levent's explanation, urban green spaces emphasizes the diversity of urban areas by reflecting the different communities they serve and meeting their varying needs (Levent et al, 2002).

Generally, Suparwoko argued that urban greening approach tries to find the integration between the urban itself and natural environment as a dynamic urban of city dwellers through a diversity of open landscape (Suparwoko, 2013).

“Green cities are defined as those that are environmentally friendly. The greening of cities requires some or preferably all of the following

- 1) controlling diseases and their healthy burden,
- 2) reducing chemical and physical hazards
- 3) developing high quality urban environment for all and
- 4) minimizing transfers of environmental costs to areas outside the cities (UNEP, 2011).

According to the Ethiopia National Urban Green Infrastructure Standard (2015), public green open space is defined as:

- Parks and gardens (recreational, botanical and zoological), amenity green open space or other green open spaces (e.g. natural and semi natural land, urban forest, wet lands and grass lands);
- School and kindergarten grounds, accessible to the public;
- Cemeteries accessible to the public, but in a restricted way since they provide only limited recreational activities
- Outdoor sport fields and facilities, accessible to the public;
- Private compounds, agricultural areas, private gardens, accessible to the public;

Also, Suparwoko uses different terminology to explain the concept of urban green space in relation to urban building. For example, Green open space which consists of public and private green space open space ratio is the percentage of open space to the area of the land or lot. Green Coverage Ratio is the percentage of total area of all green spaces including above green and below green coverage to the area of the land or lot. Building coverage ratio (BCR) the ratio of building coverage area, that means the area of building foot print to the size of land lot (Suparwoko, 2013).

Open space: any open piece of land that is undeveloped (has no buildings or other built structures.) open space may be used for passive or active recreation, or may be reserved to protect or buffer natural areas. Open space can include green space.

Green space: a proportion of green space that is retained in a mostly undisturbed vegetative state. It can be partly or completely covered with grass, trees, shrubs, or other vegetation.

Green scape /Furnishing zone: The area of the pedestrian realm that provides a buffer between pedestrians and the edge /curb zone, a cycle track, a parking lane, and/or vehicle travel lanes. This zone is where street trees, storm water elements, street lights, signs, hydrants, benches, public art, litter bins (MOUDH, 2015).

Standard: an acknowledged measure of comparison of quantitative or qualitative value; a criterion against which to enforce and/or benchmark the performance of systems.

In general, the concept of open space is today not limited to urban parks and preserve, but also to non-natural places; it includes public spaces such as streets, schoolyards, church yards, outdoor sport complexes, cemeteries and public squares (Mpofu, 2013).

2.2. Role of Urban Green Spaces

Green Spaces provide a number of valuable direct and indirect services to surrounding parcels (Panduro and Veie, 2013). Green spaces and forest areas are essential components of the urban environment because they provide a wide range of environmental and social functions to cities and urban dwellers (Sanesi and Chiarello, 2006). Increasing levels of urban densification are calling attention to those measures that can mitigate urban island effects (Mazza and Rydin, 1997).

A healthy urban environment is often associated with the availability of large forest areas within cities and the accessibility of such areas by urban residents (Hartig and Marcus, 2006). The process of making the world's cities and urban fabric greener and maintaining them in a sustainable way will bring considerable employment opportunities (UNEP, 2011).

Urban green space is an important investment that local authorities can make on behalf of citizens and their well-being. Urban green spaces provide opportunities for active lifestyles.

Through improved air and water quality, buffering of noise pollution and mitigation of impacts from extreme events, urban green spaces can reduce environmental health risks associated with urban living. In addition, they support and facilitate health and well-being by enabling stress alleviation and relaxation, physical activity, improved social interaction and community cohesiveness. Health benefits include improved levels of mental health, physical fitness and cognitive and immune function, as well as lower mortality rates in general. Everyone can benefit from urban green space interventions, but they can be of particular relevance for socially disadvantaged or underserved community groups, which often have least access to high-quality green spaces (WHO, 2017).

The tripartite contributions of urban green spaces are environmental (ameliorate climate, improve air quality, conserve biodiversity, stabilize soil, beautify urban design), economic (attraction of business, job opportunities, increase property values, increase governments revenue, high tourism value) and social (recreation/amenity, child development, health benefits, research / education, cultural / national heritages) contributions (Collins, 2014).

2.3. Green Infrastructure Component

Green Infrastructure means different things to different people depending on the context which it is used (Benedict and McMahon, 2002). The Federal Democratic Republic of Ethiopia Ministry of Urban Development and House construction states the different green infrastructure component in urban green areas development strategy (MUDHC, 2015). Accordingly, the urban green infrastructure component are lists as urban parks, sport fields, median, road sides and squares, open spaces (plaza areas), river side's, lake and lake sides, urban agriculture, woodlots and greenbelts, private gardens, condominium sites, religious compounds, cemetery, nursery sites, and building walls and roofs (MUDHC, 2015).

2.4. Standards and Per Capital of Urban Green Spaces

Before any planning, the development of urban green space per capita and its standards should be specified (HATAMI *et al.*, 2013). The standards of urban green space consider the population size, the amount of green space and the green space per capita. Based on this, it is different from cities to cities(ibid).

The common and international green space per capital that is currently applicable in most developed world cities is shown. For most, the standard suggested by World Health Organization was the global governing green space per capital (Singh *et al*, 2010).

Table 1: Green Space per capita suggested by different organization.

No	Explanation	Green space per capital
1	Suggested Standards by the United Nations	30 square meters
2	Suggested Standards by the National institute of the US	14 square meters
3	Suggested Standards by the public health bureau and the ministry of housing of US	18 square meters
4	Suggested Standards by the ministry of housing and urban development of Tehran	12 square meters
5	Standard suggested by WHO	9 square meters

Source: Hassen and Hooman, 2012 and Singh,2010.

International minimum standard suggested by World Health Organization (WHO) and adopted by the publication of United Nations Food and Agriculture Organization (FAO)s a minimum availability of 9 square meter green open space per city dweller (Singh *et al*, 2010).

Table 2: Public green space by proportion of surface area and green space per capital.

Cities	Green space proportion by surface area in percent	Green space per capital square meter
Singapore	17.8	7.5
Europe (average of 26 large cities)	18.5	104
Hong Kong	1.81	3
USA (Average)	27	32
Paris	9.4	80
India /Delhi	20	21
India/Chandigarh	35.7	55
The Netherlands (Average 22 large cities)	19	228

Source: Bop, 2013 and Singh and others, 2010.

Table 2 indicates about the world cities of green space by proportion of surface explained each city's amount of green areas from their total land areas. According to table 2, the perception people have for urban green space been different from cities to cities. For example, the Netherlands taken as average from the total land area 19% are covered by public green space and which accounts 228 square meter per capital of the population. And this is referred to as the largest green space per capital in the world cities.

Article 43 and 44 of the constitution of the Federal Democratic Republic of Ethiopia (proclamation No. 1/1995 affirms the right of citizens to live in a clean and healthy environment.

The recent growth and Transformation five-year plan gives priority to environmental awareness creation and development of green areas. Competent authorities shall follow urban planning preparation and implementation strategy, (2014) to allocate 30% for green areas and shared public use and 40% for building construction in their urban land management plan. Competent authorities shall ensure a minimum of 15m² public green open space per capital within the city boundaries. Every inhabitant shall live within 500m from a public green open space of a size of at least 0.3ha, an area big enough for e.g. playing football and for other informal play (NUGIS,2015).

2.5. Challenges of Urban Green Areas Development

Even if there are great and various benefits of urban green areas, both in developed and developing countries, there are various problems for development and management it. The pressure of urbanization, insufficient operation of urban planning regulations and socio-economic and political challenges are the three main themes in African Cities (Mensah, 2014).

2.5.1. Pressure of Urbanization

Urbanization brings both challenges and opportunities for green Cities. Challenges include the rapid pace of urbanization, and related pressure on environment and social relations (UNEP, 2011). Similarly, according to BTC, Urbanization is a context specific and complex process involving socio-economic, political, environmental and spatial aspects. This present global challenge that will require appropriate solutions in terms of organization, planning, and management, but also political will and recognition (BTC, 2008).

In case of developing countries like Africa, the predominant challenge that was found behind deterioration of urban green space in Africa was rapid urbanization (Mensah, 2014). The rapid urbanization in Africa was found to have resulted in excessive destruction of urban environment such as green space. Rapid urbanization, particularly the growth of large cities is associated with the problem of environmental degradation pose a formidable challenge in many developing countries. On the other hand, urbanization poses problems through effects such as environmental pollution, accidents, heat islands effects and climate change (Maheswaram, 2010).

2.5.2. Insufficient Operation of Urban Planning Regulations

Mensah explains planning of towns in Africa is underlined by regulations which are made by the legislature and approved by the central government. Although several land planning regulations on green space were found to be available in various African countries, the operation of such regulation was problematic. The following issues were found to hinder the effective operation of urban planning regulations on green space in Africa: the dysfunctional nature of urban planning regulations, bureaucratic processes involved in issuing development permits and weakness of the planning institutions as result of insufficient resources to work with (Mensah, 2014).

2.5.3. Socio-Economic and Political Challenges

Lack of priority to green spaces in the development agenda of some cities in Africa was uncovered to hinder the growth of green spaces. Green space was found not to be among the main priorities of many African countries. Matters of poverty reduction and provision of social amenities such as housing, schools, hospitals and pipe-borne water constitute the top priorities of many African countries. This has influenced national governments and city authorities not to give much attention and commit the needed funds for the creation and maintenance of green spaces. The low priority to green spaces was found to have resulted in many city authorities not providing good security on urban parks to enhance the safety of park visitors (Mensah, 2014).

Uncooperative attitudes of urban dwellers towards the management of green spaces also emerged as a predominant challenge. This was found to be the result of lack of involvement of the local people in decision making on green spaces and poor awareness of the local people on the benefits of green spaces. Political instability was also a challenge that strongly came up as a contributory factor for the poor management and rapid deterioration of urban green spaces in Africa (Mensah, 2014).

2.5.4. Economic Valuation for Urban Greening

Placing a value on the cities green spaces is one of the most significant challenges that city planners may encounter when implementing an urban greening program. While there are obvious costs involved in the establishment and upkeep of green areas, it is difficult to calculate the value of all the benefits associated with that area. It may also be difficult to avoid double counting benefits if several assessment methods are used independently to estimate a variety of benefits from the green areas (Walter, 1997).

2.5.5. Institutional Challenges

Urban greening is, by definition, an integrated process that requires a high level of institutional capability to plan, execute and maintain green areas throughout a city and its environs. Governmental Capacity among the institutional obstacles to overcome is a general lack of coordination between the various levels of government, i.e., federal, state and local. Many municipal authorities have been left unsure about which environmental responsibilities are theirs (Walter, 1997).

2.5.6. Landscape Standards

One of the best management practices of urban green areas (parks) is landscape standards, even though, in most developing countries there is a challenge in outlining and practicing green areas development and management aligning with landscape standards (Benedict and Memahon, 2002). Written landscape quality standards can be used to plan on both a strategic and on a practical level for events and maintenance practices in green spaces (HATAMI *et.al.* 2013).

2.6. Green Areas Development and Management

Urban Greening is an integrated, city-wide approach to the planting, care and management of all vegetation in a city to secure multiple environmental and social benefits for urban dwellers; projects may involve planting of trees, shrubs, grass, or agricultural plots (Walter, 1997). The elements of a green infrastructure network need to be protected over the long term. This requires long range planning and management, as well as an ongoing commitment (Benedict and McMahan, 2002).

Sustainable development of cities and development of urban green spaces are very important, since almost half of the world population now live in urban areas (Shah, 2011). And also as Mpofu, described in his research paper more than three million of the total population now lives in Addis Ababa (Mpofu,2013). So, in order to improve the environmental quality in cities and ensure its sustainability, urban green areas development and management are the major tasks for urban managers.

2.6.1. How to Design Urban Green Spaces

Urban policy-makers and practitioners are advised to consider four practical implications for the planning and design of urban green spaces identified from the review of evidence and practice. Put the green space close to people: as a rule of thumb, urban residents should be able to access public green spaces of at least 0.5–1 hectare within 300 meters' linear distance of their homes, plan for a diversity of urban green space types, responding to diverse demands: consider various types of urban green space – street greening, small and large parks, greenways, nature playgrounds and so on – to satisfy different needs, consider simple design features to improve the comfort of urban green space use: establish clearly visible entrance or access areas and supply infrastructural features such as benches, waste bins,

toilets, lighting, drainage and so on and think of the maintenance needs of the urban green space(CABE, 2006).

2.6.2. How to Promote the Use of Urban Green Spaces?

Outreach and promotion activities are of paramount importance to ensure that urban green spaces are used by a diversity of population groups and provide a setting for all local residents. All urban green space interventions should apply a dual approach through which physical changes (such as creating new or improving existing green space) are accompanied by social promotion activities. Such promotion activities can be very diverse and include promotion of urban green space through websites, onsite signs, brochures and similar, facilitated activities and public events such as family days, sports events, festivals and markets, small-scale group activities such as guided walks or green gyms, local champions and celebrities, who are very effective for promoting the use of urban green spaces and engaging the local community and setting up or collaborating with local organizations to help run and maintain the urban green spaces or to use them for their activities such as urban gardening allotments (WHO, 2017).

2.6.3. How to Monitor and Evaluate Urban Green Space Interventions

It is vital to monitor and evaluate urban green space interventions to:

- assess whether the intervention provides the intended benefits; and
- find out whether certain population groups benefit less, or could even be negatively affected by unintended side-effects (CABE, 2004).

Effective monitoring and evaluation starts at the beginning of a project by reflecting on the indicators that should be used to document the project outcomes, and by incorporating monitoring and evaluation activities in the project timeline and budget (CABE, 2004).

2.6.4. Management of Green Areas

According to (Abebe, 2009) green areas are a single unit with interrelated multifunctional values. This multi functionality character makes the management very complex. Because the management of green

areas needs to be understood the whole benefits and characteristics of green areas to maximize the values. Therefore, management of green areas, defined by the multi functionality behavior, need to impress local politicians to help them to see green areas as a multi-faceted enterprise, recognizing the link and interdependency of the strands. This may help to avoid any one strand gaining priority at the expense of others, particularly in competing for resources, and in securing specialist management expertise across the functions, and encouraging a unified and coherent management structure and system. Then, to do these multi functionality benefits of green areas, integrated management system is essential(Abebe,2009). Understanding the nature of the green area system should come before devising any new management system for its care. Therefore, understanding the multifunctional nature of the green areas system is at least as important as understanding the typological diversity of its physical form (Barber, 2005).

2.6.5. Qualities of Successful Development and Management of Green Areas

Successful green areas have different qualities behind the attractiveness of the physical existence. Among these qualities sustainability, connectivity and accessibility, inclusiveness and biodiversity are the prominent (Stephen, 1992).

Sustainability: green areas contribute towards making more attractive towns and cities; provide venues for cultural events and the arts; raise land value; and provide safe routes; ecologically they provide flood protection and sustainable drainage; creating micro-climates; air filtration; shading, and enhancing biodiversity (Shah, 2011).

Connectivity and Accessibility: the network of spaces should be integrated with the surrounding street pattern and access points placed at major junctions. Integrated, safe and attractive routes should link with the network of green areas and encourage people to travel to work and school or to access local services on foot or by bicycle (Stephen, 1992).

Inclusiveness: parks and green areas should provide a resource for a wide range of people of both sexes and different ages and backgrounds, green areas should be socially inclusive and accommodate a variety of uses. All individuals should feel comfort and no single group should dominate (Stephen, 1992).

Biodiversity: providing a hierarchy of green areas should help to meet biodiversity conservation objectives, as each space will offer different habitats for species. For example, flourish or die-if the level of management and intervention was related at some time in the future (Stephen, 1992).

CHAPTER THREE: DESCRIPTION OF THE STUDY AREA AND RESEARCH METHODOLOGY

3.1. Description of the Study Area

3.1.1. Geographical Location and Physical Characteristics of the Study Area

Arada sub-city is one of the ten sub-cities consisting of ten woredas. Woreda 06 is one of the woredas and it is located between $9^{\circ}2'6''$ N to $9^{\circ}2'43''$ N and $38^{\circ}45'2''$ E to $38^{\circ}52'0''$ E and it is found east of Kechene River (woreda 05 & woreda 10), south of Jan-meda (Sidist Killo), north of woreda 09 and north west of woreda 07 and crossed by main tributary Genefele River (AACAILIC, 2014).

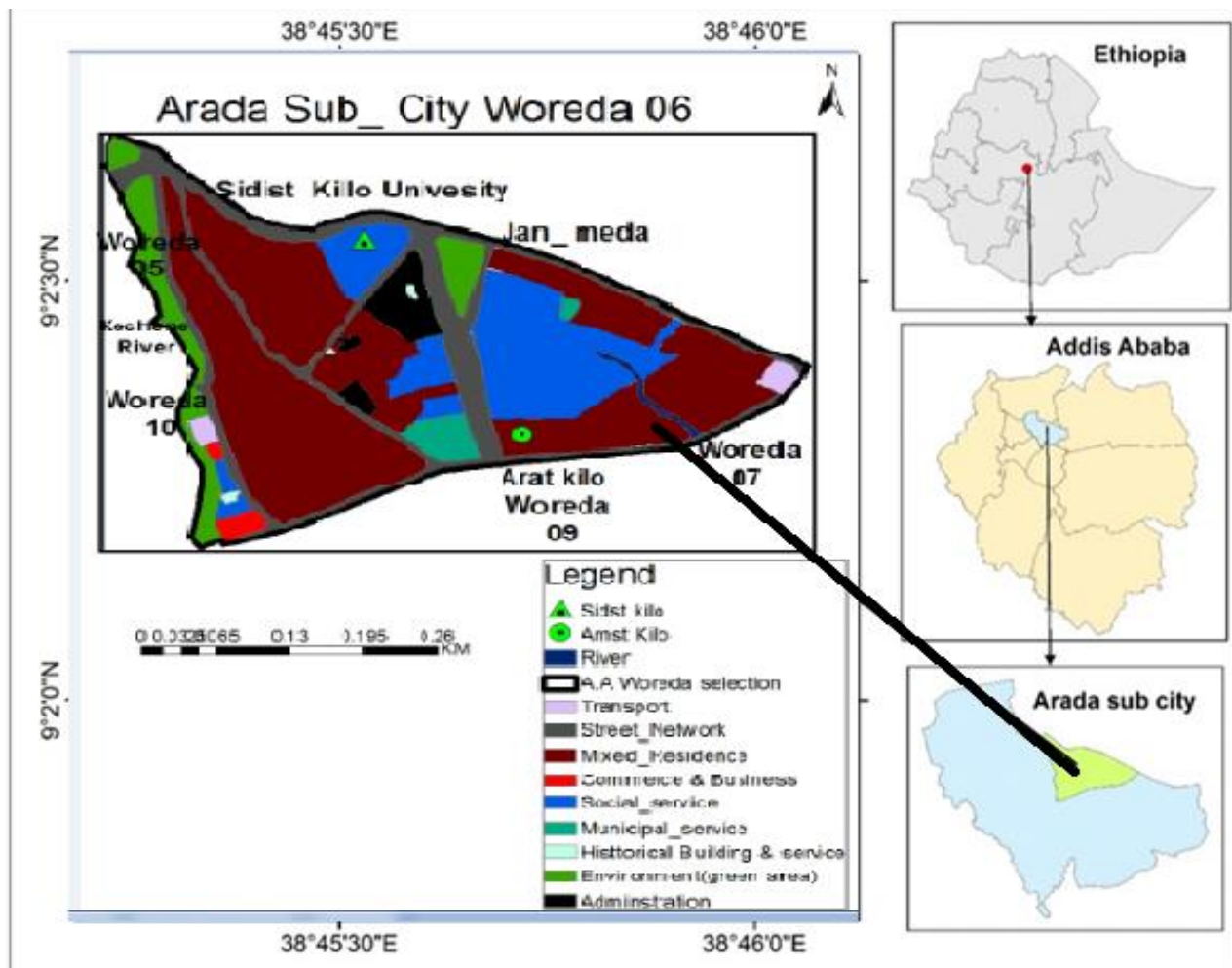


Figure 2: Location Map of the Study Area

Source: Own manipulation based on Ethio-GIS data, 2017

Topography

Most of woreda 06 land is gently sloppy and sloping in which 26.32% and 37.96% respectively. Very steep slope comprises not greater than 0.5% slope; besides steepen land slope, especially in the southern part of the woreda. It's altitude ranges from 2343 to 2545 meters above sea level. It covers an area of 90.59 hectare (ibid, 2014).

Hydrology

In woreda 06 there are two main rivers (Kechenie River and Genefele River). Most of their sources are from Gulele sub-city. Over some of these rivers there are a number of well-known bridges such as Ras Mekonnen bridge over Kechene River and Genefele bridge over Genefele River. Woreda 06 is located East of Kechene River and crossed by Genefele River (CSA, 2013).

3.1.2. Demographic and Socio-Economic Aspects of the Study Area

Population

According to the 2007 census, the total population within Arada sub-city, woreda 06 is 19,861 and out of this 9,238 (46.5%) are male whereas 10,623 (53.5%) are female. It covers a total area of 90.59 hectare. There are a total of 4,705 households in the woreda. The study area is characterized by rapid population growth and the woreda's crude population density is about 219 per hectare (CSA, 2013).

Socio-Economic Aspects

Woreda 06 of Arada sub-city, like the other sister sub-cities and woredas, plays a major role in a provision and management of social (municipal) services such as parking, housing, water supply, dry waste plate (collection point), Micro and Small-scale enterprises (MSES), primary and secondary school and Higher education. It also offers water reservoir and water points(Bono), and worship centers. The population is mainly engaged in professional, commercial and micro and small enterprises activities (BPCDMO, 2018).

3.2 The Research Methods and Materials

3.2.1 Research Design

This research generated information that employed qualitative and quantitative research approach. Thus, the study used mixed research approach. The reason for using this method is to compare the results from two different perspectives as relying on quantitative method alone can hide important facts obtained from qualitative method.

3.2.2 Sample Size and Sampling Techniques

The main purpose of this study is to assess the state, use, challenges and to suggest possible options of urban green area in woreda06, Arada sub-city. The study employed purposive and simple random sampling techniques to select individuals who can provide necessary information about the issue being studied. To get reliable and consistent data, the researcher randomly selected individuals for questionnaires from all over the woreda with the intention of guaranteeing that participants were evenly selected, since the issue of green areas development and management seeks an attention from the overall society. Beside this, to get relevant information based on their profession, experience and living time in the woreda, the researcher purposively selected six household dwellers, three business communities, one professional expert from the woreda BPCDMO, one manager from the woreda administration office and one process owner for interview. In addition, twelve household dwellers who have lived in the area for long years were selected purposively for focus group discussion. The study bases on magnitude of the problem of green area development and management. The research was employed to select undertaken woreda 06 out of the ten woredas, relatively based on environmental, land areas in hectare, population density, household and social condition.

To determine the sample size of households, those who participated in the study, the formula of proportions of Yamane (1967) was used, which is calculated as follows:

$$n = \frac{N}{1 + N(e)^2}$$

Where; n = the sample size
 N = the population size
 e = precision (0.07)
 1= probability of the event occurring

Hence; $n = \frac{4705}{1+4705(0.07)^2} = 196$ was the sample size

A total of 196 respondents were selected from the 4705 households in the study area. In addition, 24 respondents were selected for interview (12) and focus group discussion (12). In the formula, precision (0.07) was selected and used by the researcher to determine the sample size due to the similarity on topography, demographic and socio-economic aspects and centralization on specific geographical size of the study area.

Based on the above sampling method the following table shows the number of people selected to participate in different modes.

Table 3: Summary of sample population

Participants	For questionnaire	For interview	For FGDs	Total
Households	166	6	12	184
Business community	20	3	-	23
Experts	-	1	-	1
Teachers	10	-	-	10
Managers	-	1	-	1
Process owners	-	1	-	1
Total	196	12	12	220

Source: own design, 2017

3.2.3 Data source and Type

Both primary and secondary data sources were used for the research.

3.2.3.1 Primary Data Sources

The primary data were obtained from households, business communities, experts, teachers, managers and process owners through structured questionnaires, personal observation, field visits (sight survey), focus group discussion and key informant interview. In this process, data related to demographic and socio economic of the participants, challenges facing green areas development and management, development of green areas, management practices of green areas and possible solutions for challenges facing urban green areas development and management were collected as primary data sources.

3.2.3.2 Secondary Data Sources

The secondary data were collected from various documents such as the city master plan, quarterly, information brochures and other relevant published and unpublished sources from Addis Ababa city, sub-city and woreda administration. The internet also offers a lot more crucial and diverse secondary sources on various topics that has relevance to the subject under investigation.

3.2.4 Data Collection Instrument

For this study, the researcher employed a combination of methods: questionnaire, key informant interviews, focus group discussions, photographs and field visit observations to overcome the limitation of each method to enhance the quality and adequacy of the data.

A. Questionnaire

Questionnaires were prepared open-ended and close-ended in a way they could answer the research questions. The researcher prefers this tool as principal tool of data collection because of the fact that questionnaire is the most flexible tool, which helps to extract invaluable data from large number of people. Questionnaires were given randomly for residents, business communities and teachers in order to get data on the extent of their awareness and challenges faced on green areas development and management in the study area. Besides these, the collected data assist the researcher to make analysis and draw generalizations on the research issue. Four enumerators, which is two from school, one from business community and one from the woreda administration office were employed based on their profession and educational background. Orientation was given to the enumerators on the procedures to follow while conducting and filling the necessary data from the respondents. Pre-testing of the draft questionnaire was done on 19 randomly selected respondents who possess identical characteristics with that of the respondents in the study area to check its question content, wording, format and sequencing. Generally, 196 copies of questionnaires were distributed to the respondents, and the researcher himself personally administered the questionnaire in collaboration with the four enumerators. This has increased the return rate and enabled the researcher to explain the meaning of the questions which is not clear for respondents. Based on the research questions, a pilot study was used to test the precision of expression, reliability and validity of the questionnaire by allowing respondents to fill the questionnaire in the study area.

B. Key Informant Interview

Personal interviews of structured, semi-structured or unstructured aimed at eliciting data from 6 households, 3 business communities, 1 office manager, 1 professional expert working at woreda BPCDMO and 1 process owner in total 12 were conducted. In addition to these, informal interviews were held during the field visit with key informants from the local community including some respondents who filled questionnaires with a view to cross check the data generated through questionnaires were conducted.

C. Focus Group Discussion

Focus group discussion was conducted for 1:30 hours based on social, intellectual and educational homogeneity with 12 households who have lived in the study area for long years to provide the opportunity to have a deep information and understanding about the most important urban green areas challenges and their possible solution for the problems. Accordingly, depth discussions were made in two groups, each group with six respondents to investigate the status of green areas in the woreda.

D. Photographs and field visits

Photographs were taken on the field to show the actual look of the site including the various activities under taken on the areas. Personal observation was also made through frequent visiting with intensive note taken. Data was also generated through field visits via thorough discussions with key informants.

3.2.5 Method of Data Analysis

Data analysis is the process of systematically reaching and arranging the qualitative (open ended questionnaire, interview, observation, focus group discussion, photographs and field visits) and quantitative statistics that the researcher collected to enrich the study. After the data was collected from various sources, the data and information were organized and analyzed. The qualitative data that were obtained from key informant interview, focus group discussion and photographs were analyzed through simple description, narration and interpretation of the situation. Whereas, the quantitative data were analyzed by the descriptive statistical techniques mean and percentage. Along with these descriptive statistics, data have been displayed in tabular and graphical presentation.

3.2.6 Validity and Reliability Measures

Validity refers to the truthfulness of the data. Whereas, reliability refers to the general is ability of one's findings.

In order to keep the data validity and reliability of this research, the researcher used the triangulation method to increase the credibility and validity of the research results to overcome the weakness or intrinsic biases.

In order to assure the validity of the finding, the researcher tried to review different literatures related to the problem under the investigation and the tools were pre-tested with households, business communities and teachers.

In order to keep the reliability of measurement in questionnaire survey, the researcher carried out pilot study prior to actual survey in order to prove legibility formats and logical sequences of questions for actual survey. This enables the researcher to prove the legibility of the questionnaire for the actual survey.

3.2.7 Ethical Considerations

One of the main concerns in conducting research, which collect ideas from different individuals and organizations to the study, is ethical consideration for the research subjects. The researcher should have to be so much confidential to keep their idea whatever they said. The researcher got the consent of household, business community, teachers, officers, questionnaire survey respondents, focus group discussion and key informant interview. They were also aware of the objectives and outcomes of the research quite adequately. Also, they were informed that their personal information will be kept confidential that will not be publicized nor given to any third party without the full willingness in case the need arises. This was vividly expressed in the forward part of the questionnaire booklet. Both researcher and the enumerators inform the respondents that their responses will be kept utmost confidential level.

Beyond the ethics on human subjects, research ethics also considers acknowledgment of data generated by others and appropriate citations of scholarly research outputs, books, websites and any other related documents in order to assure intellectual and scientific integrity of research. By recognizing this, the researcher tried to cite and acknowledge all the information taken from scholarly literatures and data generated by other individual or organization.

CHAPTER FOUR: RESULT AND DISCUSSION

Under this chapter, data and information collected from respondent's questionnaires, interview, focus group discussion, photograph and field observation is organized and analyzed by descriptive statistical techniques such as percentage, average and proportion and through simple description and interpretation based on the research objectives and questions with general socio-economic characteristics of the respondents.

The analysis and interpretation of the responses are also given immediately before each table and figure.

4.1. Characteristics of the Respondents

As the review literature depicted that the difference in age, educational background, sex, age and income level have own relation regarding their contribution on management of green area. Accordingly, many scholars claim that the characteristics of the respondents have impact on the reliability of the collected data. Thus, the socio-economic characteristic of the respondents had a direct relationship with the development and management of green areas.

The study employed 196 respondents which mean that 166(84.7%) respondents were households, 20(10.2%) respondents were business communities, and 10(5.1%) respondents were teachers. In addition, 24 respondents were selected for key informant interview and focus group discussion.

4.1.1. Sex Distribution of the Respondent

Large number of the responses from interview, focus group discussion and personal observation agreed on that sex distribution of the respondents had a different interpretation in relation to green areas in the study area. Mostly men use the areas negatively for chewing chat and smoking whereas women use them negatively for dumping wastes. This shows, if the level of awareness of both sex is increased the use of green areas for the intended values should be achieved and helps the management and development of the areas. Out of the total 196 respondents 123 (63%) of them are male and the remaining 73 (37%) are female.

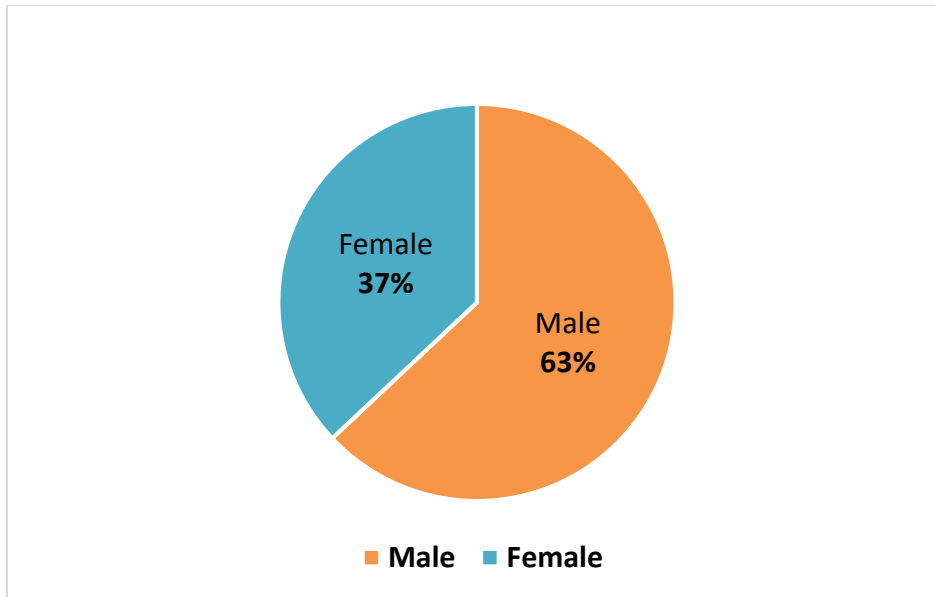


Figure 3: Sex distribution

Source: own survey, 2018

4.1.2. Age Group of the Respondents

Different age group respondents had different implication for urban green areas development and management of the study area. Well developed and managed green spaces contribute more to the social, psychological, cultural and economic development of any age. For example, for students they are useful for practical teaching and learning processes and for developing interactive life with their age mates. For adults, they create conducive atmosphere for socio cultural development, social cohesion and for celebration of different ceremonies. For aged, they provide a place for leisure, rest and information exchange among each other from different sources of media i.e. magazines, journals and newspaper.

Table 4: Age structure of the respondents

No	Age Group	Frequency	Percentage
1	20-25 years	5	2.6
2	26-30	113	57.9
3	31-35	32	16.1
4	36-40	19	9.6
5	41-45	14	7.2
6	46-50	6	3.3
7	51-55	4	2
8	56 and above	3	1.3
Total		196	100

Source: own survey 2018

The age group shows that most of the respondents are young 26 - 30 years (57.9%) followed by those in the age group of 31 - 35 years (16.1%). Those in the age group 20 - 25 years (2.6%) and above 35years age group (totally 23.4%) are few in number. The majority age groups participated in the study were 26 - 30 years (57.9%), which are the most active age groups.

4.1.3. Educational Status of Respondents

Education background has a direct relationship with awareness of green areas development and management. If the level of education is high and then the awareness about the values and benefits of green areas will be high, this in turn may led to increased contribution for development and management of green areas. For an illiterate society, green areas mean nothing except simple open spaces for solid waste disposal, chewing chat and smoking while for literate and modern society green areas are a means for leisure, recreation, improved water and air quality, reduce environmental health risks and conserve biodiversity. Therefore, education is an instrument necessary for the creation and development of green areas in the study worda and even in cities.

As it can be observed from table 5, 9.2% of the respondents had no first degree, 17.7% of the respondents had completed high school, 62.5% of the respondents hold diploma and 10.6% of the respondents hold first degree and above.

This shows the respondents are relatively educated and this may help to create awareness about urban green areas development and management in the study woreda.

Table 5: Educational background of the respondents

Level of education	Frequencies	Percentage
Below grade 10	18	9.2
High school completed	35	17.7
Diploma	122	62.5
BA/BSC	17	8.6
MA/MSc and above	4	2
Total	196	100

Source: own survey, 2018

4.1.4. Income Level of Respondents

Incomes of individuals are closely related to the development and management of green areas in the study woreda. Large number of respondents from interview, focus group discussion and personal observation agreed that as income of individual's increase, then the tendency of using green areas for dumping solid waste and other illegal activities decrease due to their ability to donate money to develop, improve and maintain the green areas and willingness of people to use them.

As shown in the table 6 the income level of the majority of the respondents is less than 1,000 birrs per month. This amount could not initiate them to contribute some amount of money for green areas development and small proportion (5.3%) earn high which is more than 2000 birr.

Table 6: Income Level of the Respondents

No	Income Level (in birr) per month	Frequencies	Percentage
1	Less than 1000	101	51.3
2	1000 – 1500	69	35.2
3	1501 – 2000	16	8.2
4	Greater than 2000	10	5.3

Source: own survey, 2018

4.2. Status, Development and Management of Urban Green Areas

The result of the analysis in the study area revealed that different stakeholders and sectors are involved in the development and management of green areas. This agrees with (WHO, 2017) as it is said any development is not a result of one party effort but is a result of integrated effort of actors or communities. Collaboration with stakeholders and other sectors can help urban green area interventions to be more effective. To show the current structure, the activities undertaken by different stakeholders on green areas in the study woreda are shown below with pictures.

Green area developed by government institutions

The pictures below show some of the green areas developed by the government institution.



Figure 4: Photograph of green area protected
by the municipality (70 dereja)

Figure 4: Photograph of green area
protected around 5 kilo science and
technology university



Figure 6: Photograph of green area around 6 kilo total ring

Source: picture taken by the author (May, 2018)



Figure 5: Photograph of green area around AfnchoBer



Figure 7: A photograph showing green area around 6 kilo square (Martyrs Monument)

Source: picture taken by the author (May, 2018)

Green area developed by religious institutions

Religious institutions also develop and manage green areas. The picture below shows one of these areas.



Figure 8: Photograph of green area protected by St. Giorgi Armenian church

Source: picture taken by the author (May, 2018)

Green area developed by private and NGO institutions

The pictures below show some of the green areas developed by private and NGO institutions.



Figure 9: Photographs of green area protected by Lucy Gazzebo and Mother and children association

Source: Picture taken by the author (May, 2018)

Green area developed by educational institutions

The pictures below show some of the green areas developed by different educational institutions.



Figure 11: Photograph of green area protected by Atse Naod Elementary School



Figure 10: photograph of green area protected by Biherawi Betemengist Elementary School



Figure 12: Photograph of green area protected by Dejzmach Belay Zeleke No1 Secondary school

Source: picture taken by the author (May, 2018)

As it can be seen on the following table 7, the total available land area of the woreda is small. This in turn, affects the development of green areas, since there is a shortage of land area.

Table 7: Land area, population size and average gross density of the study area

Area	Total area coverage by hectare	Total number of population	Average gross density
Woreda 06 (study area)	90.59 (10% of the sub-city)	19861 (9% of the sub-city)	219 /hectare

Source: Arada sub-city Integrated Land Information Office, Feb 2014

Based on table 8, the total green area developed in the woreda is 0.98% of the total area and 0.45m² green area per person which is 5% of the standard existed green area. This green area development and management in the woreda is insufficient to the inhabitant and tourists as compared with the MOUDH (2015) minimum standard of 15m²public green open space per capital within the cities boundary. Even when compared with the international minimum standardized requirement of 9 m² per inhabitants it is low. This shows that the availability of green areas in the woreda is low and also one of the factors for this is the shortage of urban land area.

Table 8: Urban land areas in the study woreda

Total urban land area	Total number of population in woreda 06	Actual existed green area in woreda 06	Percentage from the total area	Square meter per person in woreda 06
90.59 hectare (905900 m ²)	19,861	- Road square green area = 924m ² - Transport corridors = 758m ² - Road side green area = 6914m ² - 20/50 radius green area = 320 m ²	0.98 %	0.45 m ²
		Total 8916 m ²		

Source: Arada sub-city, woreda six BPCDMO, 2018

Table9 shows view of respondents on the availability of green area. Out of the respondents, only 2% replied that the available green area in the woreda is very good, whereas 33% replied that its

availability is good but the remaining 65% replied that it is low. Overall, therefore, the majority of respondents underlined that green area is far from being adequate, a claim that is consistent with international standards.

Table 9: Green area availability in the woreda

Item	Excellent		Very good		Good		Low	
	Frequency	%	Frequency	%	Frequency	%	Frequency	%
Green area availability	-	-	4	2	65	33	127	65

Source: own design 2018

In addition, almost all of the respondents from interviews and focus group discussion said that accessibility of the green area in the woreda is very low in both quantity and quality terms.

So, from all the above it can be concluded that the availability of green areas is insufficient in the woreda. And this issue needs an urgent policy attention to rectify the problem.

The adequacy of green area is also measured in terms of components of green area. In this case, the table 10, shows the green area components that are found in the woreda not enough. But some, for instance proposed parks, sport fields, condominium site green space, river bank corridors and parks are not properly defined and demarked in a clear way. This shows poor commitment of the political leaders and unqualified and mismatched professional field standard exist in the woreda administration office.

Table 10: Green area components in Woreda

No	Types of Green space	Developed (m ²)	Undeveloped (m ²)
1	Proposed parks	-	Unclear in m ²
2	Sport fields	-	Unclear in m ²
3	Transport corridors	758	3150
4	Road side green space	6914	3400
5	Road squares green space	924	2110
6	Small square green space	394	3215
7	Condominium site green space	-	Two sites but unclear in m ²
8	River Bank Corridors	-	Unclear in m ²
9	Parks	3000	Unclear in m ²
10	20/50 radius green area	320	9567
	Total	12,310 m ²	21,442 m ²

Source: Arada sub-city, woreda six BPCDMO, 2018.

Table 11 shows that from the total respondents, 60.6% travelled more than 2000 meters' distance from their home. Because for the majority residents not access near to their home which is relatively very far according to the standard by WHO (2017), i.e. as a rule of thumb, urban residents should be able to access public green space of at least 0.5 – 1 hectare within 300 meters' linear distance from their homes. In respect to visiting habit of respondents, about 37.8% of respondents replied that they frequently use green areas for recreations on monthly basis. Also, large number of respondents through interview and focus group discussion indicated that low accessibility and unfairly distribution of green area in the woreda. The result is consistent to the findings of Shah (2011) that distance and walking from home has appeared to be the single most important preconditions for use of green space in close proximity to a green space to use it frequently.

Table 11: Existing minimum distance and visit frequency in the woreda.

Minimum distance from home			Visit frequency		
Distance from home (M)	Frequency	Percentage	Description	Frequency	Percentage
up to 500	16	5.4	Daily	42	13.9
500-1000	33	10.7	Weekly	95	31.3
1000-2000	71	23.3	Monthly	115	37.8
Above 2000	184	60.6	Annually	52	17
Total	304	100		304	100

Source: own design, 2018

The following table, shows to identify the presented with in the woreda's inhabitants to urban structure about green area development.

In principle, the distance to be traveled to get urban area is dependent on the total square meter of the green area. Based on table 12 from the total respondents, 61% replied that they frequently utilize city boarder green areas. And this reveals that they travel maximum distance to urban green area at the border. Therefore, this agrees with Tajima (2003) which revealed that green space in city center can better characterize and enhance the image of the city. So, the availability of green area in the woreda is fairly low or very limited.

Table 12: Location of green area utilized

Location of green area utilized	At the border (Around)	At the center (Inner city)	Throughout the city
	61%	10.9%	28.1%

Source: own survey, 2018

4.3. Benefits of Urban Green Areas

Urban green areas have immense social, environmental and economic benefits to the local community. Urban areas have multifaceted functions and benefits. Among the uses of green areas, the survey study conducted in woreda 06 suggests major benefits to inhabitants including: mental and psychological satisfaction, carrying out different festivals, beautification and recreation, combating climatic change/disruptions, mitigating ecological/environmental degradations, and finally expanding job opportunities.

The ensuring section of this study tried to capture the respondent's perception and/or ratings to each benefit as presented in table 13

1. Mental and psychological satisfaction

It is fait accomplice that green spaces bring about mental and psychological satisfaction for any age group. This has also been the case from the survey conducted with respondents of Woreda 06. As such,81% of the respondents indicate that they use green space for rest and to get psychological satisfaction. Looking, setting and even playing in areas that is covered by green brings huge mental and psychological satisfaction for children, youth, and old age person alike.

2. Carrying out different festivals and ceremonies.

Green areas also suit well the purposes of carrying out different festivals and ceremonies. Out of the total respondents, 53% agreed that the green spaces are mostly used for carrying out different festivals and ceremonies. Festival and ceremonies are any occasions for celebration and photographs.

3. Beautification and recreation

Consistent with the basic functions of green areas, almost all (98%) of the respondents in the study area agreed upon that green areas are used primarily for beautification and recreation. Green areas are eye catching places and used for playground recreation and they give shade for the urban settlers.

4. Combating Climate Change

Green areas provide a range of climate related services that can make substantial contribution towards adapting to climate change and limited yet important contribution towards mitigating climate change. In this case, out of the total respondents, 46% said that urban green spaces have the ability to moderate local climate.

5. Ecological Balance

Phenomena like global warming, acid rain and pollution happen because of the elements taken from the environment are used up without replenishing. If the ecological balance is disturbed there can be drastic consequences. In this case, from the total, 60% of the respondents said that urban green areas are used for maintaining the ecological balance of the area. The implication is that developing and managing

green areas properly contributes to noise reduction, pollution control, evaporative cooling (reducing of runoff), reduction of rate of carbon dioxide and solving other urban environmental problems. Therefore, the concerned bodies should consider these values of green spaces and give great emphasis for their protection.

6. Create Job opportunity

Jobs can also be created out of needs for creating and/or maintaining green areas. This proved to be the case with woreda 06 where from the total respondent, 25% proved that green space has a potential to create job opportunity in different posts. The existing green areas have created job opportunity for citizens those who are engaged on preparation of land, guarding care of greenery such as tree, flower, soil and conservation workers etc.

7. Conservation of Biodiversity

It remains basic fact that developing and managing green spaces properly means conserving varieties of green species. In line with this, 50% of the respondents said that green spaces have an ability to contain different biotic components in the area. The proper uses of biotic components provide maximum benefits for sustainable development and to meet the needs of the present and future generation as well conservation in the positive, which includes preservation, maintenance, sustainable use, restoration and enhance the natural environment.

Table 13: Responses of the respondents regarding the use of green areas.

No	Item	Frequency	Percentage
1	Mental and psychological satisfaction	159	81
2	Caring out different ceremony	104	53
3	Beautification and recreation	192	98
4	Combating climate change	90	46
5	Ecological balance	118	60
6	Job opportunity	49	25
7	Conservation of Biodiversity	98	50

Source: own design, 2018

The study also tried to capture respondent's perceptions from interviews, focus group discussion and personal observation it seems dwellers because of low attention is given, ignorance about the value livable, lack of sense of belongings, problem of commitment and policies related implement problem by the officers, they did not get adequate benefits from green areas within their woreda.

It is revealed that urban green areas have benefit for better human health in which the result is consistent to the finding of Bop (2013), which indicated that poor air quality, urban heat and an increasingly 'sedentary lifecycle' among today's urban population are frequently linked to problems of ill health. By providing spaces for physical exercise and contributing to better air quality, green spaces help to counteract such health problems. And also, they have replied that the contribution of green areas in social value is high. As they have also illustrated, green areas have shading benefits for the community in cooling and absorbing polluted air.

This is consistent with the findings of Conner (2007) which revealed that the main climatic benefits of urban green space are cooling and shading, vegetation and soils, particularly trees can counter poor air quality by absorbing greenhouse gases such as carbon dioxide and other air pollutants, that means, green area can act as carbon sinks. Similarly, the respondents stressed urban green areas values for education and tourism.

4.4. Challenges of Urban Green Areas Development and Management

To identify factors which contributed for the low level of development and management of green areas in the study woreda, the study tried to list some commonly known challenges and provide for the respondents to understand their degree of perception by rating very low, low, high and very high. The formidable challenges will be treated in the ensuing sections item by item and the gravity of their impacts will be rated accordingly.

4.4.1. Lack of Public Awareness

The study tries to identify the awareness level with in the woreda through structured questionnaire, interviews and focused group discussion. It seems that many households, business community, officers and even professionals are not well aware of these values or simply they ignore them. According to table 14 lack of awareness in the community is first, 91% of the respondents said that there is a very high challenge facing green areas development and management in the sub-city.

Table 14: Perceptions of respondents on lack of awareness constraints and their rank seriousness.

Constraints	Frequencies and percentage							
	Very low		Low		High		Very high	
	#	%	#	%	#	%	#	%
Lack of awareness in a community	-	-	4	2	14	7	178	91

Source: own survey, 2018

In the woreda also, as those respondents replied through interview and focus group discussion the level of awareness of society concerning urban greenery development and management is very low. This result agrees with Mensah (2014) findings which states that uncooperative attitude of urban dwellers towards the management of green spaces also emerged as a predominant challenge. This to be the result of lack of involvement of the local people in decision making of green spaces and poor awareness of the local people on the benefits of green space.

In table 15, it tries to find out the very important consideration when compared to the attended total five years 675 dwellers (average 135 in a year) with the woreda's total number of population 19,861 was 0.68% attended. This was less than one percent and it shows it is very low.

Table 15: Awareness creation attendance concerning green area benefits, problems, management and development in woreda06 (2006 - 2010 E.C)

Year	Number of participant			Woreda’s total number of population
	Planned	Actual attended		
		Number	Percent	
2006 E.C	700	135	14%	19,861
2007 E.C	850	148	16%	
2008 E.C	1000	132	13.2%	
2009 E.C	1050	150	14.3%	
2010 E.C	1200	112	9.3%	
Average	960	135	13.4%	

Source: Arada sub-city, woreda six BPCDMO, 2018

In addition to these, the existing awareness methodologies in the woreda were mostly dependent on the same method i.e. use of brochures. But, respondents from interview and focus group discussions said that awareness creation methodology on community meetings and using medias like radio and television are the most important methodologies in the context of the woreda. Also, as they have

responded, because of these low levels of awareness, the community has the habit of using green spaces for unwanted or illegal purposes like dumping solid wastes, letting domestic animals and tramp the areas negatively for chewing chat and smoking, cutting for other purposes (firewood, construction), stealing metal fences, and storing and selling construction materials. Lack of awareness is not only a problem of the people, but also that of officials as well.

The following two pictures show well unprotected green areas because of lack of awareness.



Figure 13: Photograph of well unprotected green areas in the woreda

Source: picture taken by the author (May, 2018)

4.4.2. Leadership Related Problems

The political leader's commitment is crucial in urban management. As table 16 shows that out of the respondents, 24% replied that leadership related problem is very high while another 76% replied leadership related problem to be high. This implies that today those employers operating in the green area development and management in the study woreda lacks urban green rules, directives, minimum standards and other policy instruments that help them to work with it.

Table 16: Perceptions of respondents on lack of political leader's commitment constraints and their rank seriousness.

Constraints	Frequencies and percentage							
	Very low		Low		High		Very high	
	#	%	#	%	#	%	#	%
Lack of political leader's commitment	-	-	-	-	149	76	47	24

Source: own survey, 2018

Furthermore, respondents from interview and focused group discussion shows that, there is lack of political will to initiate policies on measures to enhance, to train professionals with experience and sufficient budget, regular follow-up, frequent inspection and facilities i.e. fertilizer, soil, water and fence, road side trees are seriously exposed for smokes coming out from automobiles, traffic accidents, and wise use of resources. Efforts to raise public awareness towards developing, managing, using and maintaining green areas is very limited in the study woreda. The woreda officer's plants seedlings at the beginning of each summer, but none of the seedlings has developed well because they are not taken care of and maintained regularly.

The following pictures show damaged and un maintained green areas.



Figure 14: Photographs showing un maintained green areas around AfichoBer

Source: picture taken by the author (May, 2018)

4.4.3. Plan and Policies Implementation Related Problems

Policies refer to rules and regulations formulated for the implementation of an intended objective. Concerning urban planning, parks and other types of green space policies can play a valuable role in sustainable development. It is, therefore, useful to consider how planners have traditionally planned for parks and open spaces (Byrne and Sipe, 2010). But as table 17 revealed that the plan and policies implementation related problem in the study woreda is another main problem in urban green area development and management. The result shows out of the total respondents, 82% replied that the problem is very high while 18% of the total respondents replied the problem to be high.

Table 17: Perceptions of respondents on plan implementation constraints and their rank seriousness.

Constraints	Frequencies and percentage							
	Very low		Low		High		Very high	
	#	%	#	%	#	%	#	%
Plan implementation	-	-	-	-	35	18	161	82

Source: own survey, 2018

In relation to this, woreda plan violation is reported frequently. The old plan violation is visible up to making site slam areas. To rectify the old plan violation, the new plan is put in practice but unfortunately the plan violation is occurring, for instance it is visible around Ras Mekonnen Bridge. This implies that there is a huge challenge facing urban green areas development and management.



Figure 16: Photograph taken around 6 kilo(Sunday market)

Source: picture taken by the author (May, 2018)



Figure 15: Photograph taken around RasMekonnen Bridge

4.4.4. Lack of Guidelines, Rules and Regulations

From the data provided in table 18 from the total respondents, 34% stressed that the lack of guidelines, rule and regulation had high constraints, and 62% perceived that lack of guidelines, rule and regulation is a very high challenge for urban green area development and management. And barely 2% perceived it as low challenges while the remaining 1% dropped to very low. In addition, 83% of the respondents believed that green areas need an insurance guarantee.

Table 18: Perceptions of respondents on lack of guidelines, rule and regulation constraints and their rank seriousness.

Constraints	Frequencies and percentage							
	Very low		Low		High		Very high	
	#	%	#	%	#	%	#	%
Lack of guidelines, rule and regulation	2	1	6	3	67	34	121	62

Source: own survey, 2018

And also from the interview, it is understood that there has been essential manuals containing guidelines, rules and regulations such as integrated urban infrastructure and service planning manual (2006), the urban plan proclamation No 574/2008, the recent growth and transformation five years plan, climate change resilient urban green infrastructure strategy (2014), Ministry of urban development and housing, Ethiopia National urban Green Infrastructure standard (2015), The city development plan of Addis Ababa and clean and green Addis Ababa plan (2004) are not available in the woreda administration office. This shows that without guidelines, rules and regulations in the woreda development and management of green areas is impossible.

4.4.5. Illegal Settlement

From the data provided in table 19 from the total respondents, 34% stressed that the illegal settlement had a high constraint, about 66% perceived that illegal settlement is a very high challenge for urban green area development and management, whereas the remaining 4% said it has a low influence.

Table 19: Perceptions of respondents on illegal settlement constraints and their rank seriousness.

Constraints	Frequencies and percentage							
	Very low		Low		High		Very high	
	#	%	#	%	#	%	#	%
Illegal settlement	-	-	8	4	59	30	129	66

Source: own survey, 2018

Illegal settlement mostly takes place in open spaces planned for green areas, riverbanks and steep slope. These will aggravate environmental degradation. The same is true in the study woreda. The researcher observed that the proposed green areas were occupied by illegal settlers (as shown in the figure). Though woreda officers concurred to this observation, it was rather strange why they never took legal measures to prevent it in the first place.

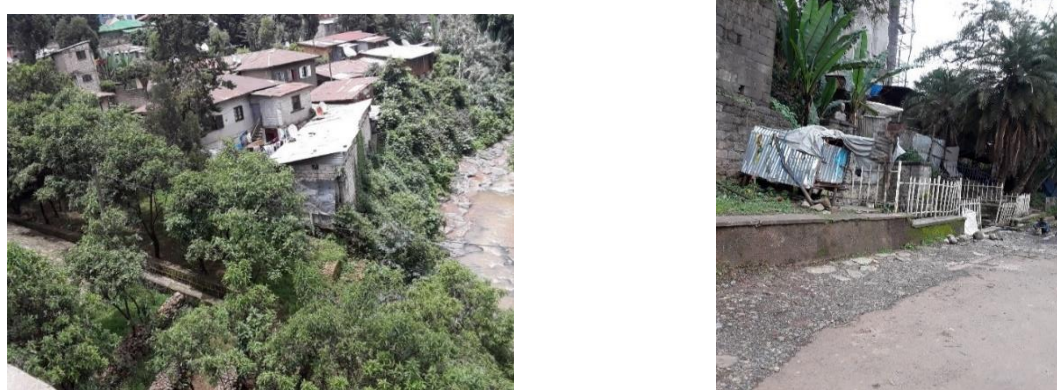


Figure 17: A photograph taken around Afncho Ber kechene river side and Ras Mekonnen bridge

Source: picture taken by the author (May, 2018)

4.4.6. Low Level of Community Participation

Community participation is important for public action. The same is true with development and management of green spaces. According to table 20 from the total respondents, 88% claimed lack of public and stakeholder's participation to have imposed very high constraints for the woreda green space quantity and quality development and management. Whereas 10% replied that the situation is high and the remaining 2% stated to have imposed low constraints.

Table 20: Perceptions of respondents on low level of community participation constraints and their rank seriousness.

Constraints	Frequencies and percentage							
	Very low		Low		High		Very high	
	#	%	#	%	#	%	#	%
Low level of community participation	-	-	4	2	20	10	172	88

Source: Own survey, 2018

According to table 21, it shows that when compared the actual community participation of the average five years 269.8 dwellers out of the woreda's total number of population of 19,861. This indicates only 1.4% of the total population participated in the scheme which is very low.

Table 21: Stakeholders participating in woreda six from 2006 – 2010 E.C.

Year	Number of participant			Woreda’s total number of population
	Planned	Actual participation		
		Number	Percent	
2006 E.C	1200	300	25%	19,861
2007 E.C	1400	488	34.9%	
2008 E.C	1500	300	20%	
2009 E.C	1550	145	9.4%	
2010 E.C	1600	116	7%	
Average	1450	269.8	18.6%	

Source: Arada sub – city, woreda six BPCDMO, 2018

In relation to this, most of the respondents who participated in an interview and focus group discussion said that there was low public and stakeholder participation during the planning of the woreda's green areas development and management of corridors, squares, rivers, open space and roadsides. Among the factors explaining low level of community participation includes, among other things, lack of sense of belongings, ignorance of responsibility, problems of commitment, problems of participation rules and low living standards.

4.4.7. Lack of Co-ordination and Integration from Different Stakeholders

The integrated effort of government, non-government institutions and community based organization can help ensure achievements of a goal set to address a particular problem. The same is true for development, management and maintenance of green areas in the study woreda.

As it is shown in table 22 from the total respondents, 70% replied that lack of coordination and integration problem of institutions in the study woreda to be very high and about 30% of the respondents replied the problem as high. Those main organizations operating in most public assets such as infrastructures like road construction, telecommunication line extension, water pipe extension and greenery work never consult each other during plans and implementation stages. When they implement

on the same urban place, they do not have a coordinated plan that will enable them to act simultaneously and without causing any havoc to public infrastructure and public good.

Table 22: Perceptions of respondents on lack of coordination or integration problems constraints and their rank seriousness.

Constraints	Frequencies and percentage							
	Very low		Low		High		Very high	
	#	%	#	%	#	%	#	%
Lack of coordination or integration problems of organization (municipal institutions)	-	-	-	-	59	30	137	70

Source: Own survey, 2018

Furthermore, respondents say through interview and focus group discussion, a number one challenge in urban green infrastructure development is problems of horizontal integration between institutions. While one institution one develops an infrastructure, the other keeps on destroying and vice versa. And these problems cost the otherwise financial resource constrained nation too high to ignore.

These pictures show these integration problems.



Figure 18: A photograph taken around Federal supreme court



Figure 19: A photograph taken around MFED

Source: picture taken by the author (2018)

4.4.8 Lack of Budget

The financial problem for green areas development and management is critical especially in developing countries for maintaining, developing and administering green spaces. The problem is not only for running costs but also expenses for salary for highly qualified multi-disciplinary professional which

require heavy investment. As table 23 revealed that the resources scarcity and lack of budget is one of the main problems affecting urban green area development and management. The result shows that out of total respondents, 80% replied that the problem to be very high, 18% replied the problem as high while 2% replied the problem as low.

Table 23: Perceptions of respondents on resource scarcity, lack of budget and lack of funding constraints and their rank seriousness.

Constraints	Frequencies and percentage							
	Very low		Low		High		Very high	
	#	%	#	%	#	%	#	%
Resource scarcity, lack of budget and lack of funding	-	-	4	2	35	18	157	80

Source: Own survey, 2018

From table 24, the five years' budget allocation shows a slight increase but does not seem to be enough. For example, the total planned budget allocated for the woreda for the year 2010 E.C. is 19,627,000 birr but out of this 1,206,000 birr is actual allocated for the woreda BPCDMO. This is 6% of the total budget. This could also be a reflection of lack of attention for green areas development and management.

Table 24: Budget allocation for green infrastructures of the woreda (2006-2010 E.C)

Year	Planned Allocated budget for woreda six	Actual allocated budget for green area	Percent
2006 E.C	10,635,000	350,000	3.3%
2007 E.C	12,645,000	476,600	3.8%
2008 E.C	14,934,000	797,000	5.3%
2009 E.C	17,562,000	1,010,000	5.8%
2010 E.C	19,627,000	1,206,000	6%

Source: Arada sub-city, woreda six BPCDMO, 2018.

4.4.9 Rapid Urbanization

According to table 25, out of the respondents, 23% said rapid urbanization imposed a very high constraint, 70% replied the problem to be high, 4% replied low and the remaining 3% replied it is very low. As the result rapid urbanization causes shortage in land for green areas.

Table 25: Perceptions of respondents on rapid urbanization constraints and their rank seriousness.

Constraints	Frequencies and percentage							
	Very low		Low		High		Very high	
	#	%	#	%	#	%	#	%
Rapid urbanization	6	3	8	4	137	70	45	23

Source: Own survey, 2018

4.4.10 Lack of Priority for Green Development

According to table 26, out of the respondents, 68% said lack of priority is a very high constraint, 28% replied the problem is high, 3% replied low and the remaining 1% replied it is very low.

Table 26: Perceptions of respondents on lack of priority for green area development constraints and their rank seriousness.

Constraints	Frequencies and percentage							
	Very low		Low		High		Very high	
	#	%	#	%	#	%	#	%
Lack of priority for green area development	2	1	6	3	55	28	133	68

Source: own survey, 2018

As shown in the following table 27 the existing green areas in the study woreda, because of low attention given to green area development by government, just like other urban issues, it is very low. This is 0.98% (less than one percent) of the total land coverage. This could be a reflection of lack of priority of green development.

Table 27: The existing land use of the study area

Area	Total land area covered	Built-up area		Covered road		Open space		Covered by green area development		
	hectares	hectare	%	hectare	%	hectare	%	hectare	%	Per capital
Woreda six	90.59	66.62	73.61	21.67	23.92	2.07	2.29	0.089	0.98	0.45 m ²

Source: Arada sub-city Integrated Land Information Office, Feb 2014

From the interviews and focus group discussion the majority of responses stressed that the existing green area is not presented separately from other land use and the available green areas is insufficient to the inhabitants and to others (tourists) as compared to international minimum standards. Accessibility of the green infrastructure is very low in both quantity and quality.

4.4.11. Lack of Skilled Man Power

If cities are livable, clean, suitable and attractive for residents and tourists, they will increase their competitiveness. The attractiveness and competitiveness of cities results from qualified and committed officials as well as professionals. The nature of green areas is multifunctional which requires multidisciplinary professionals.

According to table 28, 78% of the respondents said lack of skilled personnel imposed very high constraints and 19% of the total respondents replied the problem is high. whereas, 2% said it is low, the remaining 1% said it is very low. As the result shows the existing field group distribution in Arada sub city, woreda 06 the authorities on green spaces were hit with shortage of manpower.

Table 28: Perceptions of respondents on skilled professional or manpower problem constraints and their rank seriousness.

Constraints	Frequencies and percentage							
	Very low		Low		High		Very high	
	#	%	#	%	#	%	#	%
Skilled professional or manpower problem	2	1	4	2	37	19	153	78

Source: own survey, 2018

As the result shows in table 29, the actual existing field group distribution in BPCDMO is mostly unbalance with the standard, for instance, two professionals are from horticulture in which they may exhausted only on environmental benefits aspects, and the social and economic benefit aspect of urban green space may be ignored. On the other hand, comparing the professional field standard existed with actual number and study field it is mismatched.

Respondents from interview and focus group discussion revealed that due to lack of skilled professionals there is a problem of poor selection of species and suitable areas. Therefore, professionals

have irreplaceable role for green spaces development and management. It is observed that, BPCDMO at woreda level is indicating the poor availability of required man power that is 22% of the standard.

Table 29: Professional field groups working at the woreda BPCDMO

Study Field	Studies position by BPR (Based on standard existed)		Actual existed	
	#	Educational background	#	Educational background
Environmental Development	1	BA	-	-
Horticulture	2	BA	2	BA
Animal science	1	BA	-	-
Plant science	1	BA	-	-
Rural development	2	BA	-	-
Crop protection	1	BA	-	-
History	1	BA	-	-
NR management	1	BA	1	BA
Urban management	2	BA	-	-
Civil Engineer	1	BA	-	-
Architecture	2	BA	-	-
Farm forest	1	BA	1	BA
Geography	2	BA	-	-
Total	18		4	

Source: Arada sub-city, woreda six BPCDMO, 2018.

4.4.12 Shortage of Urban Land Areas

As observed and calculated from the given data in table 30, 72% responded that shortage of urban land areas in the woreda is very high, about 23% of the respondents agreed that the shortage of urban land areas of woreda six is high, and the others 3% and 2% believed that the problem is low and very low respectively.

Because of the low attention given to urban green area by government official, just like other urban issues, it is very low and this refrain them to give the land for the development of green areas. Inappropriate use of land in urban areas, rapid rural urban migration, street trade and illegal settlement contributed a lot for the shortage and in appropriate use of land for green areas in the urban environment.



Figure 20: A photograph taken around woreda 6 administration office showing shortage of urban land area

Source: picture taken by the author (May, 2018)

The total green area developed in the woreda is 0.98% of the total area and 0.45m² green area per person which is 5% of the standard existed green area. And this is very low as compared with public green space by proportion of surface area and green space per capital of other countries. For example, the Netherlands taken as an average from the total land area 19% which counts 228m² per capital are covered with green areas. Standard minimum availability of 9m² by WHO competent authorities shall follow urban planning preparation and development strategy (2014) to allocate 30% green areas and ensure a minimum of 15m² green open space per capital. Every inhabitant shall live within 500 m of public green open space of size of at least 0.3ha, an area big enough for example for playing football and other informal playing (NUGIS, 2015).

Table 30: Perceptions of respondents on shortage of land in urban areas constraints and their rank seriousness.

Constraints	Frequencies and percentage							
	Very low		Low		High		Very high	
	#	%	#	%	#	%	#	%
Shortage of land in urban areas	4	2	6	3	45	23	141	72

Source: own survey, 2018

In addition, detailed key informant interviews and focus group discussion were conducted about the challenges that are facing green area development and management in woreda 06. The majority of the respondents agreed that because of the poor political leader commitment it shows low levels of awareness in the community, poor collaboration with stakeholders, low participation of societies on the

communal nature, values, developing, managing, maintaining, following, monitoring and promoting the existing green area. Field group distribution and level of qualification are hit with shortage of man power and adequate amount of budget. Lack of taking legal measures for illegal settlement and integration problems between institutions are hindrances which bring challenges for the development and management of green areas in the study woreda.

4.5. Ways of Solving the Challenges Facing Urban Green Areas

Detailed interviews and discussions with experts, managers, process owners, households and business communities were conducted. In addition, open-ended questionnaires were prepared for households, business communities and teachers. The responses from the study suggest possible ways of solving challenges facing urban green areas development and management in woreda 06 and these are:

- Creating awareness concerning the benefits and promoting community environmental responsibilities to ensure continuity and sustainability of green areas.
- Political leaders' commitment is crucial important. Therefore, establishing clearly visible access areas, regularly maintaining green spaces, protecting the areas from illegal settlement, negative social practices or avoiding health risks such as chat chewing, smoking, dumping wastes and continuous monitoring and evaluation are needed. In addition, communication with the society and involving participants in the planning from the beginning (planning for people is planning with people), decision making and delegation is very decisive. Motivating, praising for a better work, giving recognition, appreciation and acknowledgement for stakeholders and creating urban green areas that much the needs of local residents are also essential.
- Community participation in the planning, designing and maintenance of urban green space is important to assure that local needs are met. Promoting community participation should be from the beginning. Sufficient time and fund should be arranged to facilitate building, maximize urban green space benefits and prevent unintended negative impacts. Collaboration with environmental experts and institutes aids effective planning, monitoring, evaluation and maintenance of urban green space interventions.
- Avoid ambitious designs of urban green spaces to support only very specific functions. Those main organizations operating on most public assets such as infrastructures like road

construction, telecommunication extension, water pipe extension and greenery work must integrate or verify to each other during plan implementation.

- Ensuring required and sufficient staff for the planning and maintenance of green areas to be adequately executed and also adequate budget should be allocated to ensure this. The level of qualification for personal working in the field of BPCDMO should be defined according to the requirements duty personals have to fulfill clearly designed based on from lower level of work up to advanced responsibilities.
- Ensure easier access to urban green space of sufficient quality for all population group and users. Use greening opportunities to other sectors and projects (greening of schools, business areas, shopping areas, housing estates or condominiums, sport fields and other) and private green areas. Establish street greenery, urban gardens and green trails in close vicinity to urban residents and use public open spaces for greenery.

CHAPTER FIVE: CONCLUSION AND RECOMMENDATIONS

5.1. Conclusion

Urban green areas development and management as well as maintenance require multidisciplinary professionals and high budget allocation. Green areas had a nature of inclusiveness in their development and utilization activities and values. Urban green spaces take as a lion share of human life in engaging the quality of life, health, social and economic values, and environmental related issues. To examine these and other related issues of urban green areas in the study area woreda 06, data were collected through different tools and finally analysis was made.

Based on the findings, the results obtained from the analysis are summarized as follows:

Urban green areas developed by governmental institutions, non-governmental stakeholders, community based organizations and individuals (private) have many purposes. These were first developed for psychological satisfaction, for beautification and recreation for caring out different ceremony or celebrating different festivals, for shade, for combating climate change and ecological balance.

Due to lack of community participation, problem of integration among different stakeholders and lack of priority for green development, the green area per capital is very low as compared with minimum standards. The present state of urban green areas in the study woreda is very poor because of lack of political will to initiate and implement policies, high population density, illegal settlements, land use changes and unwise use of resources. Also, public awareness towards developing, managing and using green area for the intended value is very poor. They prefer to use these places for illegal activities like dumping solid wastes. There are various factors which contribute to the low level of awareness of the people about the benefits gained from the well-developed green areas. Among the factors negligence and low living standard can be mentioned.

The study also identified lack of collaboration, integration and participation among stakeholders as another challenge which affects their co-ordinate efforts and roles to develop and manage green areas. Moreover, underdevelopment of green areas is a result of lack of trained professionals with experience and sufficient budget. The number of trained personnel in the field is very limited in the study woreda.

Problem of regular follow up, lack of frequent inspection and problem of facilities i.e. fertilizer, water, soil and fence are great contribution for the low-level development of green areas in the study woreda.

The road sides are seriously exposed for smokes coming out from automobiles. Lack of effective and integrated database system, poor selection of species, traffic accidents, street vending and installation of utilities are also identified as hindrances which affect the development and management of green areas in study woreda.

The finding of the study also revealed that lack of clear enforcement laws, regulations and senses of belongingness of the community to protect the green areas as other challenges.

To summarize, integrated urban infrastructure and service planning manual (2006), the urban plan proclamation No 574/2008, the recent Growth and transformation five years plan, climate change resilient urban green infrastructure strategy (2014), Ministry of urban development and housing, Ethiopia National urban Green Infrastructure standard (2015), The city development plan of Addis Ababa and clean and Green Addis Ababa plan (2004) contains general provisions about the development and management of urban environment and recognized the importance of urban green areas to urban communities. All these general frameworks should create conducive environment to so as to design specific implementation strategies at different administrative level of the city for the development and management of green areas in the study woreda.

The study found out that the establishment of BPCDMO at different administrative levels of city is a promising condition and should also be equipped with the necessary human and material facilities. It makes great contribution for green areas development and management.

5.2. Recommendations

Based on the findings and conclusion, this study has come up to improve the development and management of urban green areas in study woreda. The following recommendations are provided.

- Awareness creation about the communal nature, values, developing, managing, maintaining, following and monitoring of green areas should be enhanced so as to develop feeling a sense of belongingness. Promoting awareness creation programs by social medias, porches and meetings should be conducted. The officials should develop model green space from the study woreda and celebrate different ceremonies to increase the people's awareness about the benefits of green areas.
- The office should assign qualified professionals who have good experience in green infrastructure development and management, and sufficient budget should be allocated for the development and management of green areas.
- There should be regular follow-up and monitoring of the achievements of the practiced development and management and strategies need to be assessed so as to check the progress, provide essential supports and to take appropriate measures. They should also provide water in nearly green areas and watering at the appropriate time.
- The municipality should formulate and enforce rules and regulations of green spaces to keep them clean and ensure sustainable development. Moreover, the leadership and decision makers should recognize the related problems of green areas as other challenges so as to address the problems systematically and consciously.
- The municipality should set specified standard of green space per capital for the inhabitant while ensuring its sustainable development.
- Among different stakeholders' residents, business people, CBO, BPCDMO, AAMP and many other potential stakeholders should actively engage in the development and management of urban green areas improving urban green areas development and management as well as for planning, implementing, maintaining and monitoring.
- The public sector, NGO practitioners, business communities and local residents should play proactive roles in planning, developing and managing green areas by providing technical assistance to support the local communities and voluntary groups that are involving in the development and management of these spaces.

- To develop and manage these green spaces for the intended aims, the good will, co-ordination and integration and efforts of all stakeholders including communities, government authorities and non-governmental bodies are imperative.

REFERENCES

- Addis Ababa City Administration, Addis Ababa City Profile, 2014, [3] CSA, Central Statistics Agency, Urban Employment Unemployment
- AACAILIC (2014). Arada, Sub-City Atlas. Addis Ababa, Ethiopia.
- Abebe A. (2009). Analysis of the development and management of green areas in Fenote - selamcity. Amhara region, MSc. Thesis, Ethiopian Civil Service College.
- Alamerew B. (2002) Green Frame Development Study, Ministry of Federal Affairs-AAIDPO Addis Ababa
- Barber, A. (2005) 'Green Future-A study of the management of multifunctional urban green spaces in England'. Green Space Forum Ltd. Reading
- Benedict A. and McMahon T. (2002). Green Infrastructure: Smart Conservation for the 21st century. Sprawl Watch clearinghouse 1400 16th St. VW Suite 225. Washington D.C. 20036 202-332-
- Bop Consulting (2013). Green Spaces: The benefits for London. Topical Interest paper. City of London.
- BTC. (2008). The Urban Factor. Challenges facing sustainable urban development. Reflection and discussion paper 2008/01. Hoogstraat 147-1000 Brussels. T {32(0)2 5053700.F}32(0)2 5029862. Available at INFO @BTCCTB.ORG. www.BTCCTB.ORG.
- Bryne J. and Sipe N. (2010). Green and open space planning for urban consolidation a review of the literature and best practice. Urban research program. Issues paper 11.

CABE (2004). A guide to producing park and green space management plans. London: Commission for Architecture and the Built Environment (<http://webarchive.nationalarchives.gov.uk/20110118095356/http://www.cabe.org.uk/publications/producing-parks-and-greenspace-management-plans>, accessed 23 March 2017).

CABE (2006). Green space strategies: a good practice guide. London: Commission for Architecture and the Built Environment (<http://www.envia.bl.uk/handle/123456789/4351>, accessed 23 March 2017).

Cemil B. and Gokyer E. (2012). Urban space system planning, landscape planning, Dr. MulatOzyavuz (Ed). ISBN: 978-953-51-0654-8. In Tech. Available from: <http://www.intechopen.com/books/landscape-planning/urban-space-system-planning>.

CGAADP (2004). Addis Ababa, Ethiopia.

Collins A. m. (2014). Nature and challenges of urban green spaces in Africa.

Conner D. (2007). Economic benefits of natural green spaces protection. The POLIS project on Ecological Governance. University of Victoria, Canada.

CSA. (2013). Population projection of Ethiopia for all regions at woreda level from 2014-2017. Federal Democratic Republic of Ethiopia Central Statistical Agency. Addis Ababa, Ethiopia.

Dubbale D. A., Tsutsumi, J., and Bendewald. M. J., 2010, Urban environmental challenges in developing cities: The case of Ethiopian capital Addis Ababa. World Academy of Science, Engineering and Technology, 66, 397-402.

FitsumResomeTedda and Amare Abate (2008) “Urban Redevelopment and Displacement in Arada Sub-City of Addis Ababa, Ethiopia” and “Problems and constraints of Urban Green Area management in Addis Ababa: The case of Kolfe-keranio sub-city”

Fuller A. and Gaston J. (2009). The scaling of green space coverage in European cities. *Bio. Let.* (2009) 5,352-355 doi:10 1098/rsbl.2009.0010.

Fuwape, J. P., and Onyekwelu, J. C., (2011), Urban Forest Development in West Africa: Benefits and Challenges. *Journal of Biodiversity and Ecological Sciences*, 1(1), 78-94.

Ghee, T. (1995). Conservation and Management of Urban Green: the case of Kuala Lumpur.

Hartig, T., and Marcus C. (2006). Healing gardens-places for nature in healthcare. *The Lancet*, 368, S36-S37.

Hassen A. and Hooman B. (2012). GIS application in Urban Green Space Per Capita Evaluation. Case Study: City of Tehran. *Annals of Biological Research.*, 3(5):2439-2446.

Hatami. (2013). Analysis of Urban Green Space distribution and better organization of space and place it: case study of region two of IZEH, Iran. *Indian J. Jci.Res*,4(2):23- 36,2013.

Hans (2006). Green keys.urban green as a key for sustainable cities. Guidelines for the general procedure of developing and implementing an urban green space strategy. Draft I.milestone 2(action 4.1).

Hudekova et al (2009). Urban spaces enhancing the attractiveness quality of the urban environment. *Regional Environmental Center*. Slovakia.

Levent et al. (2002). Development of green spaces in European cities: A comparative analysis. department of spatial economics free university of Amsterdam De Boelelaan 1105 1081 HV Amsterdam. The Netherlands.

Levent T., and Nijkamp P. (2004). Urban green space policies. Performance and success

conditions in European cities. 44th European congress of the European regional science association. Regions and Fiscal Federalism. 25-29 August 2004, Porto, Portugal.

Maheswaram R. (2010). The Health benefits of urban green spaces: a review of the evidence. *Journal of public health*/vol.33, No2, PP 212-222/.

Mazza, L., and Rydin Y. (1997). Urban sustainability: discourses, networks and policy tools, *pro-plann.*47:1-74.

Mensah A. (2014). Urban Green spaces in Africa: Nature and Challenges. *International Journal of Ecosystem* 2014, 4(1); 1-11.

Ministry of Federal Affairs, (2005). Urban Development Policy of Ethiopia, Addis Ababa, Ethiopia

MOUDH (2015). Ethiopian National Urban Green Infrastructure Standard, Addis Ababa. Ethiopia

MUDHC.(2015). The Urban Sustainable Development Strategy for climate change. The Federal Democratic Republic of Ethiopia ministry of Urban Development and Housing Construction Addis Ababa, Ethiopia.

Mpofu Z. (2013). Environmental Challenges of Urbanization: A case Study for Open green space Management. *Research Journal of Agriculture and Environment Management* Vol.2(4), pp 105-110, Available online at <http://www.apexjournal-org>.

ORAAMP(1996), Office of the Revision of Addis Ababa Master Plan, <http://www.telecom.net.et/~aamp/Housing.html>.

Panduro M. and Veie L. (2013). Classification and Valuation of Urban Green Spaces a hedonic house price valuation.

Plan of Action for the Sustainable Development to End Poverty (PASDEP),2006; Yewoinishet, 2007.

Samson C., (2014). Assessment of Urban Green Infrastructure in Addis Ababa: the case of Bole Sub-city.

Sansei, G., and Chiarello F. (2006). Residents and Urban Green Space. The case of Bari Urban Forestry and Urban Greening 4:125-134.

Shah Md. (2011). Urban Green Spaces and an Integrative Approach to Sustainable Environment. Journal of Environmental Protection, 601-608.

Singh et al (2010). Urban Forests and Open Green Spaces: Rajasthan State Pollution Control Board 4-Jhalana Institutional Area Jaipur 302017, Rajasthan, India.

Stephen C. (1992) Public Space: Environment and behavior series, Cambridge University Press, New York, USA.

Suparwoko. (2013). Green Open Space Approach to the Building Mass Arrangement in Yogyakarta: CASE Study of the revitalization of the Tugu Rail Station. International Journal of Civil and Environmental engineering. IJCEE-IJENS Vol: 13 No: 04.

Swanwick, C., Dunnett, N., and Woolley, H., 2003, Nature, role and value of green space in towns and cities: an overview. Built Environment, 29(2), 94-106.

Tajima K. (2003). New estimates of the demand for urban green spaces: Implications for the valuing environmental benefits of Boston's BIG BIG project.

UN Habitat, 2010, The state of African cities 2010: Governance, inequality and urban land markets. Nairobi: UN Habitat.

UNEP. (2011). Cities investing in energy and resource efficiency.

Walter A. (1997). Good Practice for Urban Greening. Inter-American Development Bank. Washington, DC. CENV-109.

WHO Regional Office for Europe (2016). Urban green spaces and health: a review of evidence. Copenhagen: WHO Regional Office for Europe (<http://www.euro.who.int/en/health-topics/environment-and-health/urbanhealth/publications/2016/urban-green-spacesand-health-a-review-of-evidence-2016>, accessed 23 March 2017).

WHO Regional Office for Europe (2017). Urban green space interventions and health: a review of impacts and effectiveness. Copenhagen: WHO Regional Office for Europe (http://www.euro.who.int/data/assets/pdf_file/0010/337690/FULL-REPORT-for-LLP.pdf?ua=1, accessed 15 May 2017).

Wilson E.O. (2006). Making Space for biodiversity in urban areas.

Zhou and Rana.(2011). Social benefits of urban green space.A conceptual framework of valuation and accessibility measurements Available at www.emeraldinsight.com/14777835.html.<http://www.addisababacity.gov.et/index.php?option=comcontent&task=view&id=188&Itemid=189>.

APPENDICES

Appendix – A

ADAMA SCIENCE AND TECHNOLOGY UNIVERSITY

SCHOOL OF HUMANITIES AND LAW

DEPARTMENT OF GEOGRAPHY AND ENVIRONMENTAL STUDIES

Research Questionnaire to be filled by teachers.

Dear Respondents,

I am a student of Adama Science and Technology University, school of humanities and law department of geography and environmental studies. I am undertaking a thesis to assess the challenges facing urban green area development and management the case of woreda six, Arada sub-city, Addis Ababa.

Several questions are presented here below in two sections. This Questionnaire is for the purpose of academic interest to get information concerning the development and management of green areas in case of woreda six, Arada sub-city, Addis Ababa. I kindly request you to read each question very carefully and put “ ✓ ” mark to the choice that you think or reflects your opinions. I hope that your genuine response(willingness) and the information you provide will enable me to give the real picture. The information you provide will be used for the research purpose only. No need to write your name.

Thank you in advance for your kind cooperation.

Part I – Personal Information

1. Sex : Male ☐ Female ☐
2. Age : A. 20-25 year ☐ D. 36-40 year ☐ G. 51 - 55 year ☐
B. 26-30 year ☐ E. 41-45 year ☐ H. 56 and above ☐
C. 31-35 year ☐ F. 46-50 year ☐
3. Educational Background
A. Below grade 10 ☐ D. BA/BSC ☐
B. High school completed ☐ E. MA/MSc and above ☐
C. Diploma ☐ F. Other ☐
4. Field of study
A. Major _____
B. Minor _____
5. Service year
A. 1-5 years ☐ C. 11-15 years ☐ E. 21-25 years ☐
B. 6-10 years ☐ D. 16-20 years ☐ F. 25 years and above ☐

6. Income _____
7. Situated of your organization
- A. Woreda _____
- B. Sub-city _____

Part II – Open and closed ended questions for teachers

- A. Rating table based on Arada sub-city, woreda six urban green spaces benefits. Please put your priority in the right column of the following table

N ^o _	Benefits	Choices				
		1	2	3	4	5
8.	Climate mitigation					
9.	Urban quality of life					
10.	Economical benefits					
11.	Social value					
12.	Pollution control					
13.	Human health					
14.	Ecological benefits					
15.	Recreational benefits					
16.	Noise reduction					
17.	Urban esthetic					
18.	Evaporative cooling					
19.	Shading					
20.	Market opportunities					

21. If others, specify _____
- _____
- _____

22. The quality of Arada sub-city, woreda six green spaces helps to define the identity of towns and cities, which can enhance their attraction for living, working, investment and tourism.

A. Strongly agree ☐

D. Disagree ☐

B. Agree ☐

E. Strongly disagree ☐

C. Somewhat agree ☐

23. In question number 22, if your answer is strongly agree, what is your perception in the sub-city?

A. Excellent ☐

C. Good ☐

E. Bad ☐

B. Very good ☐

D. Poor ☐

24. Which location of urban green area do you repeatedly utilize?

A. At the boarder(around) ☐

C. Throughout the urban ☐

B. At the center(inner) ☐

D. If other specify _____

B. Rating based on Arada sub-city, woreda six urban green areas development and management challenges that are facing.

Please put rating in the following table

1. Very high

2. High

3. Low

4. Very low

N ^o -	Challenges	Rating			
		1	2	3	4
25.	Lack of awareness in a community				
26.	Lack of political leaders commitment				
27.	Plan and policies implementation related problems				
28.	Lack of guidelines, rule and regulation/ follow ups				
29.	Illegal Settlement				
30.	Low level of community participation				
31.	Lack of coordination (integration problems) of organizations (municipal institutions)				
32.	Resource scarcity, lack of funding and lack of budget				
33.	Rapid urbanization				
34.	Lack of priority for green development				
35.	Skilled (professional) man power problem				
36.	Shortage of land in urban areas				

37. If others specify _____

38. During the physical planning of the sub-city green areas development and management of corridors, squares, rivers, open spaces and road sides; the public and stakeholders participation is

A. Very high ☐

C. Low ☐

B. High ☐

D. Very low ☐

39. In question number 38, if your answer is very low what is your reason?

A. Lack of awareness ☐

D. Lack of political leaders commitment ☐

B. Lack of interest ☐

E. If others specify _____

C. Lack of information and access ☐

C. Measurement questions to possible options on challenges that are facing in Arada sub-city urban green areas management and development.

40. In developing and managing urban green area in Arada sub-city, which one should come first?

A. Awareness Creation ☐

B. Develop and implement guidelines, rules and regulations ☐

C. Done simultaneously ☐

D. If other specify _____

41. To enable better development and management, is it advisable that all green spaces in the city are sorted into categories according to their type, function, location, size and importance?

A. Strongly agree ☐

D. Disagree ☐

B. Agree ☐

E. Strongly Disagree ☐

C. Somewhat agree ☐

42. How does is the selection of plant species in Arada sub-city according to the soil type, temperature, water resources and traffic flow?

A. Excellent ☐

D. Poor ☐

B. Very good ☐

E. Very poor(bad) ☐

C. Good ☐

43. Do you agree on the presence of insurance guarantee for the trees and shrub?

A. Yes ☐

B. No ☐

44. In question number 43 if your answer is No, please explain the reason

45. Suggest possible ways of solving or options for challenges facing urban green areas development and management in the city, sub – cities and woredas.

Appendix – B

አዳማሳይንስናቴክኖሎጂዩኒቨርሲቲ

ጂኦግራፊናአካባቢሳይንስጥናትዲፓርትመንት

በነዋሪዎች ወይም በአባወራዎች እና በንግድ ስራ ላይ የተሰማሩ ማህበረሰቦች የሚሞላ መጠይቅ ጽሁፍ

እኔ በአሁኑ ሰአት በአዳማ ሳይንስና ቴክኖሎጂ ዩኒቨርሲቲ በጂኦግራፊና አካባቢ ሳይንስ ጥናት ዲፓርትመንት የሁለተኛ ዲግሪ (የማስተርስ ፕሮግራም) ተማሪ ነኝ፡፡ የመመረቄያ ጥናቴ የሚያተኩረው በአዲስ አበባ ከተማ በአራዳ ክፍለከተማ ወረዳ ስድስት አስተዳደር የከተማ አረንጓዴ ቦታዎች ልማትና አስተዳደር ያሉበት ሁኔታ፣ተግዳሮት እና የመፍትሄ ሃሳብ ላይ ሲሆን የእርስዎ በፈቃደኝነት እና በእውነተኛነት ላይ የተመሰረተ መረጃ በጥናቴ ላይ ትክክለኛነትን ለማሳየት ስለሚረዳኝ መረጃ በመስጠት እባክዎን ይተባበሩኝ፡፡ በቀረቡት ምርጫዎች መሰረት በሳጥኖቼ ውስጥ የ “✓” ምልክት በማስቀመጥ ያመልክቱ፡፡ የሚሰጡኝ መረጃ ከዚሁ ጥናት ውጪ ለሌላ እንደማይውል ለማረጋገጥ እወዳለሁ፡፡ ስምዎን መጻፍ አይጠበቅብዎትም፡፡

ለትብብርዎ በጣም አመሰግናለሁ፡፡

ክፍል አንድ – የግልዎ ሁኔታ

1. ጾታ : ወንድ ☐

ሴት ☐

2. እድሜ : ሀ. ከ20 - 25 ☐

መ. ከ36 - 40 ☐

ሰ. ከ51 - 55 ☐

ለ. ከ26 - 30 ☐

ሠ. ከ41 - 45 ☐

ሸ. 56 እና ከዛ በላይ ☐

ሐ. ከ31 - 35 ☐

ረ. ከ46 - 50 ☐

3. የትምህርት ደረጃ

ሀ. ከ 10ኛ ቦታች ☐

ሠ. ዲፕሎማ ☐

ለ. 10ኛ/12ኛ ያጠናቀቁ ☐

ረ. ዲግሪ ☐

ሐ. 10+2 ☐

ሰ. ሁለተኛ ዲግሪና ከዛ በላይ ☐

መ. 10+3 ☐

ሸ. ሌላ ☐

4. ያጠኑት ትምህርት

ሀ. በዋነኝነት (ሜጀር) _____ ለ. ማይኒር _____

5. የደሞዝ መጠን _____

6. በስራዎ ያገለገሉበት ዘመን (አመት)

ሀ. ከ 1 - 5 ☐

ሠ. ከ 20 - 25 ☐

ለ. ከ 6-10 ☐

ረ. 25 አመትና በላይ ☐

ሐ. ከ 11-15 ☐

መ. ከ 16-20 ☐

7. የሚኖሩበት ቦታ

ሀ.ክ/ከተማ _____

ለ.ወረዳ _____

ክፍል ሁለት - የከተማ አረንጓዴ ልማት ከጠቀሜታ አንጻር

1. ስለከተማ አረንጓዴ ቦታዎች ጠቀሜታ ያለዎት ግንዛቤ

ሀ.በጣም ከፍተኛ ☐

መ.በጣም ዝቅተኛ ☐

ለ.ከፍተኛ ☐

ሐ.ዝቅተኛ ☐

2. ስለከተማ አረንጓዴ ጠቀሜታ ካገኙት ግንዛቤ የአየር ንብረት ለውጥ፣ ምጥፍ የኑሮ ሁኔታ ኢኮኖሚያዊ ጠቀሜታ፣ ማህበራዊ እሴት፣ የህዝብ ጤንነት፣ የአካባቢ ጥበቃ፣ የመዝናኛ፣ የከተማ ውበት፣ ብክለት መቀነስ፣ የብዝሃ ህይወት መጠለያ፣ የገቢ ምንጭና ለሎች የሚሏቸውን በቅደም ተከተል ይዘርዝሩ

1. _____

8. _____

2. _____

9. _____

3. _____

10. _____

4. _____

11. _____

5. _____

12. _____

6. _____

13. _____

7. _____

14. _____

3. እርስዎ ለመዝናናት የሚያዘውትሯቸው ቦታዎች

ሀ.የከተማ አረንጓዴ ቦታዎች ☐

ለ.ከከተማ ወጣ ብለው ☐

ሐ.የመዝናኛ ሆቴሎች ☐

መ.ሌላ ካለ _____

ሠ.ለመዝናናት የመረጡበት ምክንያት ባጭሩ _____

4. ለመዝናናት ወደ ከተማ አረንጓዴ ቦታዎች የሚመላለሱት

ሀ.በየቀኑ ☐

መ.በወር አንድ ቀን ☐

ለ.በየሶስት ቀን ☐

ሠ.በየአመቱ ☐

ሐ.በሳምንት አንድ ቀን ☐

ረ.ሌላ ካለ _____

ሐ.ከጓደኛ ጋር

5. ለመዝናኛነት አገልግሎት ላይ እየዋሉ የሚገኙ የከተማ አረንጓዴ ቦታዎች በወረዳው/በአረዳ ክ/ከተማ አቅርቦት

ሀ.በጣም በቂ ናቸው ☐

ሐ.በቂ አይደለም ☐

ለ.በቂ ናቸው ☐

መ.በጣም በቂ አይደለም ☐

ክፍል ሶስት-የከተማ አረንጓዴ ቦታ ከተግዳሮት አንጻር

1. ስለከተማ አረንጓዴ ቦታዎች ልማት ያለዎት ግንዛቤ

ሀ.በጣም ከፍተኛ ☐

መ.በጣም ዝቅተኛ ☐

ለ.ከፍተኛ ☐

ሐ.ዝቅተኛ ☐

2. በወረዳው አረንጓዴ ቦታዎች ልማት ላይ ካሎት ግንዛቤ ተግዳሮቶች የሚባሉት ውስጥ የግንዛቤ እጥረት፣የአመራር ብቃትና ተነሳሽነት ማነስ፣ የህግከለላና ክትትል ማነስ፣የህገወጥ ግንባታ፣ የህዝብ ተሳትፎ ማነስ፣የተቀናጀ ስራ በተለያዩ ክፍሎች ያለመኖር፣ የህዝብ ብዛት ጥግግት፣የበጀት እጥረት፣ ቅድሚያ ለአረንጓዴ ልማት ትኩረት ያለመስጠት፣ በቂ የባለሙያ እጥረት፣ የእቅድ አለመተግበር፣የቦታ ጥበትና ሌሎች ተግዳሮቶች የሚሏቸውን በቅደም ተከተል ይዘርዝሩ

1. _____ 8. _____

2. _____ 9. _____

3. _____ 10. _____

4. _____ 11. _____

5. _____ 12. _____

6. _____ 13. _____

7. _____ 14. _____

3. የአራዳ ክ/ከተማና ወረዳ አስተዳደር ውበትና መናፈሻ ልማት አስተዳደር ጽ/ቤት ባስቀመጠው ራእይና ተልዕኮ መሰረት ተግባሩን ተወጥቷል ብለው ያምናሉ ?

ሀ.አዎ አምናለሁ ☐

ለ.አላምንም ☐

4. በተራ ቁጥር 3 ለመልሶ ምክንያትዎን በአጭሩ ይግለጹ

5. በአራዳ ክ/ከተማ በሚደረጉ የመንገድ አከፋፋዮች፣አደባባዮች፣ዳርቻዎችና መናፈሻ ቦታዎች ልማት እቅድ አዘገጃጀትና አተገባበር ላይ የእርስዎ ተሳትፎ

ሀ.በጣም ከፍተኛ ☐

መ.በጣም ዝቅተኛ ☐

ለ.ከፍተኛ ☐

ሠ.ምንም ተሳትፎ የለኝም ☐

ሐ.ዝቅተኛ ☐

6. በተራቁጥር 5 ላይ መልሶ ከፍተኛ ወይም በጣም ከፍተኛ ከሆነ ተሳትፎዎ በምን ላይ እንደሆነ በአጭሩ ይግለጹ

7. ለመዝናናት ወደከተማ አረንጓዴ ቦታዎች ሲጓዙ ከመኖሪያ ቤትዎ እስከ ፓርኩ ድረስ የሚጓዙበት ርቀት በኪ/ሜትር ሀ.እስከ ፡፡፡ ኪ/ሜትር ☐ ሐ.ከአንድ እስከ ሁለት ኪ/ሜትር ☐
 ለ.እስከ አንድ ኪ/ሜትር ☐ መ.ከሁለት ኪ/ሜትር በላይ ☐

8. ለከተማ ነዋሪና ጎብኚዎች አገልግሎት ተብለው በየመንገዱ አከፋፋይ፣አደባባይ፣በወንዝና በመንገድ ዳርቻ የሚተዉ የአረንጓዴ ቦታዎች ልማት ደረጃቸውን ጠብቀው የለሙ ናቸው ብለውያምናሉ ?
 ሀ.አዎ አምናለው ☐ ለ.አላምንም ☐

9. በተራ ቁጥር 8 ላይ መልስዎ አላምንም ከሆነ ደረጃቸውን ጠብቀው ያልለሙበት ምክንያቶች ናቸው የሚሏቸውን በቅደምተከተል ይዘርዝሯቸው

ሀ. _____
 ለ. _____
 ሐ. _____
 መ. _____
 ሠ. _____
 ረ. _____

10. ለአረንጓዴ ቦታዎች እንክብካቤና ጥበቃ ተጠብቀው እንዲተዳደሩ የህግ ከለላ መኖሩን

ሀ.በጣም እስማማለው ☐ ሐ.በጥቂቱ እስማማለው ☐
 ለ.እስማማለው ☐ መ.ምንም አልስማማም ☐

11. በተራቁጥር 10 መልሶ ምንም አልስማማም ከሆነ ምክንያትዎን በአጭሩ ይግለጹ

12. የአረንጓዴ ቦታዎችን ልማትና አስተዳደር የሚመሩ ማዘጋጃቤታዊ አመራሮችና ባለሙያዎች አሰራር፣ብቃትና ትግበራን እንዴት ይመለከቱታል ?

ሀ.በጣም ከፍተኛ ☐ መ.ዝቅተኛ ☐
 ለ.ከፍተኛ ☐ ሠ.በጣም ዝቅተኛ ☐
 ሐ.መካከለኛ ☐

13. በተራቁጥር 14 ላይ መልስዎ ዝቅተኛና በጣም ዝቅተኛ ከሆነ ምክንያቶቹ ምንድን ናቸው ብለው ያምናሉ ? በአጭሩ ይግለጹ

ክፍልአራት - የከተማአረንጓዴቦታዎችለሚታይተግዳርትየመፍትሄሀሳብአንጻር

1. ከተማችን ክፍለከተማችን በአረንጓዴ ልማትና ውበት ተመራጭ የምስራቅ አፍሪካ ብሎም የአፍሪካ ከተማ ሆና እንድትገኝ ምንምን መደረግ አለበት ብለው ያምናሉ ?

ሀ.በመስተዳደሩ በኩል _____

 ለ.በነዋሪ በኩል _____

ሐ.በባለሃብቱ (በነጋዴዎች) በኩል _____

መ.በየደረጃው በባለሙያዎች በኩል _____

ሠ.በት/ቤቶች፣በዩኒቨርሲቲዎችና በሌሎች ተቋማት በኩል _____

ረ.በሌሎች አካላት አገርበቀልና አለምአቀፍ መንግስታዊ ያልሆኑ ድርጅቶች በኩል _____

2. የከተማ አረንጓዴ ተክሎች የተለያዩ አደጋ በሚደርስባቸው ጊዜ በአስተማማኝ ሁኔታ የሚመለሱበት ሽሰራር እንዲኖር የኢንሹራንስ አገልግሎት ቢገባላቸው
ሀ.አስማማለው ☐ ለ.አልሰማማም ☐
3. በተራቁፕር 2 ላይ መልስዎ አልሰማማም ከሆነ ምክንያትዎን በአጭሩ ያብራሩ _____
4. የከተማ አረንጓዴ ቦታዎች ልማትና አስተዳደር አስፈላጊና ጠቀሜታ በተገቢው ሁኔታ በባለድርሻ አካላት ዘንድ ግንዛቤ ለመፍጠር በምን መልኩ ቢሆን ይመረጣል ይላሉ ? በደረጃ ያስቀምጡ

ዘዴዎች	ደረጃ			
	እጅግ በጣም ተመራጭ	በጣም ተመራጭ	መካከለኛ ተመራጭ	ዝቅተኛ ተመራጭ
በሬዲዮና ቴሌቪዥን				
በውይይት መድረኮች				
የተለያዩ ጽሁፎች በማዘጋጀት				
በማስታወቂያ ሰሌዳዎች በመለጠፍ				

ሌ ላካለ ይዘርዝሩ _____

5. የከተማ አረንጓዴ ቦታዎች ልማትና አስተዳደር ተሳትፎ ላይ የባለድርሻ አካላት (ህብረተሰቡን) ሊያበረታቱ ይችላሉ የሚሏቸውን ጉዳዮች በቅደምተከተል ይዘርዝሩ _____

6 . አጠቃላይ ስለከተማ፣ከፍለከተማና ወረዳ የአረንጓዴ ቦታዎች ተግዳሮቶች፣ልማትና አስተዳደር ያለውና መሆን የሚገባቸው ሁኔታዎች የራስዎን አስተያየት በቅደምተከተል ይዘርዝሩ _____

Appendix -C
ADAMA SCIENCE AND TECHNOLOGY UNIVERSITY

SCHOOL OF HUMANITIES AND LAW

DEPARTMENT OF GEOGRAPHY AND ENVIRONMENTAL STUDIES

List of questions for interviews with households, business community, experts, process owners and managers. These questions are for the purpose of academic interest to get information about the challenges, management and development of green areas in woreda six, Arada sub - city. I appreciate your collaboration for reflecting your opinions about the challenges facing on urban green area development and management in your office by giving limited time.

Part I – Person information

1. Sex_____
2. Age_____
3. Educational background_____
4. Field of study_____
5. Occupation_____ position_____
6. Income _____
7. Service year _____

Part II. Discussion Points

1. Would you explain the benefits of urban green area socially, economically and environmentally in your woreda?
2. How do you observe the situation of green areas in your woreda?

3. How experts are there in woreda six administration concerning green area?

Job Title	Needed		Currently existing		Remark
	Qualification	Number	Qualification	Number	
Total					

4. How often the green areas are maintained? _____

5. How much budget is allocated for the last five years for green area development and management in your woreda six?

Year	Allocated budget for green areas	
	Planned	Actual
2006 E.C		
2007 E.C		
2008 E.C		
2009 E.C		
2010 E.C		

6. How are the main stakeholders participating and will participate in woreda six?

Year in E.C	Major-stakeholders	Number of participant	
		Planned	Actual
2006			
2007			
2008			
2009			
2010			
Average			

7. Which institutions (government, non-government, traditional or community based) are involved in green space planning and management? Name these organizations

8. Do local regulation, ordinances, etc exist for green space, trees, nature areas... if so, please provide examples of these.

9. Are the different documents for example The Environmental policy of Ethiopia proclamation No, 9/1995, The city Development plan of Addis Ababa and clean and Green Addis Ababa Plan (2004), Integrated Urban infrastructure and Service planning manual (2006), the urban plan proclamation No. 574/2008, the recent Growth and transformation 5 year plan, the

Ethiopian cities prosperity initiative Building Green, Resilient and well Governed cities, 2013/14/2025 (2014), Ministry of urban Development and Housing; Ethiopia Nation urban Green Infrastructure standard (2015) etc are followed and applied?

10. Can you describe present planning and management of green area/ spaces based on these National Urban Green Infrastructure standards?

11. How attend awareness concerning green area benefits, problems, management and developments in woreda six?

Year	Number of participants		Percent
	Planned	Actual	
2006 E.C			
2007 E.C			
2008 E.C			
2009 E.C			
2010 E.C			
Total			

12. How can you describe the challenges that are facing urban green areas development and management in regard to people awareness, community participation, standards and manuals, presence of rule and regulation, presence of skilled man power, preparation of source availability, political leadership commitment, plan implementation, organization of integration, priority and others of urban green areas in the city, sub-cities or woredas?

13. How do you explain the quality of green space in helping to define the identity of towns and cities, which can enhance their attraction for living, working, investment and tourism?

14. How can you describe to enable better development and management advisable that all green spaces sorted into categories according to their type, function, location, size and importance?

15. Which local regulation (committee) are used for the management and development of green areas in your woreda 06?

16. Where do you get the plantation? How do you select?

17. How do you organize the residents for the management and development of the green areas?

18. Suggest possible ways of solving or options for challenges facing urban green areas development and management in the city, sub-city or woredas?

Thank you for your cooperation!!!

Appendix -D

ADAMA SCIENCE AND TECHNOLOGY UNIVERSITY

SCHOOL OF HUMANITIES AND LAW

DEPARTMENT OF GEOGRAPHY AND ENVIRONMENTAL (STUDIES)

List of questions for focus group discussion

These questions are for the purpose of academic interest to get information about the challenges, development and management of green areas in Arada sub city, woreda six. So, I appreciate your collaboration for reflecting your opinions by giving your limited time for my study.

Part I personal information

1. Sex
2. Age
3. Educational background
4. Field of study
5. Occupation _____ position_____
6. Income
7. Service year_____

Part II- Discussions points

- 1.What are the main functions and benefits of green areas/spaces in woreda six?
- 2.Are you aware of the benefits, challenges, development and management of green areas in your woreda?
- 3.Are you satisfied with the currently available green areas?
- 4.Have you ever participated in the woreda green areas planning?
- 5.How frequently are the green areas maintained?

- 6.What is expected from you for protecting and making sustainable value of green areas in your locality?
- 7.Who do you think is the main responsible body for the development and management for green areas in your woreda?
- 8.How do you evaluate the woreda administration for developing and managing green areas?
- 9.Have you ever participated in planning and gardening campaign in woreda?
10. Is there any participating stakeholder/committee on the regulation, management etc in your woreda green areas?
11. What are the most important strengths, weaknesses, opportunities and threats regarding the woreda's green areas and their development and management?
12. Suggest possible ways of solving or options for challenges facing urban green areas development and management in the city, sub-city or woredas?

Thank you for your cooperation!!!

Appendix – E

Field Observation Checklist

No	Green Areas	Response Very high, high, very low, low	Date of observation	Remark
1	Transport corridors			
2	Road side			
3	Road square			
4	Small square			
5	Condominium			
6	River bank			
7	Park			
8	Derelict site			
9	Developed and managed by public			
10	Developed and managed by private			
11	Developed and managed by real state			
12	Developed and managed by church			
13	Developed and managed by municipality			
14	Fenced and planned			
15	Changed to other purposes			
16	Used for dump site for solid waste			
17	20/50 radius			

