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**Challenges and opportunities for the development and management of
urban green areas in Addis Ababa: The Case of Cooperative Housing Green
Areas and Street Trees in Nifas Silk Lafto Sub-City**

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A Thesis Submitted to

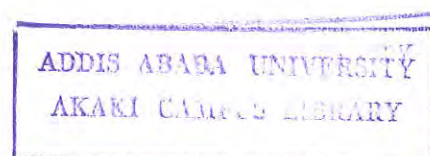
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This is to certify that the thesis prepared by Gebrye Kefelew, entitled: Challenges and Opportunities for the Development and Management of Urban Green Areas in Addis Ababa: The Case of Cooperative Housing Green Areas and Street Trees in Nifas Silk Lafto Sub-City and submitted in partial fulfillment of the requirements for the degree of Degree of Master of Arts (Urban development and Management) complies with the regulation of the University and meets the accepted standard with respect to originality and quality.

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Abstract

Challenges and Opportunities for the Development and Management of Urban Green Areas in Addis Ababa: The Case of Cooperative Housing Green Areas and Street Trees in Nifas Silk Lafto Sub-City

Gebrye Kefelew, Addis Ababa, 2012

As urban green areas are centers of public recreation and rendezvous, they should be incorporated in the city master plan in order to get proper management and development. In addition, their management and development should base the planned and active participation of stakeholders and sound local strategic practices. On the contrary, these urban areas, especially cooperative housing green areas and street trees in Addis Ababa are facing problems related to their development and management. The prime objectives of this study are therefore to find out challenges and opportunities for the development and management of cooperative housing green areas and street trees by analyzing the current local strategic practices and stakeholders' involvement in Nifas Silk Lafto Sub-city.

The research employed mixed research methods and used questionnaire, in-depth interview, focus group discussion, observation, and desk review for data collection. About 130 sampled households participated in filling the questionnaire. Government officials and other stakeholders participated for interviews and focus group discussions.

The findings of this study shows lack of awareness in the public and government employees, weak institutional capacities, lack of coordination among stakeholders and



absence of clear ownerships and enforcement mechanisms were revealed as the major challenges that affected the development and management of cooperative housing green areas and street trees. Regarding the practices of local strategies, cooperative housing green areas are developed and managed by the members of cooperative and Iddirs, but the finding of the study revealed that as this strategy is not more effective due to lack of awareness and property deed about the areas. On the other hand, street trees are developed and managed by BPCDM offices of the sub-city and woredas with the involvement of other stakeholders; however, the strategy was implemented at minimal level and constrained by lack of awareness, insufficient follow up by the concerned BPCDM experts, and absence of awards to volunteers.

Finally, to develop and manage these green areas by exploiting the existing opportunities, the study recommends that the good will, the coordination, and efforts of all stakeholders including communities, government authorities, and non-governmental bodies should be enhanced and coordinated.

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Acronyms

Lists	Descriptions
AARA	Addis Ababa Road Authority
BPCDM	Beautification, Park and Cemetery Development and Management
BWUD	Bureau of Work and Urban Development
CBOs	Community Based Organizations
CDP	City Development Plan
CGAA	City Government of Addis Ababa
CGADP	Clean and Green Addis Ababa Development Plan
E.C	European Commission
EPA	Environmental Protection Authority
FDRE	Federal Democratic Republic of Ethiopia
FGDs	Focus Group Discussions
GIS	Geographic Information System
MoFA	Ministry of Federal Affairs

MWUD	Ministry of Work and Urban Development
n.d	not dated
NGOs	Non-Governmental organizations
NoHSC	Number of Houses within the Selected Cooperatives
NSCH	Name of Selected Cooperative housing
NSLSC	Nifas Silk Lafto Sub-city
NSW	Name of Selected Woredas
ORAAMP	Office for the Revision of Addis Ababa Master Plan
SHHS	Sampled Households

Definition of Terms

The following conceptual definitions are given regarding the major concepts and terms that are employed in this study, and it is in the light of these explanations that the paper tries to analyze them.

Challenges: are constraints that act as bottleneck for the development and management of cooperative housing green areas and street trees in Nifas Silk Lafto Sub-city.

Community based organizations: denote Iddirs and business communities.

Cooperative housing green areas: are the green areas of cooperatives houses that have built during the Dergue regime and the current government through a self-help approach in Nifas Silk Lafto Sub-city.

Local strategic practices: refers to a set of actions that is practicing to improve cooperative housing green areas and street trees in Nifas Silk Lafto Sub-city.

Opportunities: refers to the initiatives and actions taken by the stakeholders to enhance the development and management of cooperative housing green area and street trees in Nifas Silk Lafto Sub-city.

Stakeholders: refers to actors, which include government institutions, communities, or community-based organizations, and voluntary groups (NGOs) that are responsible for the development and management of cooperative housing green areas and street trees in Nifas Silk Lafto Sub-city.

Street trees: refers to trees planted at both sides and median of the streets in Nifas Silk Lafto Sub-city.

Urban green areas development: refers to the improvement of cooperative housing green areas and street trees to maximize their benefits for urban life in Nifas Silk Lafto Sub-city.

Urban green areas management: refers to the preservation and protection of cooperative housing green areas and street trees so as to meet the intended objectives in Nifas Silk Lafto Sub-city.

Woreda : District level administration unit.

Chapter One: Introduction to the Study

1.1. Background of the Study

The development of multi-functional urban green areas contributes for sustainable urban development in terms of improving the quality of life and environment for current urban population (Kuchelmeister, 2002:3). The preservation of urban green areas and creating and expanding more green spaces in and around the city provides psychological satisfaction for the residents. When considering urban green areas and environmental sustainability of the urban system, the conditions of the Brundtland Report of 1987 were seen as a requirement (Aldous, 2010:1). In this report, “sustainable development---meets the needs of the present without compromising the ability of future generations to meet their needs. For such green areas to be sustainable, it is necessary to retain a balance between economic development, a “clean and green” environment, the bearing capacity of the population, and the necessary resources that maintain a natural and healthy environment (Chen, 1999: 22 - 26).

Green areas can be classified as formal and informal (BWUD, 2001 cited in Alamrew, 2002:3). Formal green areas are open spaces with specific functions and management, such as parks, street gardens, play grounds, sport fields, squares, institutional vegetation cover, private gardens, cemeteries etc. Informal green areas also include forest patches, river valleys, urban agricultural and grazing land, open spaces left in housing or other development areas, land reserved in expansion areas etc. Though green areas are usually mentioned in plans for Addis Ababa while, in practice, they are absent on the ground. In

the city, the available spaces in terms of green areas per person are lower than other cities. For instance, the park coverage of Addis Ababa is 15 times less than that of Paris (12m² / person) and 50 times less than that of Bonn (37 m²/ person) (Alamrew,2002:2).

The public park coverage of Addis Ababa is also estimated to be only 196 hectares (Wondimu, 2006: 2). Neighborhood green areas in the city are also critically inadequate. Urban greens are being lost from time to time due to low greening activities which are compounded by problems related to management. This creates serious problems for urban dwellers to live in an area with access to a clean and green environmentally friendly place. This is people's right clearly put in the Federal Democratic Republic of Ethiopian Constitution (Art.44). This situation contributes to the undermining of the quality of life for the people by diverting their behavior towards immoral, unhealthy, and to dangerous actions (Gebresilasie et al., 1996 cited in Wondimu, 2006:4).

In summary, the development and management of urban green areas in the city are big challenges. The city is in the process of transition and is facing problems of expansion, overpopulation, poverty, and low quality of life and uncleanness of the residential and business environments. The future development planning and putting management strategies in place are essential for the green areas of the city. However, systematic research on the theme and the context of green areas in Addis Ababa City is scant.

Few studies were conducted on urban green spaces in Addis Ababa. Kumlachew Tsegaye (2007) studied Meskel Square and Leghar Park. He identified as these spaces have problems related with the design of their amenities, their management, and safety.

Urban planners should look for sustainable urban development policies and strategies. This study is thus aimed at filling the gap and informing urban planners from evidence of the challenges and opportunities for the development and management of cooperative housing green areas and street trees in Nifas Silk Lafto Sub-city.

1.2. Problem Statement and Research Questions

Because Addis Ababa is the capital city of Ethiopia it is now in a process of becoming rapid urbanization, commercial development, and population pressure while the overall urban environment lacks adequate green spaces. The capital was once said “forest city”. In fact, in the beginning of the 20th century, some 10 million trees were imported from Australia and covered Addis Ababa (Berlan, 1963 cited in Wondimu, 2006:1). After nationalization of land in 1975, the green areas in the capital have been subjected to excessive exploitation and severe degradation due to lack of careful management of green areas and inadequate greening activities (Horst, 2006:109). Recently, the city administration has been also unable to keep pace with the expectation emanating from the services and facilities of urban green areas and the city’s international notion. Besides, the development and management of urban green areas in Addis Ababa hardly meet the standards provided by other competitive African cities and even by standards set by the master plan of the city itself (ORAAMP, 1996:32).

Cooperative housing green areas and street trees are usually planned and indicated in the settlement plan and road design of Addis Ababa. However, these green areas are not operating properly or are not used appropriately by the residents in Addis Ababa. In most

cases, these spaces are highly hindered due to various problems such as illegal encroachments, deteriorations, and weak preservations.

The problems related to these urban green areas are multifaceted, one of which is the level of cleanness. It is true that cleanness is one of the operational attributes for good quality of urban green spaces for this creates comfort and convenience for its users. Addis Ababa is not, however, lucky enough to have clean cooperative housing green areas and street trees. Even in some cases, these spaces of the city are places where homeless people live, dump their garbage, and excrete their wastes. In addition, absence of efficient and timely cleaning and maintaining of these spaces further aggravated the problems.

Cooperative housing green areas have also problems related to their current functionality and operation. In principle, they should serve all members of the cooperative housings; and they have to be opened for the members of the cooperatives. However, some of these areas are closed or vacant places which do not give any kind of services for the public. This situation also puts its negative impact on the environment, visual quality, and economic development of the city.

Generally, these spaces have problems regarding aesthetic, maintenance, and cleaning. In addition, there are also problems related to the extent of the availability and practicality of these spaces in the city. These indicate that their development and management situations throughout the city are deteriorated.

All the aforementioned problems are also true in the subject area of this study, Nifas Silk Lafto sub-city (NSLSC BPCDM office report, 2011: 13). These are also resulted from the approach taken in planning and development of these spaces or in their management or perhaps the combination of all these. Therefore, the challenges of cooperative housing green areas and street trees need to be analyzed in terms of planning for development and introducing better management mechanisms to expand their services by employing the existing opportunities in Nifas Silk Lafto sub-city.

Based on the problem statements in the above paragraphs, the findings of this thesis have been tried to be answered the following research questions. These are:

1. What are the problems in the development and management of cooperative housing green areas and street trees in Nifas Silk Lafto sub-city?
2. What are the current local strategic practices for developing and managing cooperative housing green areas and street trees in Nifas Silk Lafto Sub-city?
3. In what ways are the stakeholders involved in the planning, developing, and managing of the cooperative housing green areas and street trees in Nifas Silk Lafto Sub-city?
4. What are the opportunities for the development and management of cooperative housing green areas and street trees in Nifas Silk Lafto Sub-city?

1.3. Objectives of the Study

The general objective of this research is to assess the challenges and opportunities for the development and management of cooperative housing green areas and street trees in Nifas Silk Lafto Sub-city. The specific objectives of the thesis are to:

1. Identify problems in the development and management of the cooperative housing green areas and street trees in Nifas Silk Lafto Sub-city;
2. Analyze the current local strategic practices for developing and managing cooperative housing green areas and street trees in Nifas Silk Lafto Sub-city;
3. Assess stakeholders' involvement in planning, developing, and managing of cooperative housing green areas and street trees in Nifas Silk Lafto Sub-city;
4. Identify opportunities for the development and management of cooperative housing green areas and street trees in Nifas Silk Lafto Sub-city; and
5. Forward possible recommendations for sustainable development and management of cooperative housing green areas and street trees in Nifas Silk Lafto Sub-city.

1.4. Significance of the Study

This study is significant in terms of identifying the challenges and opportunities for the development and management of cooperative housing green areas and street trees. It is also significant to bridge knowledge gap in the areas of cooperative housing green areas and street trees since it points out the current local authority practices and community involvement in planning, providing, and managing of cooperative housing green areas and street trees. Therefore, the findings of this study can assist policy makers and program implementers to be informed on the critical challenges and opportunities for the development and management of cooperative housing green areas and street trees. Furthermore, it can also serve as a point of reference to stimulate further research about the topics of the study.

1.5. Scope of the Study

The spatial scope of the paper is limited to Nifas Silk Lafto Sub-city within Addis Ababa. In subject wise, the study is limited to the challenges and opportunities for the development and management of urban green areas. As the classification of urban green areas encompasses different elements, this study mainly focuses to identify critical challenges and opportunities for cooperative housing green areas (residential green areas) and street trees development and management in the sub-city. It does not include other urban green areas.

1.6. Limitation of the Study

Some of the participants are not much willing to fill the questionnaire and to give necessary information openly. Unavailability of organized data in Nifas Silk Lafto sub-city as well as in the concerned institutions was also challenging. There was a bureaucratic hassle in some institution to get accurate and reliable data. Moreover, getting key government officials with knowledge about the issue being studied was challenging. However, the diverse methods and tools used and by looking convenient timing, reliable data was collected.

1.7. Organization of the Thesis

This thesis has five chapters with a number of sections and sub-sections. Chapter one outlines the introductory parts of the study which contain background of the study, statement of the problem and research questions, objectives of the study, significance of the study, scope of the study, limitation of the study, and organization of the thesis.

Chapter two presents relevant literature reviews of the study. Issues like conceptual overview of urban green area, planning the development and management of urban green areas, management of developed urban green areas, and benefits of developed urban green areas were discussed. What is more, it tries to discuss actors for the development and management of urban green areas and empirical literatures

Chapter three introduces justification used to select the study area. Furthermore, this chapter briefly explains the type of research method selected for this study, types, and sources of data used for the study, and various techniques and tools used to gather the necessary information. Methods of data analysis and analytical framework of the study are also presented in this chapter.

Chapter four presents the main findings of the research. Based on the findings of the study, chapter five would draw conclusions and recommendations for possible immediate actions in the arenas of policy, research, and action to combat the situation towards sustainable development and management of cooperative housing green areas and street trees. In addition to the above-mentioned chapters, additional information is provided in the annex section.

Chapter Two: Literature Review

The review of related literature part discusses conceptual overview of urban green area, planning the development and management of urban green areas, management of developed urban green areas, benefits of developed urban green areas, and actors in the development and management of urban green areas. International and local empirical experiences on urban green areas development and management are also reviewed.

2.1. Conceptual Overview of Urban Green Area

Though urban green areas focus on what are perhaps the main elements of urban green areas covered with natural or man-made vegetations in urban areas, it has also a wide variety of definitions. Therefore, it is essential to review different definitions in a critical manner.

Dunnett, et al. (2002:8) provided a more elaborate definition: Urban green area is defined as land that consists predominantly of unsealed, soft surfaces such as soil, grass, shrubs, and trees (the emphasis is on predominant character because the course green spaces may include buildings and hard surfaced areas). As to them, it is the umbrella term for all such areas whether or not they are publicly accessible or publicly managed. They also indicate that these spaces include all areas of parks, play areas, and other green spaces specifically intended for recreational use, as well as other green spaces with other origins. Similarly, Baycan-Levent et al.(2002:3) also defined urban green areas as public and private open spaces in urban areas, primarily covered by vegetation, which are

directly (e.g. active or passive recreation) or indirectly (e.g. positive influence on the urban environment) available for the users.

The elements of urban green areas also vary in different part of the world and it is essential to investigate its elements from countries such as Finland, Germany, and Ethiopia. In Finland urban green areas, include environments, which belong to the communities, such as yards, gardens, parks, open spaces and market places with vegetation, neighborhoods woodland and other recreational areas and cultural landscapes (Viherympäristöliitto, 2008 cited in Suomalainen,2009:7). In Germany urban green area also includes vegetation covered open space or open space with plants that service the city hygiene, and that break up the city structure and serve as the recreational use. Green areas are classified in land use plans and also in the municipalities, green and park areas, central parks situated in residential areas, city forests, traffic green area, allotments, sport, play and swimming places, graveyards, promenades, tree lines and green constructed city place¹.

According to BWUD (2001), urban green frame in Ethiopia mainly encompasses open and green areas, whose main purposes are to provide outdoor recreation and breathing space as well as to maintain environmental balance. Thus, urban green areas comprise all open and green areas such as:

- Street trees and road plantations,
- Institutions' vegetations,

¹ Suomalainen (2009), Ibid, p. 7 cited from Geoinformatik, 2008

- Public green areas such as parks, neighborhood green areas (cooperative housing green areas), cemeteries etc,
- Semi-private spaces such as green space in residential areas and in industrial or specially designated parks,
- Public and private tree plantations on vacant lots, in green belts, woodlands, rangeland, and forests close to urban areas,
- Land reserved in expansion areas,
- Play grounds,
- Sport fields, and etc.

Therefore, urban green areas development and management refers to any effort whose aim is improving and protecting urban green areas to improve environmental quality, economic opportunity, or aesthetic value associated with a city's landscape. Urban green development and management is also seen as a strategy for simultaneously making our cities more enjoyable, livable, and sustainable.

As can be concluded from the definitions above there are various types of urban green areas. However, this paper focuses only on cooperative housing green areas and street trees. These green areas are designed for recreation, interaction, and breathing spaces of the public. Consequently, they are critical for sustainable urban development by improving the qualities of life and environments in the city.

2.2. Planning Urban Green Areas Development and Management

Almost since the beginning of urban planning, planners have sought means of incorporating nature into the city and preserving the surrounding landscape. Several models, some utopian, have influenced “green city” advocates. Charles Fourier’s fantasy villages called “phalansteries,” Ernest Callebach’s novel “Ecotopia,” and the most famous, Ebenezer Howard’s “Garden City,” all may be seen as landmarks in the green city movement (Roelofs 1999 cited in Baycan-Levent and Nijkamp, 2009:2). Even though motivations relating to nature conservation have been considered for a surprisingly long time, the plans were largely done by experts, with little stakeholders’ participation in the planning process.

However, currently studies show that planning urban green areas development and management depend on the planner’s views and the users’ views integration. For instance, a study in Madina town showed that the highest number of users (80%) and (71%) want grass/ turf and evergreen plants in their green spaces respectively (Irum et. al.2002:1099-1101). This indicates that during the planning, development, and management process, a consideration of users’ perception should be important. If the urban green spaces development strategies fail to include stakeholders’ participation, it will be the reflection of the neglect of social and environmental functions (Balram and Dragicevic, 2005:147-162). A study in Ankara city, Turkey shows that the green space users’ preference are such as sitting on bench, walking and running facilities, pleasant landscape, visual elements, nearness to water and peaceful atmosphere (Oguz,2000:165-171). In the pursuit of developing a quality green space, the standards should be set

locally, to accommodate activities and future changes. Public participation in the planning of urban green areas development and management process is very important to incorporate their values and pattern of life in the process².

Thus, planning urban green areas requires the collaborative effort of various stakeholders at different spatial scales. In order to acquire the necessary inputs to the planning process in general and to the development and management of urban green areas in particular from various stakeholders, training, technical assistant, public information, and public-private partnerships are the main tools (Alamrew, 2002:58).

Effective urban green areas planning will require substantial technical skills and training at the national as well as at local (or city) levels. Technical assistant and trainings are obtained from central or local government institutes or agencies, consulting firms, academic or research programs, or NGOs³. Furthermore, public information programs are needed to promote public participation in urban green areas development and management planning as well as to create incentives for improved urban green areas services. These programs can be carried out by local authorities, NGOs, or CBOs and civil societies, and directed to all sectors and levels of the society.

On the other hand, specific planning strategies alone will provide only short-term solutions to urban green areas development and management. To have a lasting impact these tools need to be developed in coordination with plans for urban development, for

² Oguz (2000), Ibid. p.165-171

³ Alamrew (2002), Ibid. p.59

economic development, and for various types of urban infrastructure, energy development, roads, and water resource management (Carmona et.al n.d:34).

As the above discussion shows good urban green areas, planning requires:

- Consideration of users' interest and scientific facts,
- Collaborative effort of various stakeholders,
- Integration of green project planning with other project planning,
- Everybody should be transparently involved to understand how the process operates, and
- The process should not waste time or money.

2.3. Management of Developed Urban Green Areas

Experience in developed urban green areas demonstrates that an effective approach for managing urban green areas is to formulate an integrated approach and thematic strategy. Integrated approach refers to active involvement of the community, and the collaborative and enabling partnerships among local authorities, local business, and voluntary groups (Bartone et. al. 1994:74). Thematic strategy is also the management of urban green areas within the entire functional area of a political authority and/or a built-up city (E.C, 2007:7). Moreover, this approach is built upon cross departmental and sector cooperation, engagement with all relevant stakeholders and integration of local, regional, and national policies⁴.

⁴ E.C(2007), Ibid. p. 7

The review of urban green areas management experiences of 11 cities⁵ by Carmona et.al (n.d:6-95) also shows that good urban green areas' management require the following points:

- The need to link green space aspirations to broader national, regional, and local policy areas and aspirations through effective use of the available policy instruments,
- Long-term, cross-political commitment to green spaces and strong local leadership,
- The willingness to engage local communities in the task, and to think creatively about means of successful green space management,
- An information system to facilitate the dialogue between green space managers and the community,
- Community participations, which give weight to different voices within the community, and that, are not excessively influenced by the officers' interest,
- Good working relationships between those with separate responsibilities for green space management,
- Conscious efforts, which remove organizational barriers to inter-departmental cooperation,
- Pledged funding specifically for major new green areas development,
- Supplementary funding sources,

⁵Melbourne, Curitiba, Aarhus, Paris, Hanover, Tokyo, Groningen, Wellington, Malmö, Zurich, and Minneapolis

- Clear structures to manage the relationship between public bodies and private contractors,
- More integrated information system,
- Involvement of voluntary sector in urban green space management that can tap an underutilized resource, and
- An experienced staffs, from the strategic to the operational level, an emphasis on ongoing training across all management and operational levels, and a continual investment in staff resources.

As elaborated above, there is a strong national policy framework shaping green space aspiration and examples where green space policy and strategy are entirely a local affair. No matter how different these contexts might be, a common thread was the ability to link closely their visions for green spaces to broader national, regional, or local economic, social and environmental aspirations through effective use of the available policy instruments. Significantly, the commitment and performance of local administrations are great determinant of the quality of green spaces and their management. Therefore, management of urban green area is primarily a local government responsibility, with the involvement of regional authority and communities or voluntary groups. This means local politicians with the involvement of regional authority and communities hold the responsibility of managing urban green spaces. In addition, urban green areas should be managed by using more integrated information such as integrated database and GIS.

Furthermore, the quality of the working relationships between those with responsibilities for the development and management of urban green areas is the most important variable

in influencing the better coordination of separate green space responsibilities and interventions. In urban green areas management, there also must be conscious efforts to remove organizational barriers to interdepartmental cooperation; and protect revenue expenditure streams.

2.4. Benefits of Developed Urban Green Areas

Urban green areas, like urban parks, vegetated areas, woodlands, even forest in the world have traditionally been viewed principally as recreational amenities. However, currently different literatures recognized the holistic and integrated benefits of developed urban green areas for many other environmental and social benefits beyond recreational use and aesthetics in different part of the world. They provide a diversity of ecological, social, and economic functions and benefits: enriched habitat and biodiversity; maintenance of natural landscape processes; cleaner air and water; increased recreational opportunities; improved health; and better connection to nature and sense of place (McMahon Ed. and Benedic M., 2000:13). The following paragraphs present brief discussion about the benefits of developed urban green areas, particularly, from social, planning, ecological, and economic perspectives.

The social aspects of developed urban green spaces include diversity of land uses, contribution to health and active life styles in cities, social justice by incorporating all groups and ages of people into green spaces, opportunities to interact and expand social network (Scottish Executive, 2001: 20). They can also enhance the cultural life of different communities living in the city by providing places to share views, feelings and

to celebrate different groups' occasions; and a venue for environmental education for the school children (Baycan-Levent et.al 2002: 5).

From the planning aspects, a network of high quality green spaces can also link residential areas with business, retail, and leisure developments, and help to improve the accessibility and attractiveness of local facilities and employment centre. Well designed networks of green spaces help to encourage people to travel safely on foot or by bicycle for recreation or commuting (Scottish Executive, 2001: 35). Furthermore, well designed urban green spaces provide a barrier to noise and can function as a visual screen.

The economic aspects of urban green spaces incorporate as a place for production and supply of fruits and wood; and as a place for new jobs creation and increasing economic value of the areas (Baycan-Levent et.al 2002: 7). Most importantly, the ecological perspective considers urban green spaces as a facilitator to reduce the impact of human activities through absorbing pollutants and releasing oxygen, and contributor to the maintenance of a healthy urban environment with clean air, water, and soil (Nayeem, 2008:15). Urban green areas also preserve the local natural and cultural heritage with a diversity of urban wildlife and urban resources for tourist's attraction (Baycan-Levent et.al 2002: 5).

2.5. Actors in Urban Green Area Development and Management

Urban green area development and management requires more integrated approaches and active involvement of public, private, and Non-governmental actors at individual, community, city, and national level (Baycan-Levent and Nijkamp, 2004:2-3). Urban

green areas development and management should therefore involve those whose interests are affected by both green problems and management strategies and action plans; those who control relevant instruments for implementing green management strategies, and those who possess relevant information and needed for dealing with a wide spectrum of green issues. For participation and partnership to become sustainable in the development and management of urban green areas and open spaces, collaborations among stakeholders are also:

More than information exchange, or even collective decision making process rather they involve in partnerships, mutual trust, and understanding. Such collaboration should be seen as a principle that needs conscious practice to optimize resources and actions, forming a basis for mutual support, and avoiding duplication, gaps, and conflict (Williams, 2000:24-25).

Regarding stakeholders, Bartone et.al. (1994:21) identified the following influential actors which are directly or indirectly involved in the development and management of urban environment in general and urban green areas in particular:

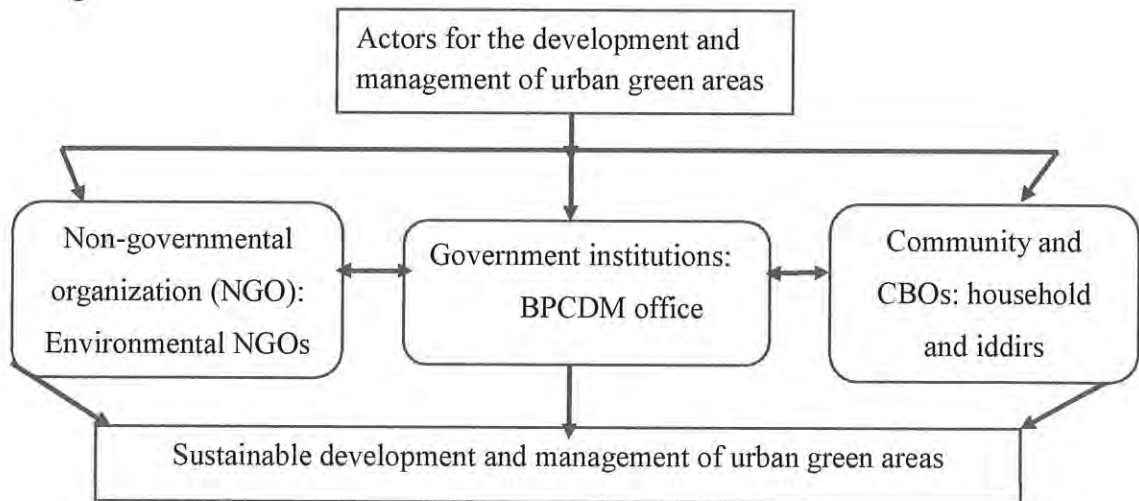
- Environmental protection agencies whose staffs are responsible for setting environmental regulations and standards for monitoring and enforcement.
- Planning agencies whose staffs are responsible to conduct environmental analysis and used it as inputs for local development planning.
- Sector agencies (public and parastatal) that tend to have experience in cross sectoral collaboration, and give due consideration to the interrelationships between projects. They will often promote infrastructure and development projects with basic environmental considerations.

- Concerned residents and community-based organizations (CBOs) whose members and leaders are acutely aware of the impacts of environmental problems at the household and neighborhood level. Typically, this group has few opportunities to participate in the preparation of urban infrastructure or industrial projects that affect them.
- Non-governmental organizations (NGOs) that can be effective agents for building local awareness, for mobilizing community action, and for voicing local concerns. Often, however, environmental NGOs are focused exclusively on green and global issues and pay insufficient attention to brown issues.
- Private and informal sector enterprises that generally are concerned about the constraints placed on their businesses by environmental regulations and the costs such rules incur, particularly when enforcement is lack or inconsistent. Members of the business community seldom wish to be perceived as environmental villains and should be co-opted into the search for solutions.
- The news media who voice concern for the environment and in reporting on those affected by environmental conditions. This role can be negative, however, if the tendency is to sensationalize environmental topics rather than focus on real local priorities.

As the forgoing paragraphs show, challenges and opportunities for the development and management of urban green areas are determined by the interaction of numerous government offices, non-governmental organizations, and community actors. In

summary, the following figure shows the main actors and their linkages for the development and management of urban green areas.

Figure 2.1: Various Actors and Their Linkages in Urban Green Areas Development and Management



Source: Own Survey sketch from the above reviewed literatures, pp.18-21

2.6. Empirical Experiences on Urban Green Areas

2.6.1. Experiences in Developed Countries

Looking to cities in developed countries can provide developing countries with useful insights into how best to incorporate green and open space into urban development and management project. The cities examined here include Paris and Scandinavian cities. Most of these cities take the full advantage of every piece of space to seamlessly weave into the urban fabric opportunities for relaxing, exercising or just escaping the hustle and bustle of city life. All of these cities are therefore offering lessons for planners considering how to provide urban green areas and open spaces in Addis Ababa.

Paris is also best known for its parks, plazas, boulevards and other civic spaces (Strohmayr, 2006:76- 557). Indeed there are too many to discuss in detail here. What the researcher wants to highlight are the small green spaces practices in Paris. One does not have to venture far to stumble upon a sculpture, fountain or garden in the spaces between the city's buildings. And these small green spaces delight residents and visitors lucky enough to venture upon them.

Figure 2.2: Street Trees in Paris



Note: These street trees have properly developed and managed so that they are enhancing the lives of the residents by filtering out harsh sunlight (Byryne and Sipe, 2010:34).

Source: Byryne and Sipe, 2010:.34

As Figure 2.2 shows, street trees really enhance the built environment of Paris, making the higher density living that characterizes the city one of its selling points. Australian designers of green and open spaces in urban consolidation projects would do well to study how Paris has benefitted from its green spaces⁶.

⁶ Byryne and Sipe (2010), Ibid. p. 34

There is also a widely held belief that where residents have a say in what happens to their housing environment is more likely to result in sustainable long term solutions. In Scandinavia there are many interesting examples of user involvement. Best practices of Scandinavian cities' urban green areas development and management are summarized in the following paragraphs (Beer A. and Jorgensen A. 2003:14-15)⁷

In Denmark most social housing is provided by non-profit making housing companies, legally required to manage their housing stock through local residents' committees, and similar administrative structures exist in Sweden. These committees have extensive powers to make changes to housing green space, and even to raise rents or take out loans to pay for the changes. Implementation is often carried out by skilled caretakers, who live on site. Frequently the local committee also administers the housing company's maintenance budget; the work is also carried out by the caretakers, ensuring local accountability.

In addition, at Eriksbo in Gothenburg, Sweden, the residents' association has responsibility for green space maintenance: it administers the maintenance of budget and employs people to help the caretakers with gardening and maintenance. The residents at Eriksbo have also been proactive in transforming their estate. Their achievements include turning one courtyard and its neighboring flats into a children's play school, and managing the adjacent parkland, play facilities and children's farm.

⁷ www.shef.ac.uk/landscape,2003

Likewise, at Holma in Malmo, Sweden, residents of different blocks and courtyards have made differing decisions about what should happen to their communal green spaces.

At Gardsten in Gothenburg, the housing company has also carried out a radical programme of housing and green space renewal, runs a training company for green space workers aimed at local unemployed people; and stipulates that all maintenance must be carried out by contractors whose employees live mainly in the area

As it can be understood from the above international practices, successful green and open spaces reveals some surprising strategies to incorporate opportunities for recreation, leisure, entertainment, social interaction and access to nature. In Paris – where the street trees have blended to be green spaces as well as properly developed and managed can enhance the lives of the residents by filtering out harsh sunlight.

In Scandinavian cities users' involvement at the outset of new projects in the style of planning for real is unlikely to be sufficient to secure residents' long term ownership of their surroundings. Permanent administrative and structural change is needed to empower residents to take responsibility for the creation, renewal, and management of their housing green spaces.

2.6.2. Experiences in Ethiopia

The consideration of urban green areas in urban planning and other social and economic development endeavors of a country has paramount importance for sustainable development. In this regard, the urban planning process of Ethiopia has been incorporating the issue of urban green areas in the overall planning exercise since the

introduction of modern urban planning (Fetsum 2003:106). He also indicated as this is reflected in the incorporation of green areas and parks in urban plans, considerations of the compatibility of various land use activities, incorporation of generalized environmental objectives, and identification of hazardous areas. In spite of this effort, the facilities of urban green areas even in the capital city of Ethiopia hardly meet the standards provided by other competitive African cities (ORAAMP, 1996:32). In order to respond these problems; the government of Ethiopia is forced to design various supporting guidelines, policies, and proclamation. Concerning this, the Ethiopian constitution of 1995, the Ethiopian environmental policy of 1997, the Ethiopian urban development policy of 2006, and urban planning proclamation No 574/2008c can be mentioned.

The Ethiopian constitution provides general principles that urge all peoples the right to live in a clean and healthy environment. The concept of sustainable development and environmental rights are also enshrined in article 43, 44, and 92 of the Constitution of Federal Democratic Republic of Ethiopia. As different intervention strategies and proclamations are designed in line with the constitution, federal, regional, and local governments can design and execute supporting proclamation and various intervention strategies to develop and manage cooperative housing green areas and street trees.

Moreover, Environmental Policy of Ethiopia has recognized the importance of planning and creating green spaces within urban areas. This provision also creates opportunities for various stakeholders to develop and manage cooperative housing green areas and street trees as elements of urban green areas. Besides, the Urban Development Policy of

Ethiopian has recognized cities as entities that strive to work towards minimizing serious causes and consequences that endanger the urban environment. The policy document also declared city government to work towards:

The development and protection of urban green areas, designing and developing environmental friendly development projects, planting and protecting institutional, parks, residential green areas, street tree, and informal green areas, ensuring that an exemplary and leading role is played by the government and ensuring the participation of the private sector in environmental protection, selecting and adapting best practices, experiences and technologies suitable for urban environmental protection (MoFA,2006: 21)

Thus, urban development policy has made city governments responsible to develop and manage residential green areas like cooperative housing green areas and street trees with the involvement of other stakeholders. Furthermore, Urban Planning Proclamation No.574/2008c has made chartered cities and urban administrations one of the institutional areas for environmental protections in Ethiopia. It also prohibits any kind of urban development project which cannot consider its detrimental impacts on urban environment in general and urban green areas in particular. All these are very important steps in advancing the efforts of urban green areas development and management in the country.

2.6.3. Experiences in Addis Ababa

The concept of radial ring road surrounded by green belts was started during the second master plan of Addis Ababa⁸. The plan was prepared by the planner of the great London, Patrick Abercrombie (ORAAMP, 1996:7) who was invited by Emperor Haile Selassie I. However, cooperative housings are recent phenomena, which started to grow in the late

⁸ It was prepared five years after Italians occupation.

1970s as an outcome of the 1975 revolution. As the quality and livability of neighborhoods in the city are largely depending on the development and management of urban green areas, the provision of land to construct houses through cooperative considered land for the purposes of green areas since 1975-up to now.

Due to different impediments in which this thesis intended to address, the development and management of cooperative housing green areas and street trees are critically inadequate. In order to respond such kind of problems; CGAA has taken some initiatives, plans, and actions. Concerning this, the City Development Plan of Addis Ababa, Clean and Green Addis Ababa Development Plan, and private sector involvement can be mentioned.

The Development Plan of Addis Ababa which is being revised now had a proposal that enforces tree planting along the ring roads that are on all new and existing streets, and imposes one-plot-one-tree requirements. At end of the implementation period of CDP's green plans, it appears that different types of street trees are planted, but their development and management situations are poor. Why this happened will be answered by this study?

The Clean and Green Addis Ababa Development Plan (CGAADP) was prepared in 2004 by City Government of Addis Ababa in partnership with the clean and green Addis Ababa society. The plan is prepared for the period 2004-2025, contains interesting initiatives and ambitious programs about the greening of road sides, medians and open spaces. Moreover, initiatives and involvements of the private sectors have been observed in the past years, especially in the development of squares. This effort focuses mostly on

beautifying and is implemented through concession⁹ modality. In this case, public authority (the sub-city BPCDM office) is responsible to establish performance standards that the concessionaires should meet. Its replications on street trees plantation can also significantly increase their development and management.

⁹ It is a type of private public partnerships in which the private sector is responsible to carry out any capital investment costs to improve and maintain the squares.

Chapter Three: Research Methodology

3.1. Description of the study area

3.1.1. Location

Nifas Silk Lafto Sub-city is one of the 10 Sub-cities of Addis Ababa city administrations. Geographically, it is situated in the South western corner of city. It also shares boundary with Kirkos and Lideta sub-cities in the North, Kolfe keraniyo in the West, Bole sub-city in the East, and neighbored with Akaki kality in East. In the South it also shares boundary with Oromiya region.

The sub-city has twelve woredas and covers an area of 5,851 hectare. From existing woredas, three woredas were studied in this research work. These are: Woreda one, Woreda two, and Woreda three. The study woredas are also estimated to be 3,700.75 hectare which is more than 75% of the total area of the sub-city. From each Woreda, five cooperative housings and 30 percent of the houses found in each cooperative were also selected as respondents by using available sampling technique. Hence out of the total 130 households 27 (20.8%) from woreda one, 47 (36.1%) from woreda two, and 56 (43.1) from woreda three were taken for primary data sources.

Figure 3.1: Location of Addis Ababa and Nifas Silk Lafto sub-city in the administrative map of Ethiopia and Addis Ababa respectively

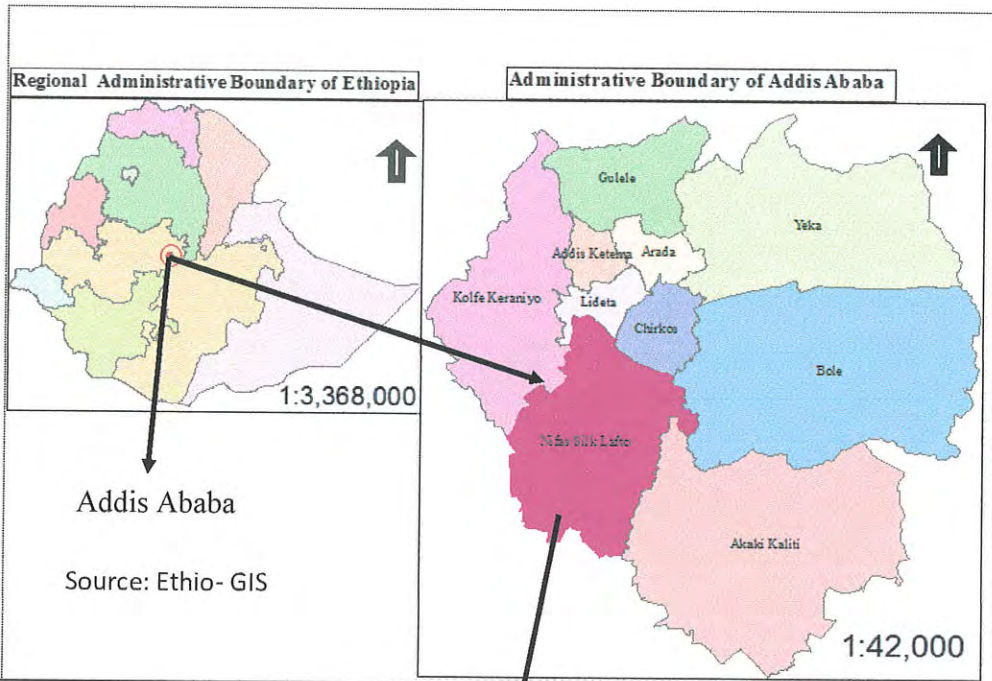
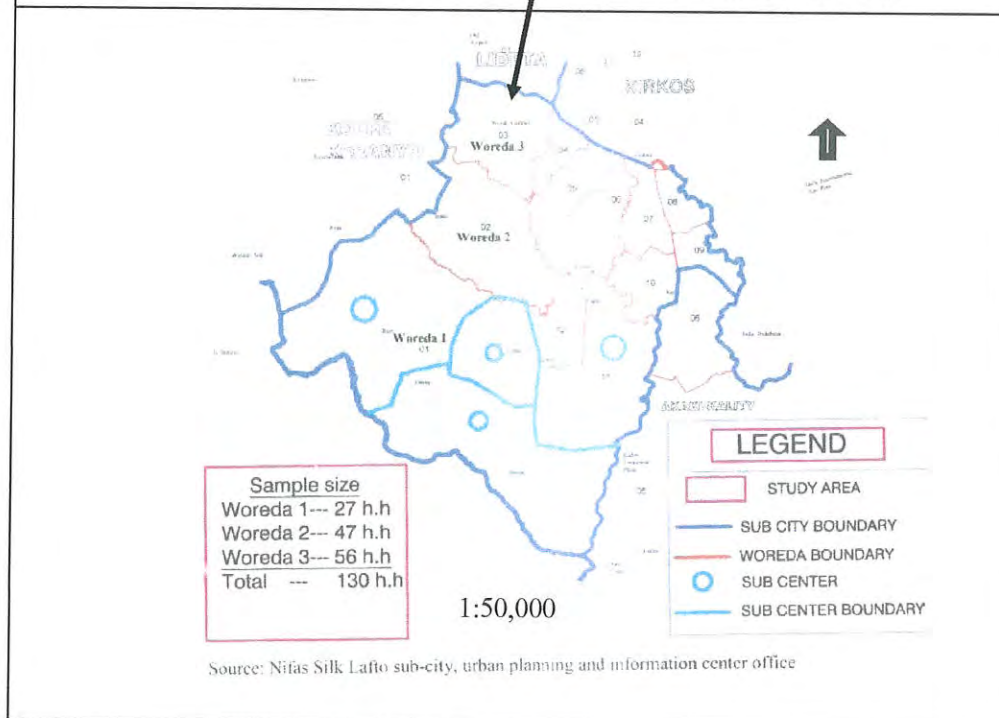


Figure 3.2: Sample Woredas for the Study in Nifas Silk Lafto Sub-City



3.1.2. Why Nifas Silk Lafto Sub-city?

Cooperative housing green areas and street trees are breathing, recreation, and interaction spaces for urban centers. However, they are endangered elements of green areas in Nifas Silk Lafto sub-city.¹⁰ The researcher's personal experiences also discovered that both cooperative housing green areas and street trees have problems related with their development and management within the sub-city. Thus, cooperative housing green areas and street trees found to be important planning issues that need to be researched in order to identify the challenges and opportunities for the development and management of these areas.

Moreover, Nifas Silk Lafto sub-city is accessible to the researcher, which makes data collection processes much easier. Hence, the study area (Nifas Silk Lafto sub-city) is selected purposively to identify the challenges and opportunities for the development and management of cooperative housing green areas and street trees.

3.2. Research Methods

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

¹⁰ Nifas Silk Lafto sub-city BPCDM report, 2011, pp.12

3.3. Types and Sources of Data

The study used both primary and secondary sources to collect data for the study. Primary data was collected by using the following methods: household survey, focus group discussions, in-depth interviews, and observations. The secondary sources were government documents, academic research reports, journals, internet, books, policy documents, and international organizations reports. Thematic checklist was used as instrument of data collection.

3.4. Survey Design and Sampling Techniques

The main purpose of this study is to assess the challenges and opportunities for the development and management of cooperative housing green areas and street trees in Nifas Silk Lafto Sub-city. Cross-sectional survey design was employed in order to collect evidence on current situation of street trees and the recently expanding cooperative housing green areas. As challenges and opportunities for the development and management of cooperative housing green areas and street trees have built through years, longitudinal surveys design is also used to collect facts and data from administrative records gathered and prepared for official purposes.

A three stage sampling technique was employed to select households for the study. In the first stage, out of twelve woredas of the sub- city, three woredas (woreda1, woreda 2, and woreda 3) were purposively selected. The selections of woredas were taken after discussions with the sub-city's BPCDM officers and urban planners. The points of the discussions were about the availability of cooperative housing green areas and street trees

as well as the extent of the problems which face cooperative housing green areas and street trees. The major initiatives and actions being taken by stakeholders and local governments were also reviewed based on the information from the officers.

In the second stage, discussion was also held with the three woredas' BPCDM officers and urban planners to select cooperative housings which are adjacent to street trees. Accordingly, five cooperative housings were purposively selected for the study from each woreda. In the third stage, 130 sampled members of cooperative housings (Woreda1=27 Woreda 2= 47, and Woreda3 = 56), that are available during data collection, were asked to participate in the survey research. The reason for taking members of the cooperative housing as a sample is in order to collect data about cooperatives' housing green area and street trees simultaneously. The sampling frame is the archive records of three woredas' cooperative housing units.

Table 3.1: Distribution of Sample sizes in the Study Areas

NSW	NSCH	NOHSC	SHHS (30% of the houses)
Woreda 1	American	16	27
	Ergib	18	
	Medirok No.14	20	
	Yeabsira	18	
	Abenezer	18	
Woreda 2	Teramed	24	47
	Eninesa	48	
	Paster	28	
	Niyala	28	
	Desta	28	
Woreda 3	Dirbiyabir	24	56
	Yework Amba	38	
	Mirkuz	50	
	Tewahido	50	
	Tsedey	23	

Source: Woreda 1, woreda 2, and woreda 3 administrations, 2012

In qualitative part, the study employed snowball sampling to select individuals and sites which can provide necessary information about the issues being studied. To this end, the researcher first interviewed BPCDM officer of the sub- city and experienced individuals as well as the study woredas BPCDM officers to identify the right participants for focus group discussion, in-depth interview, and sites for field observations. Accordingly, cooperatives housing leaders, Addis Ababa road authority, government officials¹¹, water development officer, residents, and business communities were participated for in-depth interview. Observations of the sampled cooperative housing green areas and street trees around the sampled cooperative housings were also made.

3.5. Methods and Tools of Data Collection

For this study, the following tools were employed to collect data:

3.5.1. Survey Method

Survey method was used for collecting data on the major challenges, the current stakeholders' involvement, and opportunities being taken for the development and management of cooperative housing green areas and street trees in the study areas. Questionnaire was used for the survey. The type of questions that was asked in this part generally falls into the following categories:

1. What are the problems in management mechanism and arrangements?
2. Stakeholders' involvement- (what are the current practices and involvement?)

¹¹Officers from BPCDM office, urban plan preparation and information center office, land development bank and urban renewal office, design and construction management office, land development and ownership administration office, environmental protection authority office, and code enforcement office of the sub-city and the study woredas were participated for in-depth interview.

3. What are the opportunities for development and management?

3.5.2. In-depth Interview

Interview is used to get in- depth insight about the challenges and opportunities for cooperative housing green areas and street trees development and management. The instrument that was used in line with this method was thematic guides. The type of questions that was asked in this part generally falls into following categories:

1. What are the problems in management mechanism and arrangements?
2. Stakeholders' involvement- (what are the current practices and involvement?).
3. Local strategic practices and application on the ground
4. What are the problems of development?
5. What are the opportunities for development and management?

3.5.3. Focus Group Discussion

The participants of the focus group discussions were cooperative housing leaders, BPCDM officers, business communities, and voluntary groups. BPCDM officers of the study woredas coordinated the focus group discussions. The researcher also recorded the discussions through tape recorder. Each discussion in the study woredas took 45 minutes.

Table 3.2: Compositions and number of focus group discussants in the study areas

Participants	Woreda 1	Woreda 2	Woreda 3
Cooperative housing leaders	2	2	2
BPCDM Officers	3	2	3
Business Communities	2	2	2
Voluntary Groups	1	2	1
Total	8	8	8

Source: Own survey (March 2012)

The instrument that was used in line with this method was thematic guides. The type of issues that were asked in this part generally falls into three categories:

1. Challenges and opportunities - (what are challenges and opportunities)
2. Stakeholders' involvement- (what are the current practices and involvement?)
3. Local strategic practices and application on the ground

3.5.4. Desk Review

The desk review was used to collect secondary data on policy and local strategic practice issues and results obtained after implementing the local strategic practice issues for the development and management of cooperative housing green areas and street trees. It focuses on secondary data (qualitative and quantitative). The instrument that was used in line with this method was thematic guides.

3.5.5. Observation

Observations of the sampled cooperative housing green areas and the street trees around the sampled cooperative housings were made by the researcher in order to show the actual situation of these green areas including various activities undertaken on the areas. These were conducted through frequent visiting with intensive note takings. Photographs and intensive notes were also taken about the development and management situation of the areas.

3.6. Methods of Data Analysis

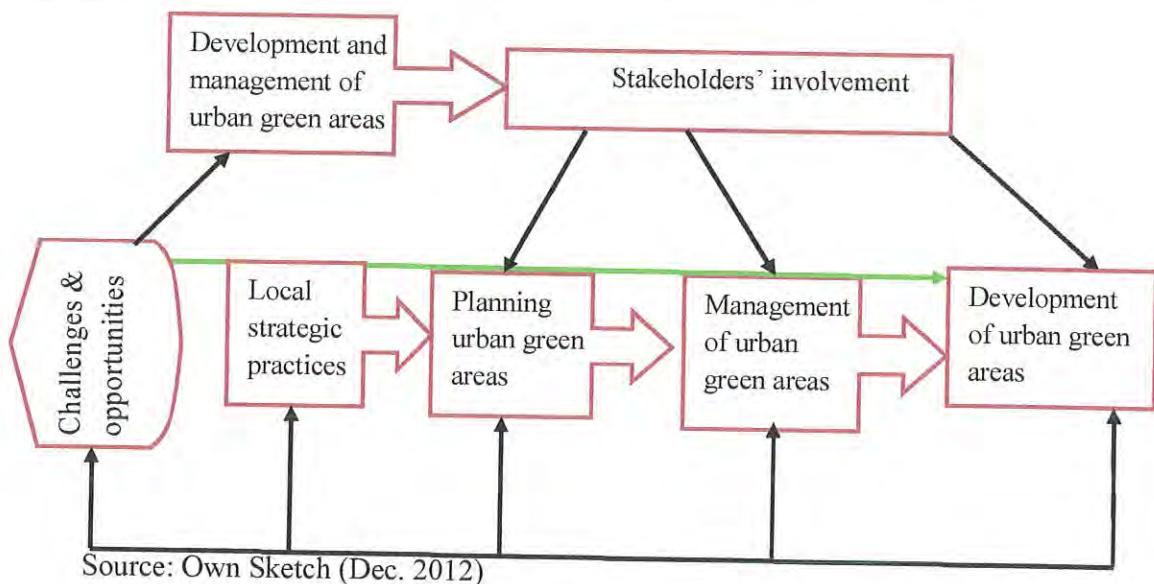
Data was analyzed both quantitatively and qualitatively. Qualitative data analysis was carried out simultaneously with data collection by categorizing into themes and

discerning qualitative narrative summaries. The quantitative data was re-arranged and edited to enter into SPSS. The SPSS was employed for summarizing descriptive data for analysis from the survey results. Simple percentages, cross-tables, pie charts and graphs had used for the analysis.

3.7. Analytical Framework of the Study

The framework presented here offers an overview for how this research was analyzed. According to Bartone et.al (1994:22), analyzing the local strategic practices and stakeholders' involvement for the development and management of urban environments like urban green areas are crucial to identify the challenges and opportunities for urban green areas development and management. Therefore, to conduct a more systematic analysis and to arrive at a deeper understanding, this thesis was analyzed according to the following conceptual frame work.

Figure 3.3: Participatory Urban Green Areas Development and Management



By taking the above framework as a reference, this research was analyzed in light of the following four planning agendas:-

Challenges: major constraints that act as bottlenecks for the development and management of cooperative housing green areas and street trees were analyzed in the study.

Opportunities: here initiatives and actions being taken by the stakeholders to enhance the development and management of cooperatives housing green areas and street trees in the study area were analyzed.

Stakeholder participation: communities' and other stakeholders' involvements in planning, developing, and managing process of cooperative housing green areas and street trees was analyzed in the study.

Local strategic practices In this regard; local strategic practices to manage and develop urban greens of cooperative housing and street trees in the study area were also analyzed.

Chapter Four: Findings and Analysis

This chapter presents the data results and the key findings from survey, in-depth interview, focus group discussions, desk reviews, and observations.

In order to study the challenges and opportunities for the development and management of cooperative housing green areas and street trees in the study area, 130 members of the cooperative housings, that are adjacent to street trees, were participated in the survey research. This is done because of the following reason. That is, members of the cooperative housings permanently settled in the areas can provide enough and reliable information and evidences about the issues being studied.

Government officials related with the issues, business communities, and members of the cooperatives were interviewed to complement the responses obtained through the survey research. Besides a one-session focus group discussion and field observation was also held within each study woredas of the sub-city for the same purpose. The participants were BPCDM officials, business communities, cooperative housing leaders, and professionals of non-governmental organizations.

4.1. Socio-Demographic Data of the Respondents

1. Education status

The majority of the respondents have attained diploma programme followed by degree programme. Out of the total respondents 50% (65) attained diploma programme, 21% (27) attained degree programme, and 16 % (21) attained secondary education. Whereas

the remaining 10% (13) and 3% (4) of the respondents attained primary education and MA programmes respectively as summarized in the table below.

Table 4.1: Educational Statuses of the Respondents

Educational status	frequency	percentage
Primary education	13	10
Secondary education	21	16
Diploma	65	50
Degree	27	21
Masters	4	3
Total	130	100

Source: Own Survey (March 2012)

2. Year of stay in the study areas

About 91% (118) of the respondents have lived from 6-25 years bracket as depicted in the table below. The average year in which the respondents lived in the study areas was also about 15 years.

Table 4.2: Respondents' Range of Years in the Study Areas

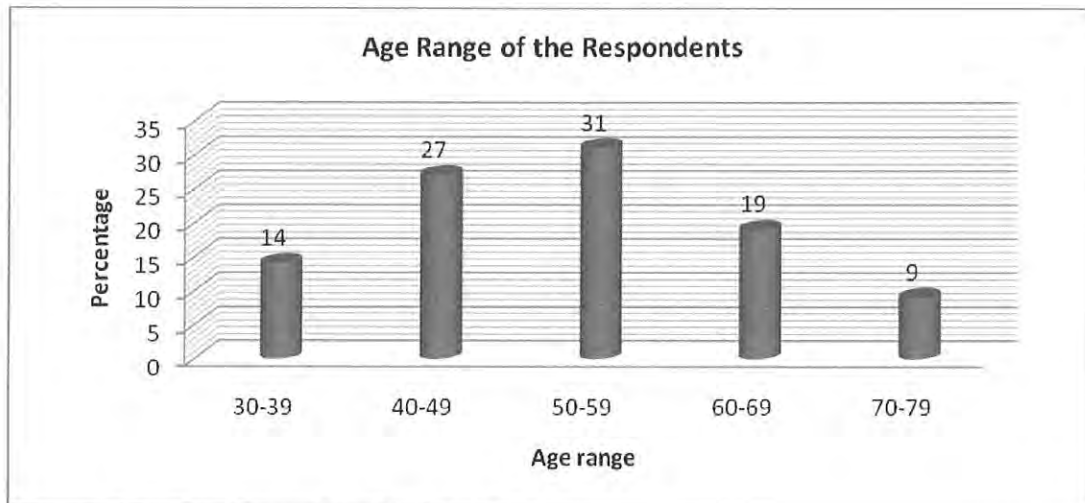
Ranges of years	frequency	percentage
1-5	12	9
6-10	27	21
11-15	30	23
16-20	33	25
21 -25	28	22
Total	130	100

Source: Own Survey (March 2012)

3. Age of the respondents

The respondents are also found within the age range of 30-79 as shown below.

Figure 4.1: Age Range of Respondents

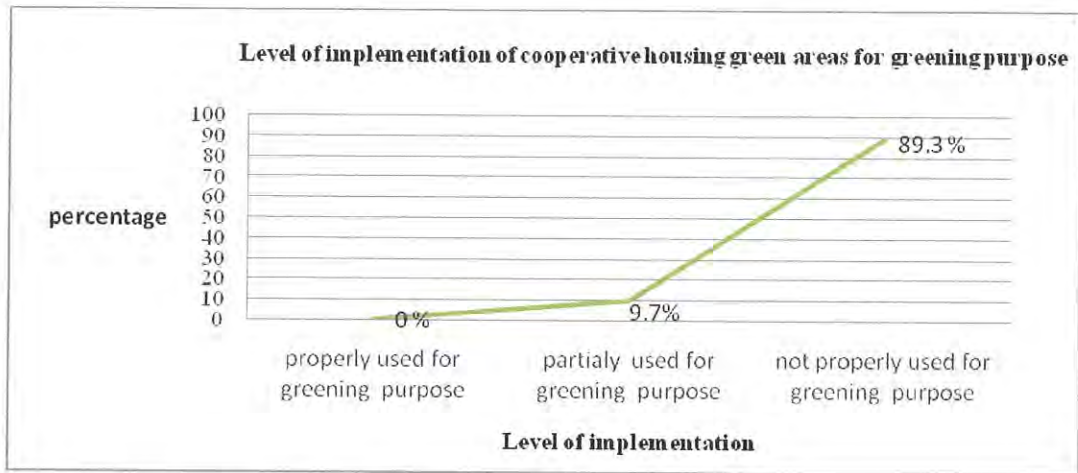


Source: Based on survey data (March 2012)

4.1.1. Challenges for the Development and Management of Cooperative Housing Green Areas

As indicated in the empirical experiences of Addis Ababa, the provision of land for citizens to construct houses through cooperative also consists of land for the purpose of green areas. In this regard, all of 100% (130) the respondents replied that they got land for the purpose of green area while the government provided them with land to construct house through cooperatives. In principle, these areas are allotted for breathing, recreation, and interaction spaces for the neighborhoods. However, reviews of archives in the study areas revealed as cooperative housing green areas are deteriorating from time to time. Besides, most of 90% (117) the survey respondents reported as cooperative housing green areas are not properly used for greening purposes. Only very few 10% (13) of respondents said that their cooperative housing green areas are partially used for greening purposes as depicted below.

Figure 4.2: Level of Implementations of Cooperative Housing Green Areas in the Study Areas



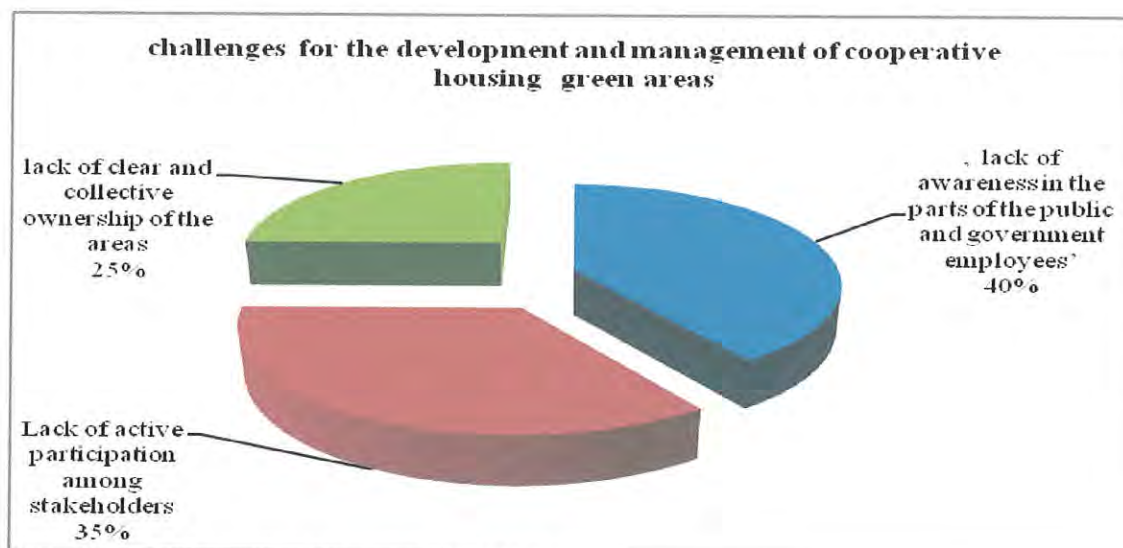
Source: Based on survey data (March 2012)

Survey respondents, who responded that cooperative housing green areas are not properly used for greening purpose, were also asked about the purposes applied on the plots reserved for green areas. Accordingly, more than half 55 % (64) said that cooperative housing green areas are existing as vacant places and used for dumping different waste materials. Some 28% (33) of the respondents also said that cooperative housing green areas are converted to housing illegally. Moreover, 17% (20) of them reported that the land allotted for the purpose of cooperative housing green areas are scrambled and redistributed to each member of the cooperatives to maximize individual share. As the aforementioned findings revealed cooperative housing green areas are not used for breathing, recreation, and interaction spaces in the study areas. These situations also indicate that the development and management of cooperative housing green areas are critically affected by different factors.

Survey respondents were also asked to identify the challenges which hinder the development and management of cooperatives housing green areas in their neighborhoods. Among the respondents, 40% (52) mentioned that the development and management of cooperative housing green areas are hindered due to lack of awareness in the parts of the public and government employees' about the causes and consequences of cooperative housing green areas degradation as well as the benefits of development and management of these areas. These may aggravate the loss, degradation, and occupation of cooperative housing green areas by different sections of the communities. The second largest group 35% (45) said that lack of active participation among stakeholders weakens the joint efforts of various actors in affecting the process of development as well as management of cooperative housing green areas. A quarter, 25% (33) of them also mentioned that the development and management of cooperative housing green areas are hindered due to lack of clear and collective ownership. Such situations leave residents with little initiatives to develop and maintain their cooperative housing green areas.

As can be seen from the responses of the survey, lack of awareness in the parts of the public and government employees' about the causes and consequences of cooperative housing green areas degradation as well as the benefits of development and management of these areas is the challenge on the development and management of cooperative housing green areas in the study areas. Lack of active participation among stakeholders for the development and management of these spaces, and lack of clear and collective ownership of the areas are also the other challenges which hinder the development and management of cooperative housing green areas in the study areas as summarized below.

Figure 4.3: challenges that affect the development and management of cooperative housing green areas



Source: Based on survey data (March 2012)

Key informants from different government offices¹² that have direct or indirect relation with the issue at hand confirmed the above-mentioned factors. Moreover, they have described more specific challenges which affect the development and management of cooperative housing green areas.

According to design and construction management officer of Nifas Silk lafto sub-city, lack of commitment among different sections of the public to respect various drafted and enacted environmental proclamations hinders the applicability of various proclamations to manage and maintain cooperative housing green areas. The officer also mentioned lack

¹²Officers from design and construction management office, land development bank and urban renewal office, urban plan preparation and information office, land development and ownership administration office, BPCDM office, environmental protection authority office, and code enforcement office of the study woredas and Nifas Silk Lafto sub-city were interviewed.

of up-to- date database of cooperative housing green areas as another challenge which affected the design and implementation of appropriate course of actions to improve the areas. Furthermore, the officer identified, as the other principal challenge to be the lack of cross-sectoral collaboration and the competing agenda of responsible offices contributed for the reduced efforts in the development and management of cooperative housing green areas.

As to land bank and urban renewal officer of Nifas Silk Lafto sub-city indicated, GIS map of the sub-city shows cooperative housing green areas are empty spaces that leads government to use the areas for other purposes. For instance, cooperative housing green areas like the green area of Tewahido cooperative housing are being used for waste dumping purposes (See fig.4.6 pp., 53). Urban plan preparation and information officer and land development and ownership administration officer of the sub-city also asserted this. The officers also stated, “Cooperative housings’ green areas development and management have not been given sufficient attention even in the preparation of local development plans”. This is due to lack of coordination among urban plan preparation and information office and BPCDM office of the sub-city. However, Bartone et al. (1994) argue that effective and sustainable development and management of urban green areas will be maintained only when the development and management of urban green areas have got sufficient attention in the preparation of local development plan. Thus, what is actually done in the study area is different from this standpoint.

BPCDM officer of Nifas Silk Lafto sub-city said that politicians who are working in land lease related issues sometimes transfer cooperative housing green areas to other land use

activity in order to save land for different development activities. As to the officer, plots of land provided for the purpose of green areas were also scrambled and redistributed to each respective members of the cooperative to maximize the individual share during the time of housing constructions. The officer also stressed lack of awareness in the parts of the public and government employees about the causes and consequences of degradation as well as the benefits of development and management of cooperative housing green areas as critical factor which aggravated problems related to cooperative housing green areas.

According to environmental protection authority officers of the sub-city, the willingness of their office to develop and manage cooperative housing green areas on political consensus are hampered by politicians' insufficient know how about the problems and the processes of cooperative housing green areas degradation. The officers also mentioned lack of adequate data about the location and the current situations of these areas as critical challenge that affects their efforts to design and execute appropriate strategies for the development and protection of the green areas.

The Officer of the sub-city code enforcement also emphasized lack of awareness among the general public about the environmental crimes of cooperative housing green areas' degradation aggravated the areas' deterioration. As to the officer, different cases related to the conversion of these cooperative housing green areas were also brought to the office but absence of clear ownership and enforcement mechanisms made the decision very difficult and time taking.

The focus group participants have also stipulated various challenges that affected the development and management of cooperative housing green areas. Some of these challenges, according to their view include:

- Lack of proper plan implementation which gives opportunities for the conversion of cooperative housing green areas to other purposes like housing, waste dumping, stores of the residents' Iddir, and etc.
- Lack of education and research about cooperative housing green areas to plan appropriate set of action for future greening of the areas.
- The disintegration of different cooperatives that reduced the members' coordination to develop and manage their common spaces in integrated manners.
- Lack of proper protection, follow-up, monitoring, and evaluation of the activities related to the use and conservation of the areas by the concerned government organs. These situation have created conducive environment for the incursion of cooperative housing green areas for other purposes such as for formal and/ informal housing construction, parking, for store of residents' Iddir, and etc.
- Insufficient media coverage about cooperative housing green areas contributed to the low awareness of the society on the importance of the areas.
- Lack of proper linkages between government agencies and the members of the cooperatives which resulted in reducing joint efforts needed for the development and management of cooperative housing green areas.
- Different government offices that are responsible for the development and management of cooperative housing green areas are uncoordinated and

responsible to different additional offices. This situation leads these offices to compete with each other than to cooperate due to conflict of interests.

- Lack of accountability among the members of the cooperatives about their green areas which is manifested by their inability to worry about the degradation of their cooperative housing green areas.

As one can see from the responses of the survey, interview, and focus group discussions, the potentials of cooperative housing green areas such as its use for breathing, recreation, and interaction are not properly functional. The study also identified that lack of awareness in the part of public and government employees, weak institutional capacities¹³, and absence of clear ownership and enforcement mechanisms were major challenges which affected the development and management of cooperative housing green areas.

4.1.2. Practices of Local Strategies to Develop and Manage Cooperative Housing Green Areas

In the manual of BPCDM agency of CGAA, the overall strategies for green areas development and management is set in a clear hierarchy, involving politicians, municipal administration, and other stakeholders at all levels of the city. The manual also mentioned that the development and management strategies of cooperative housing green areas are running by the sub- city and woredas' BPCDM offices with the involvement of other

¹³It is characterized by lack of collaboration among stakeholders, insufficient up-to date data and information, lack of proper plan implementation, effective protection, follow-up, monitoring, evaluation, and accountability related to the uses and conservations of cooperative housing green areas.

government institutions¹⁴ and the members of the cooperative housings. However, the head of BPCDM office at Nifas Silk Lafto sub-city argued that different institutions that are responsible to design strategies for the areas are uncoordinated with BPCDM office.

The reasons according to the head are:

- Most of these institutions often focus on immediate and highly visible problems such as poverty, unemployment, lack of housing, and etc.
- Some of these institutions overlooked the environmental benefits and services of cooperative housing green areas which reduced their inclination to design and execute specific strategy for the development and management of these spaces.
- The above-mentioned responsible institutions are more likely to compete with each other than to cooperate which in turn reduced their efforts to design and execute various strategies jointly.

As far as the strategic practices to develop and manage cooperative housings green areas in the subject areas are concerned, officer of BPCDM of Nifas Silk Lafto sub-city said that cooperative housing green areas are developed and managed by the members and committees of the cooperative housings or Iddirs. One key informant, who is a member of Teramed cooperative housing, has also noted that this strategy is implementing around his neighborhood to develop and manage cooperative housing green areas. However, the key informant argued that this strategy is not more effective since most cooperative housing green areas are not clearly registered as the property of the cooperatives.

¹⁴Land development bank and urban renewal office, urban plan preparation and information office, land development and ownership administration office, design and construction management office, environmental protection office, water development office, and justice office at different administrative levels of the city are responsible institutions

Regarding the local strategic practices, woreda one BPCDM core process officer said that a conference was held in 2003(E.C) with the members of the Medirok ¹⁵and American¹⁶ housing cooperatives about the importance of cooperative housings green areas. As to the officer, the following supports were also provided by the woreda's BPCDM office to the members of Medirok and American cooperative housings:

- Some awareness raising program about the benefits of cooperative housing green areas was given.
- Creating network with and writing different supporting letters to other infrastructural sector offices such as to water and electricity sectors in order to get water and electric services easily for their green areas.
- Writing legal letters and requesting land administration authority to recognize cooperative housing green areas as the property of the members of the cooperatives. Due to this the recognition was given.
- Guiding and monitoring the activities performed within the green areas of cooperative housings that helped in managing green areas for breathing and recreation purposes.

After the conference and the above supports, the officer explained that the committees of Medirok and American cooperative housings act as pressure groups to persuade government officials about the importance of cooperative housing green areas for urban life. Two key informants, who are the members of American and Medirok cooperative

¹⁵ It is named by the members' employer (Medirok plc.)

¹⁶ It is named by the members' place of origin (Diaspora who came from USA)

housings, also argued that the supports provided to the members of their cooperatives enhanced their willingness to invest their money and energy for the development and management of their green areas. Therefore, providing different awareness raising programmes to members of the cooperative about cooperative housing green areas and ensuring the tenure security of the green areas are crucial to set and execute appropriate strategies. The researcher's empirical observations conducted in Medirok and American cooperative housing green areas also supported this argument as the members of the two cooperative housings started to preserve their green areas as shown below.

Figure 4.4: Photograph of Medirok cooperative housing green area, woreda 1



Note: Medirok cooperative housing green area is started to preserve and prepare the area for recreations and other purposes by the members of the cooperative¹⁷.

Source: Picture taken by the author (March 2012)

¹⁷ In-depth interview with the committee of Medirok cooperative housing and field observation

Figure 4.5: Photograph of American cooperative housing green area, woreda, 1



Note: American cooperative housing green area is started to preserve and use the area for recreations and other purposes such as for meeting and funeral gathering spaces by the members of the cooperative¹⁸.

Source: Picture taken by the author (March 2012)

On the contrary, woreda two BPCDM core process officers said that not all members of different cooperative housings were willing to contribute money; and could not take initiatives to design strategies for the development and management of their cooperatives housing green areas. This is because:

- Low awareness of the residents about the benefits of cooperative green areas development and management.
- Lack of confidence about the tenure system of cooperative housing green areas among the members of the cooperatives. This situation also deteriorated the willingness of the members of the cooperatives to participate in the design and execution process of various strategies for the development and management their green areas.

¹⁸ In-depth interview with the committee of American cooperative housing and field observation

Woreda three BPCDM officers also argued that the designed local strategies are not enough and not properly implemented for the development and management of cooperative housing green areas. The officer also stated this is due to the above mentioned challenges which affected the residents' initiation to implement different set of actions to improve their green areas.

Moreover, the researcher's practical observations revealed that most cooperative housing green areas were not properly developed and managed; they are left without greening or preservation actions, and became dumping spaces than being recreation spaces (as shown in fig.4.6). This situation clearly indicates that the employed local strategies for the development and management of cooperative housing green areas are not enough to address problems related to the development and management of the areas.

Figure 4.6: Photograph of Tewahido cooperative housing green area, woreda 3



Note: Tewahido cooperative housing green area is serving as place to put the container (skip point) of solid waste of the neighborhoods. This is also against the master plan of Addis Ababa and the map of Tewahido cooperative housing.¹⁹

Source: Picture taken by the author (March 2012)

¹⁹ In-depth interview with the committee of Tewahido cooperative housing and field observation

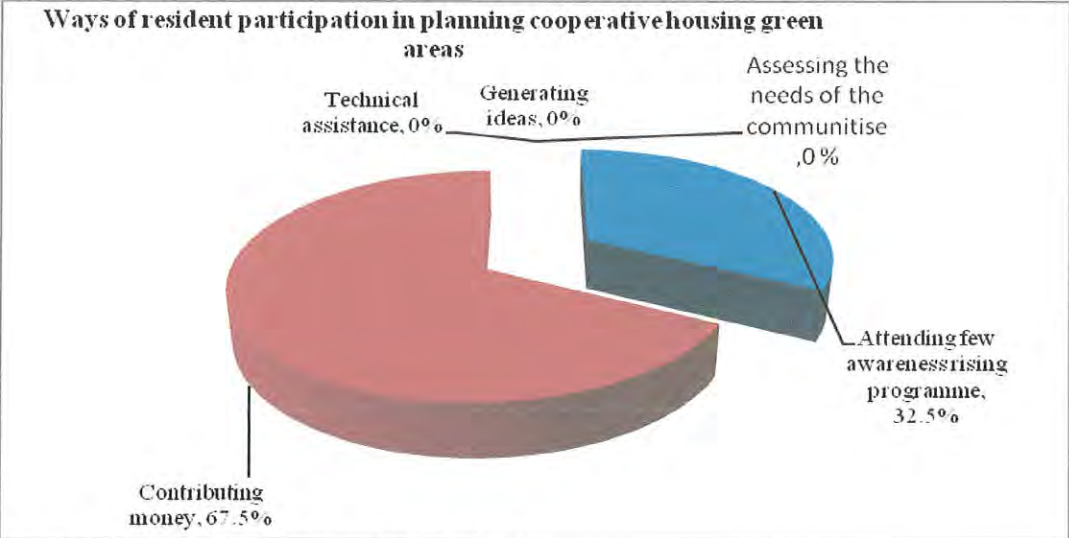
The above points were also consolidated by focus group discussants. As to the finding of the study, locally set strategic practices are not efficiently addressing problems related to development and management of cooperative housing green areas. However, there is a room to design local strategies for the development and management of cooperative housing green areas like Medirok and American cooperative housings. This is possible if there were mechanisms to raise the awareness of the members of the cooperatives and government officials regarding the value (benefits) of cooperative housing green areas for urban image. This also enables the members of the cooperatives to devise appropriate course of actions for the development and management of their green areas with the support of BPCDM core process officers and other government bodies.

4.1.3. Stakeholders' Involvement in Planning, Developing, and Managing Cooperative Housing Green Areas

As indicated in the review literature part, residents' involvements in cooperative housing green areas development and management processes have increased the qualities and facilities of the areas in Scandinavian cities. In contrast, a result of questionnaires filled by 130 members of cooperative housings in the study areas revealed 69% (90) the survey respondents did not participate in planning, developing, and managing process of cooperative housing green areas. Only 31% (40) of the total respondents replied that they participated in planning, developing, and managing process of cooperative housing green areas. Thus, it indicates that residents' participations in the planning, developing, and managing process of the areas are very low.

Community involvements in planning green areas take different forms. However, the result of survey respondents, who were participating to plan cooperative housing green areas, revealed that contributing money takes the largest percentage followed by attending few awareness raising programmes. Among this group of respondents, none of them have participated through technical assistance, generating ideas for planning, assessing the needs of the community, and through other means. These situations show that these features of participations are either non-existent or insignificant in the planning process of cooperative housing green areas as shown below.

Figure 4.7: Ways of residents’ participation in planning cooperative housing green areas



Source: Based on survey data (March 2012)

Among the respondents who did not participate in any forms of participations, almost 71% (64) said lack of opportunities, unclear property rights about their green areas, and lack of information obstructed them from participating in the planning process of

cooperative housing green areas. Some 29% (26) also responded that their participation is hindered due to lack of motivation among the communities.

From the survey result with a total of 31% (40) respondents who were participating to develop and manage cooperative housing green areas:

- 58.3% (23) replied that they contributed money to develop and maintain their green areas.
- 18% (7) said that they attended a few awareness raising programs prepared by the government.
- 13.7% (6) responded they participated in planting trees and grass in their green areas.
- 10% (4) replied that they participated in the clean-up efforts of the communities to clean various types of litter from their green areas.

The survey results from these groups indicate that the majority of the respondents have participated in the development and management of cooperative housing green areas by means of contributing money. The participation of the respondents through attending various awareness-raising programmes, planting trees and grass in their green areas, and cleaning litter from their green areas are relatively low.

Key informants from different government offices such as BPCDM, environmental protection authority, and urban planning and information center office that are directly or indirectly related to the issue confirmed the above stipulated ways of local residents' involvement in planning, developing, and managing cooperative housing green areas.

Even though BPCDM office and the members of the cooperatives at all levels take the leading roles in planning, developing, and managing cooperative housing green areas, the manual of BPCDM agency of CGAA outlined different stakeholders (institutions) to involve with the local residents. The institutions with their respective responsibilities are:

- Land development bank and urban renewal office: responsible to provide plan formats.
- Urban plan preparation and information office: responsible to prepare plan for green areas' development.
- Land development and ownership administration office: responsible to provide land and other legal documents for green areas.
- Design and construction management office: responsible to provide design standards for urban green areas
- Environmental protection office: responsible to execute the environmental policy of Ethiopia, and to provide tree species planted on green areas.
- Water development office of the city: responsible to provide water service for the development of cooperative housing green areas.
- Justice office: responsible to interpret different environmental protection proclamations for the management of urban green areas.

How much the above institutions discharged their responsibilities will be discussed in the following paragraphs.

As far as planning the development of cooperative housing green areas is concerned, the Head of BPCDM office of Nifas silk Lafto sub-city explained that the office has no

professional planner assigned for the purpose of planning green areas' development. Rather the responsibility of planning activity was given to Urban Plan Preparation and Information Office of the sub-city. BPCDM officer of the sub-city explained that her office is responsible to conduct need assessment about green areas in line with the development of settlements but this arrangement is "a fact on file". She further explained that any expert from BPCDM office has never participated even in the preparation of local development plan. This is also an indication that what is actually being practiced is different from the planning principles and international experiences presented in the review of literature part of this thesis. According to the Officer, this is due to lack of interest among different professionals to work in coordinated manners.

In spite of the above facts, the BPCDM offices of the sub-city and Woredas have participated in mobilizing the members of the cooperative housings through formal and informal²⁰ means to develop and manage their green areas, according to the Officer. She also argued that the office achieved very little due to lack of property deed for cooperative housing green areas.

Moreover, the three woredas' BPCDM core process officers stated their offices have contributed their share in providing some development and management concessions along with continuous follow-ups and supports for the members of the cooperatives. The officers also mentioned that the members of the cooperatives are responsible to finance any capital and investment cost for the development and management of their green

²⁰Targeted environmental education for the committees of the cooperatives and Iddir leaders, and distributing different posters

areas. Besides, performance standards which should be met by the green areas will be established by their offices, according to the Officers.

Observations on green areas whose management has been taken by the members of the cooperatives revealed that there is some improvement in the green areas of cooperative housing as shown in fig.4.8 below. In contrast, the result of observations on green areas whose management is not run by the members of the cooperatives showed that the areas are being used for waste dumping purposes as seen in figure 4.9 below. According to one key informant, who is the member of Abenezer cooperative housing, the employed management system should be attributed to the registered improvements in the green areas of Abenezer cooperative housing. This finding also matches with Beer's and Jorgensen's work which indicated that residents' involvement in the management of cooperative housing green areas improved the quality of the areas in Scandinavian cities.

Figure 4.8: photograph of Abenezer cooperative housing green area, woreda 1



Source: Picture taken by the author (March 2012)

Note: Abenezer cooperative housing green area is started to preserve and plant nurseries by the members of the cooperative to prepare the area for recreations and other purposes²¹.

²¹ In-depth interview with the members of Abenezer cooperative housing and field observation

Figure 4.9: Photograph of Niyala cooperative housing green area, woreda 2



Note: Niyala cooperative housing green area is serving as place to dump different waste materials which are generating from the neighborhoods. This is also against the master plan of Addis Ababa and the map of Niyala cooperative housing²².

Source: Picture taken by the author (March 2012)

According to land development bank and urban renewal officer of the sub-city, there is no proper coordination in his office to plan, develop, and manage cooperative housing green areas with other concerned organs. This is due to shortage of efficient and skilled human-power, poor coordination among sectors, and lack of different enforcement mechanism. In fact, the Sub-city's officers on urban plan preparation and information, land development and ownership administration, and design and construction management offices shared the same ideas. Moreover, the officers stated that cooperative housing green areas have been seen as vacant lands from the GIS map of the sub-city. They also argued that this inconvenience is one of the major challenges which reduced their coordinated efforts in the planning, developing, and managing processes of cooperative housing green areas.

²² In-depth interview with the members of Niyala cooperative housing and field observation

The Environmental Protection Authority officers at Nifas Silk lafto sub-city also have similar comments. According to them, “The office did not actively participate in planning, developing, and managing cooperative housing green areas.” As to the Officers, their office participated only in preparing little awareness raising programs to the community about the importance of neighborhood green areas for urban life.

According to the officer of water supply and distribution in the survey interview, if water supply is requested based on legal procedures by the members of cooperatives, the line is provided for them. This has been done for green areas of American, Midrok, and Teramed cooperative housings, and etc. The officer also stressed that if the members of the cooperatives fulfill various legal procedures like property deed and legal questions of clientele, the office of water supply and distribution is very much interested to provide water line for cooperative housing green areas' development and management.

Concerning the management of various legal and illegal invasions of cooperative housing green areas, officer of Nifas Silk Lafto sub-city code enforcement office said that different cases were brought to the office. According to him, the office was unable to solve the cases due to lack of clear enforcement laws and regulations about cooperative housing green areas. In this regard, one code enforcement officer from woreda three narrated his experience below:

The invasion of 'Dir biabir' cooperative housing green area by formal construction boom was brought to my office. Then other code enforcement officer and me went to the area and told the owner of the construction that the area was the green areas of Dir biabir cooperative housing. However, the owner of the construction brought his legal construction permission and property deed that had been given from the sub-city's land development and ownership administration office. After that, we went to our office and asked the woreda's urban planning officer in order to check

its legality. The Officer said that it was the green areas of the cooperative according to the map of the cooperative. Therefore, due to absence of clear enforcement mechanism and coordination among stakeholders, we cannot take any preventive and curative measures.

The above fact has been consolidated by the focus group discussions. All of the focus group participants have not actively participated as a stakeholder to plan, develop, and manage cooperative housing green areas. But the participants who are the members and committees of the cooperatives have a strong desire to see improved, accessible and more efficient cooperative housing green areas. The focus group discussants also need the government to be aware of the importance of neighborhood green areas and let them participate on the work and they want the mass media to play a major role in this regard as well. The participants also seek the municipality service sector of the sub- city and other governmental bodies to consider cooperative housing green areas as key determinants for behavioral changes and acculturation of generations. According to the focus group discussants, if there were mechanisms of developing a sense of ownership of cooperative housing green areas and providing various awareness raising programs, the members of the cooperatives could easily plan, develop, and manage their green areas.

4.1.4. Opportunities for the Development and Management of Cooperative Housing Green Areas

Recently, lack of green areas has become the concern of all society in the different parts of Addis Ababa. This concern has generated some interesting opportunities (initiatives, plans, and actions) at different administrative levels. Among them, the Environmental Policy, Urban Development Policy, Urban Planning Proclamation No.574/2008c, and the Constitution of Ethiopia contained general framework about the development and

management of urban green areas. Moreover, City Development Plan of Addis Ababa and the Clean and Green Addis Ababa Development Plan of 2004 reviewed in the empirical practice of Addis Ababa contained general framework about the development and management of urban green areas. All these general frameworks should create conducive environment to design specific implementation strategies for the development and management of cooperative housing green areas.

In different parts of the study areas, the researcher observed some opportunities that help to develop and manage cooperative housing green areas. In fact, some initiatives and involvements of the members of cooperative housings to develop and preserve their green areas are encouraging.

Survey respondents have also been asked to describe the available opportunities that help to develop and manage cooperative housing green areas around their neighborhoods. Among 130 respondents, majority 61% (79) of the survey respondents replied the existence of their green areas as vacant land as an opportunity to develop it in the future. Some 30.7% (40) of the survey respondents exclaimed that the existence of strong community based organization like Iddir as a good hope to realize their joint efforts for the development and management of their cooperative housing green areas. Few 8.3% (11) of the survey respondents replied as clean and green initiatives by the community and other stakeholders as a good chance to develop and manage their cooperative housing green areas.

On the other hand, the focus group discussants have commented that these opportunities can only be advantageous if they are accompanied by awareness raising programs, continuous follow-up, and monitoring services.

Key informants from different government offices such as BPCDM, urban plan preparation and information, land development bank and urban renewal officers, and environmental protection authority officers confirmed the benefits of the above stipulated opportunities for the development and management of cooperative housing green areas. They have also described other opportunities in line with their responsibilities as follows:

According to BPCDM officer of Nifas Silk Lafto sub-city, the establishment of BPCDM office at different levels of the city is one opportunity to develop and manage cooperative housing green areas. The officer also added that the recently formulated enforcement manual of the office which shows its intra and inter-sectoral linkages with other offices creates conducive environment for the proper development and management of green areas in general and cooperative housing green areas in particular. Focus group discussants have also argued that this situation is an opportunity for the development and management of cooperative housing green areas if there is a strong commitment among different responsible officials of the government to apply the principle.

According to the urban plan preparation and information officer of the Sub-City, the manual of local development plan preparation explicitly puts urban green areas as essential elements of the urban services. Therefore, this situation is an opportunity to improve and preserve green areas especially cooperative housing green areas if there is strong commitment among the planners for the implementation.

The land development bank and urban renewal officer of the sub-city believes that the existence of undeveloped and semi-developed green areas within the hands of the members of the cooperative is a good chance to utilize them for appropriate green areas development. The officer explained the introduction of GIS and remote sensing in the office as the other possibility to manage lands designed for different purposes such as land reserved for green areas.

As to the opportunities, an environmental protection authority officer of the Nifas Silk Lafto sub-city said that recognition of the importance of planning and creating urban green areas for recreational amenity by the environmental policy of Ethiopia is one great opportunity to design different strategies to develop and manage different cooperative housing green areas.

The above point was consolidated by the focus group discussants. Therefore, to develop and manage cooperative housing green areas, it is essential to understand the prevailing opportunities that support its development and management. The existing opportunities discussed above include the existence of general policy framework, the availability of green areas in the form of vacant land, the introduction of GIS in urban land management system, and the existence of strong community based organizations. From this, one can observe that all these are good chances for the development and management of cooperative housing green areas if there were commitments among different stakeholders to plan and implement appropriate set of actions within the opportunities.

4.2.1. Challenges for the Development and Management of Street Trees

The street's rights-of-way and median comprise the most significant opportunities for planting trees within the city. These trees also provide multiple benefits for business communities, residents, and tourists. In order to obtain these advantages, different types of tree species have been planted at both sides and medians of the roads in the study areas as shown below.

Table 4.3: Planted Street Trees and Their Situations in the Study Areas

No.	Plant types	Places where street trees are planted	Number of planted trees	Existed trees (%)	Protected trees (%)
1	Gravilia	Around Jemo	400	42	30
2	Jacaranda	Around Micheal Square	400	25	20
3	Zenbaba selen	Around Mekanisa and Jerman square	640	43	26
4	Zenbaba picok	Aroung Bisrate Gebreal and Sar Bet	400	47	35

Source: NSLSC BPCDM office street trees inventory report (March, 2010/2011)

However, the aforementioned data revealed as more than half 55 % (1019) of the planted trees were dead; only 45% (821) has existed. It is also possible to understand that the existed street trees are not getting proper maintenance and protection in the study areas. Furthermore the researcher's empirical observation of the existed street trees have revealed as their development and management situations are in bad conditions. Consequently street trees in different part of the study areas have degraded and aggravated to dead. Even there are also people who dump different types of wastes on street trees as below.

Figure 4.10: photograph of unprotected Zenbaba²³ around Abo curve, woreda 3



Note: This street tree is not properly protected (maintained) by any concerned stakeholders rather it serves as place to dump different waste materials²⁴.

Source: Picture taken by the author (March 2012)

In an effort to obtain the opinion of the residents about the development and management of street trees, 130 respondents who were living adjacent to street trees have been asked to express their opinion. Accordingly, most of the respondents 84.6% (110) expressed that the street trees are not properly developed and maintained. Only 15.4% (20) respondents reported the street trees are partially developed and managed. From this, one can see that the development and management of street trees is not being implemented properly.

Survey respondents have also been asked to identify the challenges of the development and management of street trees around their neighborhoods. Among the total respondents, 47 % (61) stated that wrong perception of the community about the purpose of street trees hindered the development and management of street trees. Due to this,

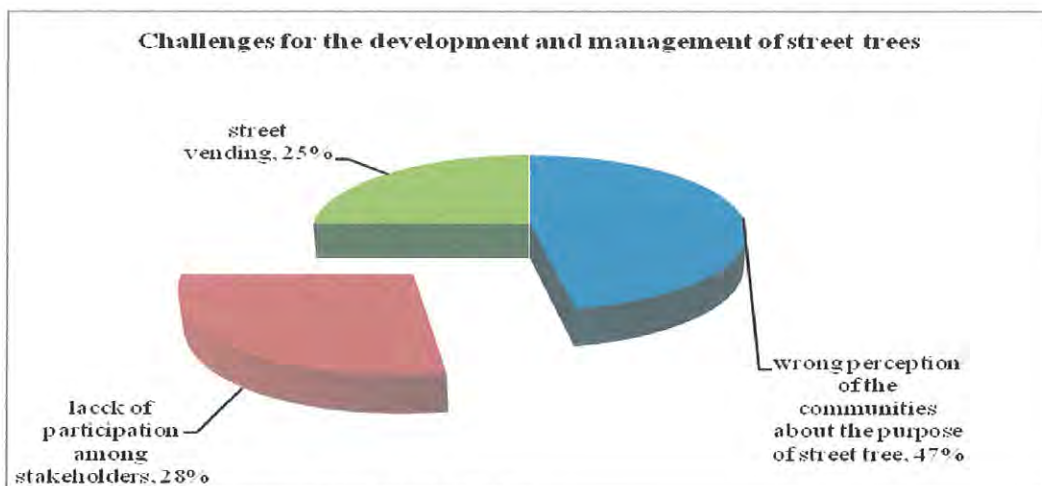
²³ local name given to the palm tree

²⁴ In-depth interview with expert of BPCDM office of Woreda three and field observations

communities did not take different initiatives and actions to develop and conserve the trees. The second largest group 28% (36) said that lack of stakeholders' participation has weakened the joint efforts of various actors needed for the development and management of street trees. A quarter or 25% (33) of them also mentioned that the development and management of street trees has been hindered due to street vending. This informal trading has put its negative impact on the development and management of street trees (see figure 4.16, p.80).

In other words, wrong attitudes of the community about the purpose of street trees, lack of stakeholders' participation, and street vending are challenges which held back the development and management of street trees in the study areas as summarized in the diagram below.

Figure 4.11: challenges for the development and management of street trees



Source: Based on survey data (March 2012)

Useful informants for the issue at hand confirmed the above-mentioned factors. In addition, they have also described specific challenges that affected the development and

management of street trees. For instance, the Head of BPCDM office of Nifas Silk Lafto sub-city identified: insufficient institutional capacities in terms of lack of quality and quantity of staff and financial resources as critical factor which contributed for the failure of BPCDM office to execute their responsibilities effectively. The head of BPCDM office further explained that the absence of continuous follow-up and street dwellers has put their own negative impacts on the degradation of street trees. Moreover, she has identified Woredas' BPCDM core process officers' inability to create more effective and integrated partnership with business communities as one impediment. This also decreased the assistance which should have been obtained from business communities.

According to design and construction management Officer of the sub-city, different informal activities related with construction sector such as the dumping of construction materials nearest to the street trees affected their development and management. The officer also said that this was happening due to lack of human resource to monitor and control this kind of illegalities.

Environmental protection authority officers of the sub-city also said that the installations of infrastructures facilities like fiber-optic line have affected them to the extent of drying. The officers also mentioned that the nurseries of the trees have not properly been selected in such a way to resist carbon dioxide emitted from cars.

According to the three woredas' code enforcement officers, the development and management of street trees are affected by lack of awareness about environmental crime among the public. It was also stated that cases related to the degradation of street trees by cattle have been brought to their office but the office did not take any appropriate

curative measures due to absence of clear enforcement laws and regulations about the street trees.

All focus group discussants have also affirmed these findings obtained from the survey respondents and key informants. Moreover, they have mentioned the following challenges that affect the development and management of street trees:

- Lack of integrated data base system of street trees that affects the efforts of various stakeholders to design and execute appropriate course of action for the development and management of street trees.
- The communities do not feel that the trees belong to them. This feeling discourages the communities' willingness to participate in the development and management processes of street trees.
- Absence of integrated management systems of street trees that exist in different parts of the neighborhood streets
- Lack of different incentives for volunteers which reduced volunteers' participations in the development and management of street trees.
- Lack of clear norms and standards regarding the minimum distance to be maintained between the main road, pedestrians' way, and the place where the street trees will be planted. Due to this street trees are planted on the pedestrians' ways which pave the way for the deteriorations of street trees by the movements of the pedestrians.
- Traffic accidents have contributed their own part for the deteriorations of street trees.

Generally, the development and management of street trees in the study areas are in a very poor situation. The study found out that the development and management of the trees are affected by several factors. For example, wrong perception of the public about the benefits of street trees, absence of stakeholders' participation to develop and manage, and lack of integrated data base systems of street trees are few to mention. The study also indicated that weak institutional capacity which is characterized by lack of quality and quantity of staff, shortage of continuous follow-ups and protections, and lack of different incentives for volunteers, were other challenges that need to be looked into. Poor selection of tree species, lack of norms and standards exactly where street trees should be planted, traffic accident, and installation of utilities are also impediments that affected the development of street trees. Lack of clear enforcement laws and regulations and absence of sense of belongingness are also obstacles as identified by the study.

4.2.2. Practice of Local Strategies to Develop and Manage Street Trees

Local authorities are expected to take the lead in forming partnership with other local public sector agencies to develop wider community strategies for improving the economic, social and environmental well-being of their localities. In this way, they should contribute to the achievement of sustainable development (E.C, 2007:7). These strategies are often prepared and implemented by local authorities through local strategic partnerships which bring together different parts of the community such as the business community and others. Therefore, it is wise to assess the types of local strategic practices being taken to develop and manage street trees in the study areas.

Nifas Silk Lafto sub-city BPCDM officer mentioned various factors like the need to continuous maintenance of street trees under a sustainable system, the increasing damage of street trees, and poor public perception of the value (benefits) of street trees within the sub-city prompted the office to device a long term strategy for street trees development and management. According to her, the strategy was adopted by woredas' BPCDM core process offices.

The Woredas BPCDM core process officers' written street tree development and management strategies are discussed below.

The three woredas' written street trees development and management strategies indicated as street trees are developed and managed by government officials²⁵, residents, business communities, and voluntary groups. As to strategies, the development and management activities of street trees will be provided to the above mentioned stakeholders in the form of adoption modalities by woredas BPCDM core process officers. The strategies also set out a long-term vision on developing and managing street trees in an integrated framework to maintain and follow-up continuously. To demonstrate the values of street trees to partners, the strategy also highlights the evidence that supports the contribution of street trees for the image of the city in general and for urban life in particular.

Accordingly, the core processes provided some street trees development and management agreements to the local government officials, residents, business communities, and voluntary groups. However, the evaluation of the implemented strategies of the subject

²⁵ BPCDM office EPA office ,Addis Ababa road authority, code enforcement officers, and others

woredas' street tree assessment report indicated that only 35% of the drafted strategies were materialized while the remaining 65% of the drafted street trees management strategies were not. According to informants and focus group discussants, the failure of the implementation was attributed to lack of enough awareness about the benefits of the strategies by the concerned officers and absence of incentives to volunteers.

In spite of the above facts, the finding of the study revealed that there is a big difference between those trees which were given to business communities and those ones which were not. For instance, below figure 4.12 and 4.13 show two street trees which are the same species and planted at the same place and date but differed in the employed management strategies.

Figure 4.12: photograph of street tree around Michael square, Woreda 2



Note: This street tree is fenced and watered by business communities found in front of the tree so that its development and management is better than the street tree found in figure 4. 14²⁶

Source: Picture taken by the author (March 2012)

²⁶ In-depth interview with business community and field observation

Figure 4.13: photograph of street tree around Michael square, woreda 2



Note: This street tree is not fenced and watered by any stakeholders so that it is highly degraded and forced to die²⁷

Source: Picture taken by the author (March 2012)

In spite of some efforts by business communities to manage street trees, it was observed that the current employed local strategies are not enough (sustainable) to maintain all planted street trees.

4.2.3. Stakeholders' Involvement in Planning, Developing, and Managing Street Trees

According to the literature, stakeholders' participation combines all the efforts of so many institutions, organizations, and individuals for a successful urban green area planning, developing, and managing process. It is also indicated that collaboration among stakeholders is the way to a greater synergy that involves more than information exchange or even collective decision- making. It also involves partnerships, mutual trust and understanding.

²⁷ In-depth interview with BPCDM officer of woreda 2 and field observation

Contrary to the above arguments, results of questionnaires filled by 130 people who are living adjacent to the street trees indicate:

- Most 65 % (85) of the respondents do not participate to plan, develop, and manage street trees.
- Some 35% (45) responded that they are participating to plan, develop, and manage street trees.

The above data shows that community participation in the planning, developing, and managing process of street trees is not enough.

Almost 68% (58) of these respondents who do not participate in the planning, developing, and managing process of street trees said that lack of opportunities hindered them from the participation process. Some 32% (27) responded that their participations were slowed due to lack of information. In addition, most 80% (68) of the respondents who do not participate in the planning, developing, and managing process of street trees also said that government was doing the work. The remaining 12.5% (11) and 7.5% (6) of the respondents respectively said that business communities and NGOs were participating to plan, develop, and manage street trees.

The above data also attested that government involvement in the planning, developing, and managing process of street trees take the lion's share when compared with other stakeholders.

Stakeholders' involvements in planning street trees take different forms. According to the survey, participating by attending different awareness raising programs prepared by

the government was stated by the survey respondents who involved in the planning process. Among these groups of the respondents, none of them has participated through contributing money and in other ways to plan the development and management of street trees in the study areas. These situations show that the participations are either non-existent or insignificant to plan the development and management of street trees in the subject areas.

From the survey results of 35% (45) respondents who participated in developing street trees around their neighborhoods:

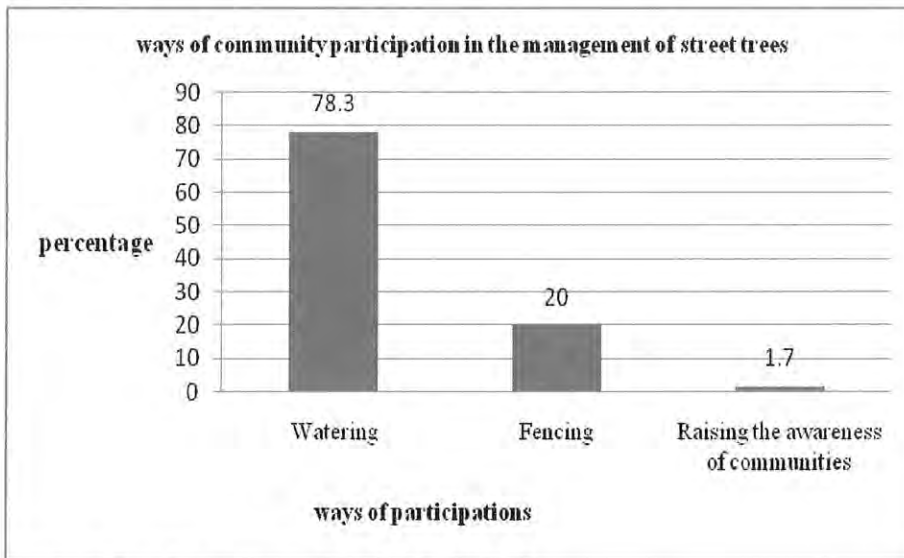
- 53.3% (24) replied that they participated by providing suitable soil.
- 24.5% (11) responded that they contributed by planting trees along the ring roads.
- 22.2 % (10) answered that they dug holes to plant trees.

The survey results from this group indicate that the majority of the respondents were participating in developing street trees by providing suitable soil. Some others were also involving by planting trees along the ring roads and by digging holes to plant trees.

On the other hand, the responses collected from 35% (45) respondents who were participating in the management process of street trees show:

- 78.3% (35) responded they participated through watering street trees.
- 20% (9) said they involved by fencing and protecting street trees.
- 1.7% (1) responded that they took part in raising the awareness of the communities to create sense of belongingness

Figure 4.14: ways of community participation in the management of street trees



Source: Based on survey data (March 2012)

Results of this survey show that most of the respondents were participating in the management process of street trees through watering. Others were also participating through fencing and protecting street trees. Only very few were participating in raising the awareness of the community to create sense of belongingness about street trees.

According to the manual of BPCDM agency of CGAA, BPCDM, offices at different administrative levels take leading roles to plan, develop, and manage street trees with the involvements of different stakeholders (institutions), local residents, business communities, and NGOs. The institutions with their respective responsibilities are:

- Design and Construction Management Office: responsible to provide design standards for the development of street trees at right –of- ways of the road.
- Environmental Protection Authority Office: responsible to provide nurseries which are planted at right –of- ways of the road.

- Addis Ababa Road Authority: responsible to provide evidences about the location of utilities which are found at the right-ways of the road.
- Water development office of the city: responsible to provide water service for the development of street trees.
- Justice office: responsible to interpret different environmental protection proclamations for the management of street trees.

In order to know to what extent the offices executed their responsibilities, officials from the above-mentioned institutions were interviewed. In addition, the information obtained from key informants is also reviewed below.

According to the Head of BPCDM office of Nifas Silk Lafto sub-city, the plan done for street tree needs detail discussion with experts from Addis Ababa Road authority. According to her, recently, some arrangements and discussions have started with Addis Ababa Road Authority about the plan of street trees. The road property protection and management team leader at AARA asserted this point. A team leader also stated as “CGAA’s BPCDM agency and its office at sub-city level, and AARA are discussing and evaluating their plans and strategies twice a year. As to the team leader, this is a good endeavor to plan and implement various strategies in coordinated manner for the sustainable development of street trees.

As explained by BPCDM officer of the sub-city, her office has taken various initiatives for the beautification, greening, and protection of streets in the sub-city by planting trees and maintaining their progress. According to the officer, the implementation of Clean and Green Addis Ababa Development Plan (CGADP) is being run by BPCDM office at

different levels of the sub-city with the involvement of other stakeholders such as business communities and NGOs. Similarly, the three Woredas' BPCDM core process officers expressed various activities are being carried out by their offices and by different business communities, but the changes are not significant. This is because various initiatives and actions are not implemented in sustainable manner and with massive community involvement, the reasons they gave are:

- Lack of professional staffs to develop and manage street trees systematically.
- Staff turnover that leads to lack of integrated database and information about the situations of street trees.
- Absence of commitment among professionals to give home- to- home awareness raising programs about street trees for the communities.
- Large business communities are not more interested to participate in planting roadsides as traffic squares due to conflict of interest.

As far as the development and management situations of street trees are concerned, the researcher's observations conducted in different parts of the study areas revealed that the situations are very poor as shown in figure 4.16. However, the management of those street trees that have been planted nearest to voluntary groups is in a good condition as shown in figure 4.15.

Figure 4.15: Photograph of street tree around Mekanisa, woreda, 2



Source: Picture taken by the author (March 2012)

Note: This street tree is planted nearest to business community. Due this, it is easily adopted and preserved by business community which is found at the back of the tree²⁸.

Figure 4.16: Photograph of street tree around Mekanisa, woreda, 2



Source: Picture taken by the author (March 2012)

Note: This street tree is planted in a place where different street vending activities are happening. Due to these activities, it is highly degraded and forced to dry out²⁹.

According to environmental protection authority officers of the sub-city, they have taken different actions to make the city roads beautiful and decorated. As to them, they have

²⁸ In-depth interview with business community and field observation

²⁹ In-depth interview with expert of BPCDM office of woreda 2 and field observation

provided different types of indigenous nurseries to the sub-city's BPCDM office to be planted on the road sides. They also mentioned that they have prepared two awareness raising programs to the community jointly with the sub-city's BPCDM office. But both programs were not more successful for most of the expected participants did not present on the programs.

Regarding water supply for street trees, the concerned officer of water development expressed that his office did not directly participate in the provision of water tap specifically for street trees. According to him, BPCDM office of Nifas Silk lafto sub-city used water for watering street trees by fetching from the water tap of 'baytar mekaber'³⁰ of St. Gebreial'.

Concerning the management of various illegal invasions of street trees, officer of woreda one code enforcement office said different cases were brought to the office by the woreda's BPCDM staffs. This was when various illegal cutting and grazing of street trees happened. As to the officer, the office faced difficulty to solve the cases legally due lack of clear enforcement laws and regulation about street trees. The officer added that the office was forced to take curative measures by locally established norms and standards.

The above facts were consolidated by the focus group discussants. All of them have not actively participated as a stakeholder to plan, develop, and manage street trees. However, all focus group participants wanted to see improved street trees. They also want the municipality service sector of the sub- city and other governmental bodies to consider street trees as key determinants for good urban images.

³⁰ common burial place which is managed by the sub-city's BPCDM office

4.2.4. Opportunities for the Development and Management of Street Trees

All the different policies, plans, and proclamations reviewed in the literature part such as Constitution of Ethiopia, Environmental Policy, Urban Development Policy, and Urban Planning Proclamation No.574/2008c contain general provision about the development and management of urban green areas. More specifically, City Development Plan of Addis Ababa, Clean and Green Addis Ababa Development Plan of 2004 put greening the roadsides and medians as one proposal for development of green areas in the Metropolis. All these provisions should create conducive situations to design specific implementation course of actions for the development and management of street trees.

Besides, survey respondents were asked to describe opportunities that create conducive environment for the development and management of street trees around their neighborhoods. Accordingly, about 52.3% (68) of respondents said that government involvements to develop and manage street trees are good opportunities to their joint efforts for the development and management of street trees. Some 30.8% (40) of them said that clean and green initiatives by the community and other stakeholders like NGOs are good opportunities to develop and manage these trees. The remaining 16.9 % (22) suggested that some business community's involvement in the development and management of street trees should be taken as a good chance.

Key informants from different government offices³¹ have also mentioned the above stated opportunities. Besides, BPCDM officer of the Nifas Silk lafto sub-city stated the

³¹ Officers from Design and Construction Management Office, Environmental Protection Authority Office, and Justice Office of the study woredas and Nifas Silk sub-city were interviewed. Officers from Addis Ababa Road Authority and Water Supply and Distribution Office of Addis Ababa were also interviewed.

establishment of BPCDM office at different administrative levels of the city is an important opportunity to develop and manage street trees. The officer also added that the recently formulated enforcement manual of the BPCDM agency which shows its intra and inter-sector linkages with other offices creates conducive environments. In fact, this enables the sector to carry out different green development and management projects of street trees in coordinated manners. As to the officer, this would be practical if it is accompanied by the coordinated efforts of different sector offices.

One key informant, who is also involved in the management of street trees, said that the recent government practices of private partnerships such as voluntary groups', business communities' and social groups' participations are considered as good initiatives to develop and preserve street trees. As to the informant, if these opportunities are exploited in sustainable manner, they will surely increase the capacity of enhancing street trees development and management in the future.

The above results are consistent with the results found from the focus group discussions. Thus, in addition to the existence of general frameworks, the establishment of BPCDM office at different level of the city and the recent government practices of private partnerships are good initiatives for the development and management of street trees. The recently formulated enforcement manual of BPCDM office and its recognition about the office's intra and inter-sectoral linkages could be a promising situation to develop and manage street trees in coordinated manner.

Chapter Five: Summaries, Conclusions, and Recommendations

5.1. Summaries and Conclusions

According to the literature, various factors interact in the provisions of urban green areas to urban communities. For instance, the improvements of these urban green areas mainly depend on their development and management. This development and management is also dictated by the magnitude and type of stakeholders' participation. This is true for urban green areas in general and for cooperative housing green areas and street trees in particular. When we come to cooperative housing green areas and street trees, they both depend on the local strategic practices being employed to develop and manage them. These interrelated processes focus on ensuring sustainable development and management in cooperative housing green areas and street trees. Therefore, studying the challenges and the opportunities in the development and management of cooperative housing green areas and street trees together with the above variables is very crucial.

5.1.1. Challenges for the Development and Management of Cooperative Housing Green Areas and Street Trees

As indicated in the analysis part, the role of cooperative housing green areas for urban life is undeniable but the findings show that its development and management face a lot of challenges. As the study pointed out, lack of awareness in the parts of the public and government employees about the causes and consequences of cooperative housing green area degradation as well as the benefits of development and management of cooperative housing green areas is one of the basic challenges. Due to this reason, cooperative housing green areas are allocated for different other purposes. In addition, the inability of

the media to voice the concerns of cooperative housing green areas was also found as one of the challenges in the development and management process.

The other challenge in the development and management of cooperative housing green areas, as identified by the study, is weak institutional capacities which is characterized by disintegration of the members of the cooperatives, lack of proper plan implementation, lack of protection, follow-up, monitoring, evaluation, and lack of effective accountability in the activities which are related to the use and conservations of cooperative housing green areas.

Lack of up-to date data- base and information about the locations and the current situations of cooperative housing green areas are also challenges that are identified by the study. In fact, these factors affect the development and management of cooperative housing green areas since they make the efforts of different stakeholder institutions difficult to design acceptable analytical frameworks for understanding the problems of cooperative housing green areas. According to the findings of the study, most local authorities of BPCDM do not have adequate data and information about the location and current status of cooperative housing green areas which negatively affect their efforts in developing and managing cooperative housing green areas for the purposes of recreations.

The study also identified lack of collaboration and participation among stakeholders as another challenge which affects their coordinated efforts and roles to develop and manage cooperative housing green areas. Besides, little experiences in cross-sectoral cooperation among stakeholders and the competing agenda of separate responsible offices are barriers

for the development and management of cooperative housing green areas in the study area.

According to the findings of the research, the last but not the least challenge that affects the development and management of cooperative housing green areas in the subject areas is the absence of clear ownership and enforcement mechanisms. Absence of clear ownership leaves residents with little incentive to maintain their cooperative housing green areas and to participate in the implementation process of different practices and in the local strategies for the development and management of their cooperative housing green areas as well. Absence of clear enforcement mechanisms about cooperative housing green areas have also made difficult to take appropriate curative measures by the concerning organs.

Similarly, the study found out that the development and management of street trees are affected by wrong perception of the public about the importance of street trees, lack of awareness about environmental crimes among the public, and absence of stakeholders' participations to develop and manage street trees. The study also discovered that weak institutional capacities which are characterized by lack of quality and quantity of staff, and lack of continuous follow ups and protections were also other challenges. Woredas' core process officers' inability to create more effective and integrated partnership with other stakeholders and lack of different incentives for volunteers should be also another impediments that affect street trees development and management.

Lack of effective and integrated data base system, poor selection of tree species, traffic accidents, street vending, and installation of utilities are also identified as hindrances

which affect the development and management of street trees. The finding of the study also revealed lack of clear enforcement laws, regulations, and senses of belongingness of the community to protect street trees as other challenges which affect the development and management of street trees in the study areas. Lack of clear norms and standards regarding the minimum distance to be maintained between the place where street trees should be planted, the main roads, and pedestrians' way are also impediments that affect the development and management of street trees in the study areas.

5.1.2. Practices of Local Strategies to Develop and Manage Cooperative Housing Green Areas and Street Trees

Locally set strategic practice is crucial for sustainable urban green areas development and management. In the study area, cooperative housing green areas are developed and managed by the members or the committee of the cooperatives and CBOs (Iddirs). However, the study found out that this local strategic practice is not effective to develop and manage cooperative housing green areas because of its low awareness raising efforts. And lack of clear property deed to cooperative housing green areas. In spite of the above findings, the study also discovered that there is still a room to design locally set strategy if there is a mechanism to raise the awareness of the members of the cooperative. These awareness raising programs should focus on the benefits of neighborhood green areas, and on the provision of property deed for the green areas of the cooperative.

BPCDM offices at different administrative levels of the sub-city are required to draw-up local strategic frameworks to guide the development and management process of street trees with the involvement of other stakeholders such as various government offices

business communities, NGOs, and residents,. Though the study woredas' BPCDM core process officers' written street tree management strategies confirmed the provision of some street trees management contracts for business communities and residents in the form of adoption, the finding of this study identified as the strategic practices are very minimal. After all the practices are accompanied by lack of awareness raising programs, shortage of continuous follow up, scarcity of monitoring and evaluating the progress, and absence of incentives to volunteers.

5.1.3. Stakeholders' Involvement in Planning, Developing, and Managing Cooperative Housing Green Areas and Street Trees

It is apparent that stakeholders' contributions in the involvement of planning, developing, and managing cooperative housing green areas and street trees are substantial. But, the findings of this study revealed that communities' participations in this regard are very low, even among the existed few communities' participations, contributing money takes the largest share in the planning, developing, and managing process of cooperative housing green areas

In principle, the planning, developing, and managing process of cooperative housing green areas requires collaborated efforts among different stakeholders such as BPCDM offices, land development bank and urban renewal offices, and urban plan preparation and information offices at different administrative levels. In addition, land development and ownership administration offices, design and construction management offices, environmental protection authority offices, water development offices, and justice offices are also participants in the processes.

On the other hand, the study found out that the above mentioned stakeholders did not actively participate and coordinate in the planning, developing, and managing process of cooperative housing green areas in the subject areas. The following are causes for this inactive participation as the study indicates.

- Lack of interest among different professionals to work in a coordinated manner
- Lack of legal enforcement mechanism to work in a coordinated situations
- Lack of property deed
- Lack of efficient and effective skilled human powers
- Lack of inter- sectoral coordination among different offices

Similarly, in the case of street trees, among the existing few communities' participation: Attending various awareness raising programs, providing suitable soil, and watering took the largest share to participate in the planning, developing, and managing process of street trees respectively. None of the respondents has participated through generating ideas, contributing money, and through other means in the planning process of street trees.

According to CGAA's BPCDM agency manual, BPCDM offices, Design and Construction Management offices, Environmental Protection Authority offices, and Addis Ababa Road Authority are stakeholders at different levels in planning, developing, and managing processes of street trees. Water Supply and Distribution, and Justice Offices are also participants in the processes as stakeholders. This planning, developing, and managing process should be carried out with local residents, business communities,

neighborhood associations, non-governmental organizations, investors, and other individuals at different administrative levels (city, sub-city and woreda levels). Although the fact should be the above, this study revealed that these stakeholders are not properly participating and coordinating in the planning, developing, and managing process of street trees. According to the study, the reasons for such type of poor stakeholder participations are the same as the reasons which affect stakeholders' participations to plan, develop, and manage cooperative housing green areas.

In spite of the above facts, BPCDM offices at different administrative levels of the sub-city have taken various initiatives to develop and manage street trees with the involvements of business communities and residents but the changes are not significant for various initiatives have also not implemented in sustainable manners and in line with massive community involvement.

5.1.4. Opportunities for the Development and Management of Cooperative Housing Green Areas and Street Trees

The Federal Democratic Republic of Ethiopia Constitution, Environmental Policy of Ethiopia, Urban Development Policy of Ethiopia, and urban planning proclamations No 574/2008c contains general provisions about the development and management of urban environments. Besides, the City Development Plan of Addis Ababa and Clean and Green Addis Ababa plan of 2004 recognized the importance of urban green areas to urban communities. All these general frameworks should create conducive environment so as to design specific implementation strategies at different administrative levels of the city for

the development and management of cooperative housing green areas and street trees in the study areas.

The study found out that the establishment BPCDM offices at the different administrative levels of the city is a promising condition and should also be equipped with the necessary human and material facilities.

The recently formulated enforcement manual of BPCDM office and its recognition about the office's intra and inter-scrotal linkages could be a good thing for the sector to perform different green development and management projects in coordinated manners. According to the discovery of this study, the availability of green vacant lands or areas, the introduction of GIS and remote sensing in land management system, and the existence of strong community based organizations are considered as good opportunities to develop and manage cooperative housing green areas. In spite of these opportunities, these would be futile without the coordinated efforts of various stakeholders.

Another finding which is worth mentioning here is that the recent Government practices of private partnerships could be a good initiatives for the development and management of street trees.

5.2. Recommendations

Sustainable development of urban green areas and integration of its benefits to the city's overall sustainable development require courageous, constructive, and strategic approach. The development and management of urban green areas requires holistic approaches by involving experts, policy makers, and stakeholders from all walks of life. Therefore, the

development and management of urban green areas should be related to a wide range of issues and agendas. The aim of this study was not only investigating challenges and opportunities for the development and management of cooperative housing green areas and street trees; it also aims to make suggestions on the mitigation of the challenges and on the employment of the existing opportunities for the proper development and management of cooperative housing green areas and street trees. Thus, based on the findings of this study, the following key measures are recommended:

- Awareness-creation about the causes and consequences of cooperative housing green areas and street trees deficit are a matter of urgent concern. Different stakeholders such as Politicians, decision-makers, planners, and the community at large should be aware of the causes and consequence of cooperative housing green areas and street trees degradation as well as the benefits of the development and management of these spaces.
- Awareness creation about the communal nature of cooperative housing green areas and street trees should be enhanced so as to develop a sense of belongingness.
- Government politicians and decision makers should recognize the related problems of cooperative housing green areas and street trees as other urban challenges so as to address the problems systematically and consciously.
- Improving institutional capacities of local agencies which are responsible for urban green areas development and management as well as for planning, implementing, and monitoring the development and management strategy of these areas should be of a great concern. For example, sustainable development and management of cooperative green areas and street trees can be ensured through the introduction of

integrated planning, accountability, incorporated management, maintenance, proper plan implementation, and active community participation. Similarly, ensuring effective enforcement capacity which requires strengthening human and technical capacity as well as increased financial resources is crucial to realize the objectives of cooperative housing green areas and street trees in the subject areas.

- Developing up-to-date data base and information about the location and current status of cooperative housing green areas and street trees should be important to design appropriate development and management strategies or remedies.
- Continuous follow-up, monitor, and evaluate the achievements of the practiced development and management strategies need to be assessed so as to check the progress, provide essential supports, and to take appropriate measures.
- There should be great efforts to develop and manage the existing few vacant cooperative housing green areas.
- There should be urgent concerns to the management and maintenance of poorly maintained street trees.
- Defining the ownership of cooperative housing green areas with title deeds, and ensuring close follow-up by the concerning public authority should be crucial.
- Clear rules and regulations which state the criminality of cooperative housings green areas' and street trees' degradations with their appropriate curative and preventive measures are needed.
- Clear norms and standards which indicate the minimum distance to be maintained between the main roads, the pedestrians' way, and the place exactly where the street trees should be planted are needed.

- Public sectors, NGOs, business communities, and local residents, which have significant roles to plan, develop, and manage cooperative housing green areas and street trees, should participate vigorously in different ways:
 - ✓ public sectors such as environmental sector agencies of the city, sub-city and woredas', for example, need to participate in:
 - Establishing and administering programs of technical assistance to support the local communities and voluntary groups that are involving in the development and management of these spaces ;
 - Establishing environmental standards and effective monitoring and enforcement programs for the development and management of these spaces; and
 - Empowering local voluntary groups and local residents to carry out local environmental management, establishing standards for local performance, and adopting measures to ensure accountability for the development and management of these green spaces.
 - ✓ NGOs, local residents, and other CBOs need to participate on consensus building about the need of developing and managing of cooperative housing green areas and street trees, and organizing and mobilizing public participation for the development and management of these spaces.
- Different greening initiatives like planting trees at the right ways of the road with the involvement of government authorities should be implemented in sustainable

manners together with massive community involvement for the protections and preservations of street trees planted in different parts of the ring road.

- The enforcement and fast implementation of the existing BPCDM agency manual should be carried out. Recognition about BPCDM offices and inter and intra-sectoral linkages need to be addressed and created.
- The recent few government practice of private partnership to manage street trees should be improved and expanded by providing the street trees' development and management activities to business communities, local residents, and voluntary groups in the form of adoption.
- The good experience of Woreda one BPCDM office of providing the management contract of the green areas to members of Mdirok, American, and Abenezer housing cooperatives should be expanded to other vacant cooperative housing green areas.

In order to make the above given key points feasible, coordination among stakeholders is of fundamental importance to come up with more sound solutions that considers the interest of all stakeholders. This of course needs further research from the side of all stakeholders. To develop and manage these green areas for the intended aims, the good will, the coordination, and efforts of all stakeholders including communities, government authorities, and non-governmental bodies are mandatory.

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Appendices

Appendix I Questionnaire to households

Appendix II Questions for in-depth interview to actors of cooperative housing green areas development and management.

Appendix III Questions for in-depth interview to actors of cooperative housing green area and street trees development and management.

Appendix IV Questions for in-depth interview to Addis Ababa Road Authority officers

Appendix V Questions for in-depth interview to water development officers

Appendix VI Questions for in-depth interview to code enforcement officers

Appendix VII Questions for focus group discussion

Appendix VIII, IX, X, XI, XII, XIII, and XIV are the Amharic version of the above appendixes respectively.

Appendix XVA cooperative housing green areas development and management agreement formats between woreda one BPCDM office and the member of the cooperative.

Appendix XVB Street trees development and management agreement formats between woreda one BPCDM office and business community.

Appendix I

This questionnaire is prepared to collect information for conducting Master's Thesis on the challenges and opportunities for the development and management of cooperative housing green areas and street trees in Nifas Silk Lafto Sub-city. The result of this questionnaire will be utilized for research purpose only. It is hoped that the outcome of

this research will contribute something to the development and management of these spaces. Therefore, you are kindly requested to provide genuine response to the questions that follow.

Instruction: there are choices of possible answers given for each closed ended question below please encircles the choice you feel are right answer for each question. If you think there is no right answer in the choices, write your preferred answer on the space provided.

Key words

Cooperative housing green areas: are the green areas of cooperative houses that have built during the Dergue regime and the current government through a self help approach in Nifas Silk Lafto Sub-city.

Street trees: trees that have been planted at both sides and median of the street in Nifas Silk Lafto Sub-city.

Part I: Socio-Demographic Data

1. Name of the study woreda:

1. Woreda 1
2. Woreda 2
3. Woreda 3

2. Age range:

1. 30-35
2. 36-41
3. 42-47
4. 48-53
5. 54-59
6. 60-above

3. Sex:
 1. Male
 2. Female
4. Level of education:
 1. Adult and primary education
 2. Secondary education
 3. Diploma
 4. Degree
 5. Master
 6. Others please specify-----
5. How many years did you live in your neighborhood?
 1. 1-5
 2. 6-10
 3. 11-15
 4. 16-20
 5. 21-25

Part II: Challenges and Stakeholders' Involvement for the Development and Management of Cooperative Housings Green Area

6. Did government gave you land for the purpose of green area while you were looking for constructing house through cooperative?
 1. Yes
 2. No
 3. I do no
7. If your answer for question No. 6 is 'Yes', what look like its implementation for the intended use?
 1. Properly implemented
 2. Partially implemented
 3. Not properly implemented

8. If your answer for question No. 7 is not properly implemented', what purposes are applied on the plots reserved for green areas?
1. Exist as vacant places and used for dumping different waste materials
 2. Converted to housing illegally
 3. Scrambled and redistributed to each members of the cooperative
 4. Others please specify _____
9. If your answer for question No. 7 is 'partially and not properly implemented, what were the barriers for its development and management? Please put it according to importance.
1. Lack of awareness in the parts of the public and government employees
 2. Lack of full participation among stakeholders
 3. Lack of clear and collective ownership
 4. Others please specify _____
10. Did you participate to implement the planning, developing, and managing process of the cooperative housing green area in your neighborhood?
1. Yes
 2. No
11. If your answer for question No. 10 is No, what is/are the barriers which hinder your participation? Please put it according to importance.
1. Lack of opportunities
 2. Unclear property rights of the green area
 3. Lack of information from the concerned government organs
 4. Lack of motivation to develop and manage the area
 5. others please specify _____
12. If your answer for question No. 10 is Yes, in what way did you participate to plan the development of your cooperative housing green area? Please put it according to importance.
1. By attending different awareness raising programme prepared by the committee of the cooperative or the government
 2. By technical assistance

3. By contributing money
4. By generating ideas
5. Others please specify _____

13. If your answer for question No. 10 is Yes, in what way did you participate to develop cooperative housing green area? Please put it according to importance.

1. By Planting trees
2. Through preparing the areas for greening purpose
3. By contributing money for the development of green areas
4. Through rising the awareness of the community
5. Others please specify _____

14. If your answer for question No. 10 is 'Yes', in what way did you participate to manage it? Please put it according to importance.

1. By protecting the area from pollution
2. By contributing money to recruit employees to maintain it
3. Through attending various awareness rising programmes about how to maintain it properly
4. Others please specify _____

Part IV: Data on Opportunities for the Development and Management of cooperative housing green area

15. Is/are there any potential for the development and management of cooperative housing green area in your neighborhood?

1. Yes
2. No

16. If your answer for question No. 15 is 'yes', what are the opportunities for the development and management of cooperative housing green areas? Please put it according to importance.

1. Clear ownership of green areas
2. Coordinated effort of the residents
3. High government support to develop cooperative housing green areas

4. Clean and green initiatives by the community and other stakeholders
5. The existence of responsible and committed committee of the cooperatives
6. Others please specify-----

Part V: Challenges and Stakeholders' Involvement for the Development and Management of street trees.

17. What looks like the development and management of street trees around your neighborhood?

1. Properly developed and managed
2. Partially developed and managed
3. Not properly developed and managed

18. What are the factors that hinder street trees' development and management?

Please put it according to importance.

1. Wrong perceptions of the public about the purpose of street trees
2. Lack of stakeholders' participation
3. Street vending
4. Others please specify _____

19. Do you participate in the planning, developing, and managing process of street trees around your neighborhood?

1. Yes
2. No

20. If your answer for question No. 19 is 'No', who is implementing it from planning to management process of street trees around your neighborhood?

1. Government
2. Non- governmental organizations
3. Community based organizations
4. Others please specify _____

21. If your answer for question No. 19 is 'No', what are the barriers which hinder your participation? Please put it according to importance.

1. Lack of opportunities

2. Lack of information from the concerned government organs
 3. Others please specify_____
22. If your answer for question No. 19 is 'Yes', in what way are you participating to plan the development of street trees? Please put it according to importance.
1. By attending different awareness raising programme prepared by the government
 2. By contributing money
 3. By generating ideas
 4. Others please specify_____
23. If your answer for question No. 19 is 'Yes', in what ways are you participating to develop it? Please put it according to importance.
1. By planting trees along the road
 2. Through preparing areas to plant trees
 3. Through watering street trees
 4. Others please specify_____
24. If your answer for question No. 19 is 'Yes' in what way do you participate to manage it? Please put it according to importance.
1. Through rising the awareness of the community
 2. Through watering trees
 3. Through protecting the street trees by fence
 4. Others please specify_____

Part VI: Data on Opportunities for the Development and Management of Street Trees

25. Is/are there any potential for the development and management of street trees around your neighborhood?
1. Yes
 2. No
26. If your answer for question No. 24 is 'Yes', what are the opportunities for the development and management of street trees? Please put it according to importance.
1. Clean and green initiatives by the community and other stakeholders

2. Government involvement to develop street trees
3. Networking and working together the street trees' plan with road project design
4. Community involvement to develop and manage street trees
5. Other please specify _____

Appendix II

Questions for In-Depth Interview to:

- **Urban planners,**
 - **Land bank and urban renewal officers**
 - **Land Development and Ownership Administration officers**
1. What are the constraints that hinder the developments of cooperative housing green areas
 2. What are the problems that affect the management of cooperative housing green areas
 3. In what ways are you involving as stakeholders to plan, develop, and manage cooperative housing green areas?
 4. In your opinion what are the opportunities that create conducive environment to develop and manage cooperative housing green areas?
 5. What local strategic practices are being implemented to develop and manage cooperative housing green areas in your office?

Appendix III

Questions for In-Depth Interview to:

- **Beautification, parks, and cemetery development and management officers**
- **Design and construction management officers**
- **Environmental protection authority officer**
- **Business community,**

- NGOs, and
- Members of the cooperative housings

1. What are the constraints that hinder the developments of cooperative housing green areas and street trees
2. What are the problems that affect the management of cooperative housing green areas and street trees
3. In what ways are you involving as stakeholders to plan, develop, and manage cooperative housing green areas, and street trees
4. What local strategic practices are being implemented to develop and manage cooperative housing green areas and street trees?
5. In your opinion what are the opportunities that create conducive environment to develop and manage cooperative housing green areas and street trees?

Appendix IV

Questions for In-Depth Interview to:

- Addis Ababa Road Authority

- 5.1. What are the problems that affect the development and management of street trees?
- 5.2. In what ways are you involving as stakeholders to plan and develop street trees?
- 5.3. What local strategic practices are being implemented in your office to plan and develop street trees?
- 5.4. In your opinion what are the opportunities that create conducive environment for developing and managing street trees?

Appendix V

Questions for In-Depth Interview to:

- Water Development Office

1. What are the problems that affect your office's effort to provide water services for cooperative housing green areas and street trees?
2. What local strategic practices are being implemented to provide water services for cooperative housing green areas and street trees?
3. In your opinion what are the opportunities that create conducive environment to develop and manage cooperative housing green areas and street trees?

Appendix VI

Questions for In-Depth Interview to:

➤ Code Enforcement Officer

1. In what ways are you involving as stakeholders to manage cooperative housing green areas and street trees
2. In your opinion what challenges and opportunities are existing to develop and manage cooperative housing green areas and street trees

Appendix VII

Questions for Focus Group Discussion:

1. What are the constraints that hinder the developments of cooperative housing green areas and street trees?
2. What are the problems that affect the management of cooperative housing green areas and street trees?
3. In what ways are the stakeholders' involving in planning, developing and managing cooperative housing green areas and streets?
4. What local strategic practices are being implemented to develop and manage cooperative housing green areas and street trees?
5. In your opinion what are the opportunities that create conducive environment to develop and manage cooperative housing green areas and street trees?

Appendix VIII

በንፋስ ስልክ ሳፍቶ ክ/ከተማ የማህበር ቤቶችን ስረንጓዴ ቦታ እና በመንገድ ዳርና ስካፋይ ሳይ የተተከሱ ዛፎችን ሰማጠማት እና ሰማስተዳደር አስቸጋሪ የሆኑ ምክንያቶችንና ያሉ ምቹ ሁኔታዎችን ሰማጥናት በማህበር ቤቶች አባላት የሚሞላ መጠይቅ።

ውድ መጠይቁን የምትሞሉ ተሳታፊዎች፡-

ከሳይ እንደተጠቀሰው ይህ መጠይቅ የተዘጋጀው በንፋስ ስልክ ሳፍቶ ክ/ከተማ የማህበር ቤቶችን ስረንጓዴ ቦታ እና በመንገድ ዳርና ስካፋይ ሳይ የተተከሱ ዛፎችን ሰማጠማት እና ሰማስተዳደር አስቸጋሪ የሆኑ ምክንያቶችንና ያሉ ምቹ ሁኔታዎችን ለሁለተኛ ደገሬ መመሪያ ፅሁፍ ለማዘጋጀት ስለሆነ የሚሰበሰበው መረጃም ሰጥናት ብቻ የሚውል ስለሆነ ለእርስዎ ትክክል የመሰለዎን መልስ ይሰጡኝ ዘንድ በትህተና እጠይቃለሁ።

መመሪያ

ለእያንዳንዱ ጥያቄ ከቀረቡት አማራጮች መካከል ትክክል የመሰለዎን አማራጭ የያዘውን ቁጥር ያክብቡት ወይም ሰጥያቄዎች ተስማሚ የሚሆን መልስ የሰም ብለው የሚያምኑ ከሆነ ሲላ በሚሰው ክፍት ቦታ ሳይ የራስዎን መልስ መፃፊ ይችላሉ።

ማሳሰቢያ

በመጠይቁ ውስጥ የሚከተሉትን ሁለት የቃላት ፍቶዎች ይጠቀሙባቸው፡-

የማህበር ቤት ስረንጓዴ ቦታ ማለት በደርግ እና በኢ.ፌ.ዲ.ሪ መንግስት የስልጣን ዘመን በራስ አገዝ የቤቶች ልማት ስልት መሰረት ለከተማዋ ነዋሪዎች በማህበር በሚደራጁበት ጊዜ ከመንግስት ለቤት መስሪያ መሬት ሲሰጥ የማህበሩ አባላት በጋራ ለመዝናኛነት እና ለተስደዩ ተግባራት እንዲጠቀሙበት የሚተው የስረንጓዴ ቦታ ነው።

የመንገድ ዳር ዛፍ ማስተካከያ በመንገድ ዳር እና ስኬታዎች ላይ የሚተካው የተሰደደ ዛፍን ማስተካከል ነው።

ክፍል አንድ፡- አጠቃላይ መረጃ

1. የጥናቱ ወረዳ ስም፡-

- 1. ወረዳ አንድ
- 2. ወረዳ ሁለት
- 3. ወረዳ ሶስት

2. ዕድሜ ፡-

- 1. 30-35
- 2. 36-41
- 3. 42-47
- 4. 48-53
- 5. 54- 59
- 6. 60- በላይ

3. ልጅ ፡-

- 1. ወንድ
- 2. ሴት

4. የት/ት ደረጃ ፡-

- 1. የገጠማዊ አንደኛ ደረጃ ት/ት
- 2. ሁለተኛ ደረጃ
- 3. ዲፕሎማ
- 4. ድግሪ
- 5. ማስተር
- 6. ሲባ ከሆነ ይገለጹት-----

5. በጥናቱ ቦታ የቆዩበት ጊዜ :-

1. 1-5
2. 6-10
3. 11-15
4. 16-20
5. 21-25

ክፍል ሁለት:- የማህበር ቤቶችን አረንጓዴ ቦታ ለማስማት እና ለማስተዳደር አስቸጋሪ የሆኑ ምክንያቶችን እና የባለድርሻ አካላትን እንቅስቃሴዎች በተመለከተ መረጃ ለመሰብሰብ የተዘጋጀ መጠይቅ::

6. መንግስት ስቤት መስሪያ በማህበር ቦታ ሲሰጣችሁ ለአረንጓዴ የሚሆን ቦታ ስጥቷችሁ ነበር?

1. ስጥቸናል
2. አልሰጠንም
3. አሳውቅም

7. ስጥያቄ ቁጥር 6 መልስዎ ተሰጥቷል ከሆነ:- ስታቀደሱት ዓላማ ማስትም ለአረንጓዴነት ወይም ለመዝናኛነት እየዋሰነው?

1. በትክክል ውሏል
2. በክፊል ውሏል
3. አልዋሰም

8. ስጥያቄ ቁጥር 7 መልስዎ አልዋሰም ከሆነ :- የማህበረሰብ አረንጓዴ ቦታ ለምን አገልግሎት እየዋሰነው?

1. ባዶ ቦታ ስለሆነ የቆሻሻ ማጠራቀሚያ ሆኗል
2. በህገወጥ መንገድ ቤት ተሰርቶቦታል
3. የማህበረሰብ አባላት ድርሻችንን ተከፋፈሉን አጥረናዋል

4. እባክዎን ሲሳ ስገልግሎት ከዋሰ ይገለጹት-----

9. ስፕዶቁ ቁፕር 7 መልስዎ በከፊል ውሷል ወይም ስልጠናዎ ከሆነ :- ስማልማትና ስማስተዳደር እንቅፋት የሆኑት ምክንያቶች ምንድናቸው? በችግሮች ግዝፈት መሰረት በቅደም ተከተል ያስቀምጧቸው::

1. የህዝብረተሰቡና የሚመሰክቸው የመንግሥት ሰራተኞች ግንዛቤ እናሳ መሆን
2. ስማልማትና ስማስተዳደር የሚመሰክቸው ባለድርሻ አካላት ተሳትፎ እናሳ መሆን
3. ግልፅ የሆነ የባለቤትነት ማረጋገጫ አስመናፍሩና የጋራ ሀብት መሆኑ
4. እባክዎን ሲሳ ምክንያት ከሆነ ይገለጹት-----

10. የማህበረሰብን አረንጓዴ ቦታ ፕላን በማዘጋጀት፣ በማልማትና በማስተዳደሩ ሂደት ላይ ተሳትፈዋል?

1. ተሳትፈደሁ
2. አልተሳተፍሁም

11. ስፕዶቁ ቁፕር 10 መልስዎ አልተሳተፍሁም ከሆነ :- እንዲያሳትፉ/ፊ ያደረጉህ/ሽ እንቅፋቶች ምንድናቸው? በችግሮች ግዝፈት መሰረት በቅደም ተከተል ያስቀምጧቸው::

1. ስመሳተፍ ምች ሁኔታዎች ባለመኖራቸው
2. ግልፅ የሆነ የባለቤትነት ማረጋገጫ አስመናፍሩ
3. ከሚመሰክተው የመንግሥት አካል መረጃ ባለማግኘቱ
4. የተነሳሽነት ስሜቱ እናሳ ስለሆነ
5. እባክዎን ሲሳ ምክንያት ካለ ይገለጹት-----

12. ፕዶቁ ቁፕር 10 መልስዎ ተሳትፈደሁ ከሆነ :- ልማቱን ፕላን ስማድረግ በምን ዓይነት መንገድ ተሳተፉ? በተሳተፉበት የተሳትፎ መጠን መሰረት በቅደም ተከተል ያስቀምጧቸው::

1. የተሰደዩ ግንዛቤ ማስጨበጫ መድረኮች ላይ በመሳተፍ

2. የቴክኒክ እገዛ በማድረግ
3. ገንዘብ በማዋጣት
4. ሀሳብ በማፍሰቅ
5. እባክዎን በሌላ መንገድ ተሳትፈው ከሆነ ይግለጹት-----

13. ስፕዶቄ ቁጥር 10 መልስዎ ተሳትፈዎበዩ ከሆነ :- ስማልማት በምን ዓይነት መንገድ ተሳተፈ? በተሳተፈበት የተሳትፎ መጠን መሰረት በቅደም ተከተል ያስቀምጧቸው::

1. እጠቀሳቸኝን በመትከል
2. ቦታውን ስክረንጌ ምቹ በማድረግ
3. ገንዘብ በማዋጣት
4. ስለ ስክረንጌ ቦታ የህብረተሰቡን ግንዛቤ ክፍ በማድረግ
5. እባክዎን በሌላ መንገድ ተሳትፈው ከሆነ ይግለጹት-----

14. ስፕዶቄ ቁጥር 10 መልስዎ ተሳትፈዎበዩ ከሆነ :- ስማስተዳደር በምን ዓይነት መንገድ ተሳተፈ? በተሳተፈበት የተሳትፎ መጠን መሰረት በቅደም ተከተል ያስቀምጧቸው::

1. ቦታውን እንዳይቆሽሽ በመንከባከብ
2. ገንዘብ በማዋጣት
3. ስክረንጌ ቦታን እንዴት መንከባከብ እንዳስብን በሚያስጨብጡ መድረኮች ላይ
4. እባክዎን በሌላ መንገድ ከሆነ ይግለጹት-----

ክፍል ሶስት:- የማህበር ቤቶችን ስክረንጌ ቦታ ስማልማትና ስማስተዳደር ያሉ ምቹ ሁኔታዎችን በተመለከተ መረጃ ለመሰብሰብ የተዘጋጀ መጠይቅ::

15. በአካባቢዎ የማህበር ቤቶችን ስክረንጌ ቦታ ስማልማትና ስማስተዳደር ምቹ ሁኔታዎች አሉ?

1. አሉ
2. የሉም

16. ስፕዶቄ ቁጥር 15 መልስዎ እሱ ከሆነ :- ያሉት ምቹ ሁኔታዎች የትኞቹ ናቸው? በጥቅማቸው መሰረት በቅደም ተከተል ያስቀምጧቸው::

1. ግልፅ የሆነ የባለቤትነት ማረጋገጫ መሰጠቱ
2. የነዋሪዎች የተቀናጀ ጥረት መኖሩ
3. የመንግስት እገዛ መኖሩ
4. በተለያዩ ባለድርሻ አካላት የፅዳትና የአረንጓዴ ዘመቻ መኖሩ
5. ሀሳፊነት የሚሰማውና የተጠናከረ የማህበር ኮምቴ መኖሩ
6. እባክዎን ሌላ ካስ ይግለጹት-----

ክፍል አራት:- የመንገድ ዳር ዛፎችን ለማልማት እና ለማስተዳደር አስችጋሪ የሆኑ ምክንያቶችን እና የባለድርሻ አካላትን እንቅስቃሴዎች በተመለከተ መረጃ ለመሰብሰብ የተዘጋጀ መጠይቅ::

17. በአካባቢዎ የመንገድ ዳር ዛፎች ልማትና አስተዳደር ምን ይመሰሳል?

1. በጣም ጥሩ ነው
2. በከፊል ጥሩ ነው
3. ልማቱና አስተዳደሩ ችግር አለበት

18. የመንገድ ዳር ዛፎችን ለማልማትና ለማስተዳደር እንቅፋት የሆኑት ምክንያቶች ምንድናቸው?

በችግሮች ግዝፈት መሰረት በቅደም ተከተል ያስቀምጧቸው::

1. ስለ መንገድ ዳር ዛፎች የማህበረሰቡ ግንዛቤ አካላት መሆን
2. ለማልማትና ለማስተዳደር የህብረተሰቡ ተሳትፎ አካላት መሆን
3. የገዳና ሳይ ንግድ
4. እባክዎን ሌላ ምክንያት ካስ ይግለጹት-----

19. የመንገድ ዳር ዛፎችን ጥላን ለማድረግ፣ ለማልማትና ለማስተዳደር ተሳትፈዋል?

1. ተሳትፈዋለሁ
2. አልተሳተፍሁም

20. ስፕዶቄ ቁጥር 19 መልስዎ ስልተሳተፍሁም ከሆነ :- የመንገድ ዳር ዛፎችን ፕሳን የማድረግን፣ የማጠማቀቅንና የማስተዳደሩን ሂደት ማን ይፈጸመዋል ?

1. መንግስት
2. መንግስታዊ ያልሆነ ድርጅት
3. ማህበረሰባዊ ተቋማት
4. እባክዎን ሲሳ ከሆነ ይግለጹት-----

21. ስፕዶቄ ቁጥር 19 መልስዎ ስልተሳተፍሁም ከሆነ :- እንዳይሳተፉ/ፊ ያደረጉህ/ሽ እንቅፋቶቹ ምንድናቸው? በችግሮች ገዢዎች መሰረት በቅደም ተከተል ያስቀምጧቸው::

1. ስመሳተፍ ምቹ ሁኔታዎች ባለመኖራቸው
2. ከሚመለከተው የመንግስት ስነ ስርዓት መረጃ ባለማግኘቱ
3. እባክዎን ሲሳ ምክንያት ካለዎት ይግለጹት-----

22. ስፕዶቄ ቁጥር 19 መልስዎ ተሳትፎዎ ሆኖ ከሆነ :- የመንገድ ዳር ዛፍን ፕሳን ለማድረግ በምን ዓይነት መንገድ ተሳተፏ? በተሳተፉበት የተሳትፎ መጠን መሰረት በቅደም ተከተል ያስቀምጧቸው::

1. የተስደዩ በመንግስት የተዘጋጁ የገንዘብ ማስጨበጫ መድረኮች ላይ በመሳተፍ
2. ገንዘብ በማዋጣት
3. ሀሳብ በማፍሰስ
4. እባክዎን በሲሳ መንገድ ተሳትፈው ከሆነ ይግለጹት-----

23. ስፕዶቄ ቁጥር 19 መልስዎ ተሳትፎዎ ሆኖ ከሆነ :- የመንገድ ዳር ዛፍ በሚሰማበት ጊዜ በምን ዓይነት መንገድ ተሳተፏ? በተሳተፉበት የተሳትፎ መጠን መሰረት በቅደም ተከተል ያስቀምጧቸው::

1. የመንገድ ዳር ዛፎችን በመትከል
2. እጠቃሚውን ለመትከድ በታ በማዘጋጀት

3. የመንገድ ዳር ዛፎችን ውሃ በማጠጣት

4. እባክዎን በሌላ መንገድ ተሳትፈው ከሆነ ይግለጹት-----

24. ስፕዶቁ ቁጥር 19 መልስዎ ተሳትፈዎበሁ ከሆነ :- የመንገድ ዳር ዛፍን ለማስተዳደር በምን ዓይነት መንገድ ተሳተፉ? በተሳተፉበት የተሳትፎ መጠን መሰረት በቅደም ተከተል ያስቀምጧቸው::

1. ስለመንገድ ዳር ዛፎች የማህበረሰቡን ግንዛቤ በማሳደግ
2. የመንገድ ዳር ዛፎችን ውሃ በማጠጣት
3. የመንገድ ዳር ዛፎችን በስፕር በመከሰል
4. እባክዎን በሌላ መንገድ ተሳትፈው ከሆነ ይግለጹት-----

ክፍል አምስት:- የመንገድ ዳር ዛፎችን ለማልማትና ለማስተዳደር ያሉ ምቹ ሁኔታዎችን በተመለከተ መረጃ ለመሰብሰብ የተዘጋጀ መጠይቅ::

25. በአንካባቢዎ የመንገድ ዳር ዛፎችን ለማልማትና ለማስተዳደር ምቹ ሁኔታዎች አሉ?

1. አሉ
2. የሉም

26. ስፕዶቁ ቁጥር 24 መልስዎ አሉ ከሆነ :- ያሉት ምቹ ሁኔታዎች ምንድን ናቸው? በጥቅማቸው መሰረት በቅደም ተከተል ያስቀምጧቸው::

1. የመንገድ ዳር ዛፎችን ለማልማት በተስደዩ ባለድርሻ አካላት የፅዳትና የአረንጓዴ ዘመቻ መኖሩ
2. የመንገድ ዳር ዛፎችን ለማልማት የመንግስት ተሳትፎ መኖሩ
3. የመንገድ ዳር ዛፎች ፕላን ከመንገዱ ዲዛይን ጋር አብሮ መዘጋጀቱ
4. የመንገድ ዳር ዛፎችን ለማልማትና ለማስተዳደር የማህበረሰቡ ተሳትፎ መኖሩ
5. እባክዎን ሌሎች ምቹ ሁኔታ ይግለጹት-----

Appendix IX

የቃሰ-መጠይቅ ጥያቄዎች :-

- ሰነድ ጥላን ባሰሙዎ፣
 - ሰመራት ልማት ባንክና ከተማ ማደስ ባሰሙዎ እና
 - ሰመራት አስተዳደርና ደዘታ ማረጋገጫ ባሰሙዎ
1. የማህበር ቤቶችን አረንጓዴ ቦታ እንዲይሰሙ ያመደረጉት ምክንያቶች ምንድናቸው?
 2. የማህበር ቤቶችን አረንጓዴ ቦታ በትክክል ለማስተዳደርና ለመቆጣጠር አስችጋሪ የሆኑት ምክንያቶች ምንድናቸው?
 3. እርስዎ እንደ ባለድርሻ አካል የማህበር ቤቶችን አረንጓዴ ቦታ ጥላን ለማዘጋጀት፣ ለማልማትና ለማስተዳደር በምን ዓይነት ዘዴዎች ይሳተፋሉ?
 4. የማህበር ቤቶችን አረንጓዴ ቦታ ለማልማትና ለማስተዳደር እየተተገበሩ ያሉ ስትራቴጂዎች ምንድናቸው?
 5. በእርስዎ አመለካከት የማህበር ቤቶችን አረንጓዴ ቦታ ለማልማትና ለማስተዳደር ያሉ መልካም አጋጣሚዎች (ምቹ ሁኔታዎች) ምንድናቸው?

Appendix X

የቃሰ-መጠይቅ ጥያቄዎች :-

- ሰው-በት፣ መናፈሻና ዘላቂ ማረፊያ ልማትና አስተዳደር ባሰሙዎ፣
- ሰዲዛይንና ግንባታ ፍቃድ ባሰሙዎ፣
- ሰአካባቢ ግበቃ ባለስልጣን ባሰሙዎ፣
- ሰንገዳ ማህበረሰብ፣

- ስመንገስታዊ ያልሆኑ ድርጅቶች ባሰሙዎ እና
- ስማህበር ቤቶች አባላት

1. የማህበር ቤቶችን ስረንገዳ ቦታ እና የመንገድ ዳር ዛፎችን እንዳይሰሙ ያደረጉት ምክንያቶች ምንድናቸው?
2. የማህበር ቤቶችን ስረንገዳ ቦታ እና የመንገድ ዳር ዛፎችን ስማስተዳደር እንቅፋት የሆኑት ምክንያቶች ምንድናቸው?
3. እርስዎ እንደ ባለድርሻ አካል የማህበር ቤቶችን ስረንገዳ ቦታ እና የመንገድ ዳር ዛፎችን ፕላን ስማዘጋጅት፣ ስማልማትና ስማስተዳደር በምን ዓይነት ዘዴ ይሳተፋሉ?
4. የመንገድ ዳር ዛፎችን ስማልማትና ስማስተዳደር እየተተገበሩ ያሉ ስትራቴጂዎች ምንድናቸው?
5. የማህበር ቤቶችን ስረንገዳ ቦታ እና የመንገድ ዳር ዛፎችን ስማልማትና ስማስተዳደር ያሉ መልካም አጋጣሚዎች (ምቹ ሁኔታዎች) ምንድናቸው?

Appendix XI

የቃሰ-መጠይቅ ፕደቂዎች :-

- ስአዲስ አበባ መንገዶች ባለስልጣን

1. የመንገድ ዳር ዛፎችን ስማልማትና ስማስተዳደር እንቅፋት የሆኑት ምክንያቶች ምንድናቸው?
2. የመንገድ ዳር ዛፎችን ፕላን ስማዘጋጅትና ስማልማት በምን ዓይነት መንገድ ይሳተፋሉ?

3. የመንገድ ዳር ዛፎችን ሰማጠማትና ሰማሰተዳደር እየተተገበሩ ያሉ ስትራቴጂዎች ምንድናቸው?

4. የመንገድ ዳር ዛፎችን ሰማጠማትና ሰማሰተዳደር ያሉ መልካም አጋጣሚዎች (ምቹ ሁኔታዎች) ምንድናቸው?

Appendix XII

የቃሰ-መጠይቅ ጥያቄዎች :-

➤ ሰውሃ ልማት ባለሙያ

7. ሰማህበር ቤቶች አረንጓዴ ቦታ እና ሰመንገድ ዳር ዛፎች የውሃ አቅርቦትን ማዳረስ አስቸጋሪ የሆኑት ምክንያቶች ምንድናቸው?

8. ሰማህበር ቤቶች አረንጓዴ ቦታ እና ሰመንገድ ዳር ዛፎች የውሃ አቅርቦትን ሰማዳረስ እየተተገበሩ ያሉ ስትራቴጂዎች ምንድናቸው?

9. በእርስዎ አመለካከት ሰማህበር ቤቶች አረንጓዴ ቦታ እና ሰመንገድ ዳር ዛፎች የውሃ አቅርቦትን ማዳረስ ያሉ ምቹ ሁኔታዎች ምንድናቸው?

Appendix XIII

የቃሰ-መጠይቅ ጥያቄዎች :-

➤ ሰህግ አስከባሪ አካላት

1. እርስዎ እንደ ባለድርሻ አካል የማህበር ቤቶችን አረንጓዴ ቦታ እና የመንገድ ዳር ዛፎችን ለመቆጣጠር እንዲት ይሳተፋሉ?

2. በእርስዎ አመለካከት የማህበር ቤቶችን አረንጓዴ ቦታ እና የመንገድ ዳር ዛፎችን፡-

➤ እንዳይሰሙ ያደረጉት ምክንያቶች ምንድናቸው?

➤ ለማልማትና ለማስተዳደር ያሉ መልካም አጋጣሚዎች (ምቹ ሁኔታዎች) ምንድናቸው?

Appendix XIV

ሰጠይቅ የተዘጋጀ መጠይቆች

1. የማህበር ቤቶችን አረንጓዴ ቦታ እና የመንገድ ዳር ዛፎችን እንዳይሰሙ ያደረጉት ምክንያቶች ምንድናቸው?

2. የማህበር ቤቶችን አረንጓዴ ቦታ እና የመንገድ ዳር ዛፎችን ለመቆጣጠር አስቸጋሪ የሆኑት ምክንያቶች ምንድናቸው?

3. እርስዎ እንደ ባለድርሻ አካል የማህበር ቤቶችን አረንጓዴ ቦታ እና የመንገድ ዳር ዛፎችን ፕላን ለማዘጋጀት፣ ለማልማትና ለማስተዳደር በምን ዓይነት ዘዴዎች ይሳተፋሉ?

4. የማህበር ቤቶችን አረንጓዴ ቦታ እና የመንገድ ዳር ዛፎችን ፕላን ለማድረግ፣ ለማልማትና ለማስተዳደር እየተተገበሩ ያሉ ስትራቴጂዎች ምንድናቸው?

5. በአካባቢዎ የማህበር ቤቶችን አረንጓዴ ቦታ እና የመንገድ ዳር ዛፎችን ለማልማትና ለማስተዳደር ያሉ መልካም አጋጣሚዎች (ምቹ ሁኔታዎች) ምንድናቸው?

Appendix xVA

Cooperative housing green areas development and management agreement formats
between woreda one BPCDM office and the member of the cooperative.

ቁጥር 3/ሰ/ላ/ወ1/ 1/5/04
ቀን 14/12/04

በ3/ሰ/ላ/ክ/ከተማ
የውብት መናፈሻና ዘላቂ ማረፊያ
አስተዳዳሪ ጽ/ቤት

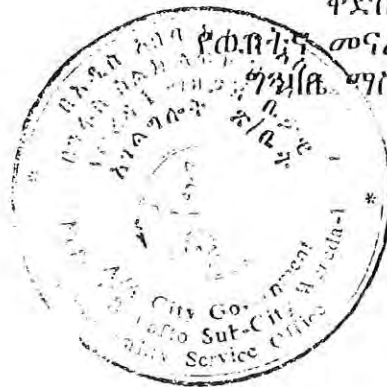
ጉዳዩ:- ወል የተሞላ ቅጽ መላክን ይመለከታል።

በወረዳችን በውብት መናፈሻና ልማትና አስተዳዳሪ በ10/12/04 ዓ/ም የተዋዋለ ወ.ልን 3 ገጽ
/ሪፖርት ከዚህ ሸኚ ደብዳቤ ጋር አባሪ አድርገን የላክን መሆኑን እናሳውቃለን።

ከሰላምታ ጋር

ቅድስት ገ/አ.የሱስ

መናፈሻ የህብረተሰብ ተሳትፎና
ማስጨበጥ ኤፌሰር



ግልጻፊ

ሰ/ሰ/ላ/ክ/ከተማ

ሰወረዳ 01 ዋና ሰራ አስኪያጅ

አዲስ አበባ

መንገድ አካፋይ /ዳርቻ /አደባባይ /ክፍት አረንጓዴ ቦታ የማልማት ስራ ወል

የ 311 ከ/ከተማ አድራሻ አዲስ አበባ ወረዳ 01 የቤት ቁጥር _____ ፖስታ ሳጥን ቁጥር _____

ከአሁን በኋላ ወል ሰጪ ተብሎ በሚጠቀሰው እና በ 3/አ/ከ አድራሻ አዲስ አበባ ክፍለ ከተማ 311 ወረዳ 01 የቤት ቁጥር _____ ስልክ ቁጥር ረዕ.፩. 37.36 ፖስታ ሳጥን ቁጥር _____

ከአሁን በኋላ ወል ተቀባይ ተብሎ በተመለከተው ሁኔታ በፍቃደኝነት መንገድ አካፋይ ፣ ወንዝ ዳርቻ ፣ መንገድ ዳርቻ /አደባባይ /ክፍት አረንጓዴ የማልማት ሥራ ወል ተፈጽሟል ።

አንቀጽ 1

የወል ስምምነት ዓላማ

ወል ተቀባይ ዋሽንተን የጠ/አ/ማ ፣ መልካሞካና የቤ/አ/ማ ለማልማት ማመልከቻ አቅርበው በተደረገው ግምገማ መሰረት ብቁ ሆነው ስለተገኙ እንዲሰጣቸው በተፈቀደው መሰረት የህንን ወል ተዋወለዋል።

አንቀጽ 2

የማልሚያ ቦታ

ለ ዋሽንተን ፣ መልካሞካና እና የግል የቤ/አ/ህ ማህበረሰብ ለገፅ ዘለቀ ለይማኑ ተወሃዳገት ማለሚያ ቦታ በአዲስ አበባ መስተዳደር

በ 311 ክፍለ ከተማ _____ ወረዳ ዋሽንተን በሰሜን ዋሽንተን በደቡብ የግል

ምዕራብ የግል ምስራቅ የግል የሚዋሰን 70x30 ካ.ሜ 21000 ካጭ ስፋት ያለው ቦታ በጊዜያዊነት ለወል ተቀባይ በአንቀጽ 6 ላይ ለተጠቀሰው ጊዜ የሚሰጥ ነው።

አንቀጽ 3

የወል ሰጪ ግዴታ

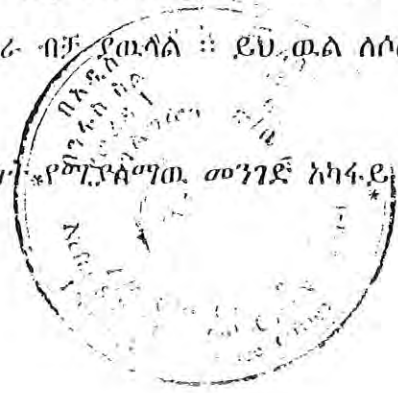
ወል ሰጪ በፍቃደኝነት ለማልማት የተጠየቀውን ቦታ ወል ተቀባይ ቀና ሁኔታዎችን እንዲፈጠሩለት በመንግስት ህግና ደንብ መሰረት አስፈላጊውን ትብብር ያደርጋል ።

አንቀጽ 4

የወል ተቀባይ ግዴታ

4.1 ወል ተቀባይ በማንኛውም ምክንያት የቦታውን አገልግሎት መለወጥ አይችልም ፣ በጠየቀው መሰረት ለተፈቀደለት የማልማት ስራ ብቻ የሚሰጥ ። ይህ ወል ለሶስተኛ ወገን አሳልፎ መስጠት አይችልም ።

4.2 ወል ተቀባይ ቦታ ተረክቦ በፍቃደኝነት የማልማት መንገድ አካፋይ /ዳርቻ /አደባባይ /ወንዝ ዳርቻ



ክፍት አረንጓዴ ቦታ በመንግስት ደንቦችና መመሪዎች ተገዢ የሆኗል ።

- 4.3 ወል ተቀባይ ለማልማት በተሰጠው ቦታ ላይ የሚያደርገው ለውጥ ዛፍ መትከል አበቦችና ሳር በስነስርዓት ማሳደግና ቦታው ለመናፈሻነት አመቺ እንዲሆን ማድረግ እንጂ ሌላ ለውጥ በማድረግ ቤት ፣ ያልተፈቀደ ግንባታዎችንና የንግድ ስራ ማከናወን አይቻልም።
- 4.4 ወል ተቀባይ ቦታውን ተንክባካቢ መሆኑን የሚያሳይ መጠኑ 40 በ 50 ሳ.ሜ ከክፍያ ነጻ የሆነ ስያሜውን ማኖር ይቻላል።
- 4.5 ወል ተቀባይ በሚያለማው ቦታ ላይ ከተረከበበት ጊዜ ጀምሮ ወሉ እስከሚያበቃበት ጊዜ ድረስ እንክብካቤ ያደርጋል ።
- 4.6 ወል ተቀባይ በተራ ቁጥር 6.1.1 እስከ 6.1.3 በተተቀሰች ምክንያቶች የተረከበውን ቦታ ሲመልስ ለማልማት ያወጣው ወጪ አይመለስለትም ።
- 4.7 ወል ተቀባይ ወል በገባ በ1 ወር ጊዜ ውስጥ ወደ ልማት መግባት አለበት።

አንቀጽ 5

የወል ዘመን

ይህ ወል ከዛሬ ጊዜ 10 ቀን 2004 ዓ.ም ጀምሮ ለ 2 ሪፎርም የጸና ይሆናል ።

አንቀጽ 6

ወል መታደስንና መቋረጥ

6.1 ወል መቋረጥ

- 6.1.1 በወል ተቀባይ በአንቀጽ 4 የተገለጹትን ግዴታዎችን ሳይወጣ ሲቀር
- 6.1.2 በአንቀጽ 5 የተጠቀሰው ወል ጸንቶ የሚቆይበት ጊዜ ሲፈጽም /ሲጠናቀቅ /
- 6.1.3 ወል ሰጪ አገራዊ ግዴታ ወይም ጉዳይ ሲያጋጥመውና ቦታውን በሚፈልግበት ጊዜ
- 6.1.4 ወል ተቀባይ ወል ከማለቁ በፊት ማቋረጥ ሲፈለግ የ3 ወር ቅድም ማስጠንቀቂያ ሲያበቃ

6.2 ወል ዕድሳት

6.2.1 በሁለቱ ተዋዋይ ወገኖች መሰረት ሆኖ ወል ተቀባይ ወል ከማለቁ ከ1 ወር በፊት የሚደስ ጥያቄ በጽሁፍ መቅረብ አለበት

አንቀጽ 7

የወል ሰነድ

7.1 በወል ሰጪና ተቀባይ የጸደቀው ይህ ወል

7.2 ወል ተቀባይ ያቀረቡት ማመልከቻና የፕሮጀክት ሰነድ



አንቀጽ 8

ጠቅላላ ሁኔታዎች

- 8.1 በሁለቱ ተዋዋይ ወገኖች አለመግባባት ቢፈጠር ተዋዋዮች በመቀራረብና በመወያየት ይፈታሉ ::
- 8.2 የተፈጠረው አለመግባባት በወይይት የማይፈታ ሆኖ ከተገኘ ስልጣን በተሰጠው የሕግ አካል አንዳፈታ ይደረጋል :: የዚህ አካል ወሳኔም መጨረሻ ይሆናል ::

ወል ሰጪ

ወል ተቀባይ

ስም ገብረመስቀል ገብረመስቀል
 ፊርማ [Signature]
 ቀን 11/12/2004

ስም ዘክርያስ ገብረመስቀል
 ፊርማ [Signature]
 ቀን 12/12/2004

እማኞች

- ስም ጠቅላይ ልማት አድራሻ:-ክ/ከተማ 3/1
 ወረዳ 01 ቤት ቁጥር እድሃ ፊርማ [Signature]
- ስም _____ አድራሻ:-ክ/ከተማ _____
 ወረዳ _____ ቤት ቁጥር _____ ፊርማ _____

ማሳሰቢያ :-ይህ የወል ሰነድ በ3 ቅጂ የሚዘጋጅ ሆኖ አንደኛው ለወል ሰጪ ሁለተኛው ለወል ተቀባይ ሶስተኛው ቅጽ ደግሞ በመሸኛ ደብዳቤ ለክ/ከተማ የወ.በት መናፈሻና ዘላቂ ማረፊያ ልማትና አገልግሎት ጽ/ቤት መላክ አለበት::



Appendix XV B

Street trees development and management agreement formats between worda one BPCDM office and business community.

ቁጥር 3/ሰ/ላ/ወ1/ /04
ቀን 03/12/04

ሰን/ሰ/ላ/ክ/ከተማ
የውበት መናፈሻና ዘላቂ ማረፊያ
አስተዳዳር ጽ/ቤት

ጉዳይ:- ወል የተሞላ ቅጽ መላክን ይመለከታል።

በወረዳችን በውበት መናፈሻና ልማትና አስተዳዳር በ14/12/04ዓ/ም የተዋዋለ ወ.ልን 3 ገጽ ሪፖርት ከዚህ ሸኚ ደብዳቤ ጋር አባሪ አድርገን የላክን መሆኑን እናሳውቃለን።



ቅድስት ገ/አ.የሱስ
የውበትና መናፈሻ የህብረተሰብ ተሳትፎና
ግንባቤ ማስጨበጥ ኮራሰር

ግልጻዊ
ሰን/ሰ/ላ/ክ/ከተማ
ለወረዳ 01 ዋና ሰራ አስኪያጅ
አዲስ አበባ

ለመንገድ ዳርቻ ችግኞች አጥር የማጠር ስራ ዉል

የ 3/21/15 ክ/ከተማ አድራሻ አዲስ አበባ ወረዳ 1 የቤት ቁጥር _____ ፖስታ ሳጥን ቁጥር _____

ከአሁን በኋላ ዉል ሰጪ ተብሎ በሚጠቀሰው እና በ 3/21/15 አድራሻ አዲስ አበባ ክፍለ ከተማ _____
ወረዳ 1 የቤት ቁጥር _____ ስልክ ቁጥር 01113462708 ፖስታ ሳጥን ቁጥር _____
ከአሁን በኋላ ዉል ተቀባይ ተብሎ በተመለከተው ሁኔታ በፍቃደኝነት የመንገድ ዳርቻ አጥር የማጠር
ሥራ ዉል ተፈጽሟል :: 0911883977

አንቀጽ 1

የዉል ስምምነት ዓላማ

ዉል ተቀባይ ወ/ሮ ገብረ ገብረ ለማጠር ማመልከቻ አቅርበው በተደረገው ግምገማ መሰረት ብቁ ሆነው ስለተገኙ እንዲሰጣቸው በተፈቀደው መሰረት ይህንን ዉል ተዋወለዋል።

አንቀጽ 2

የማልሚያ ቦታ

ለ 0917 ኃይማኖት ኪርሳህኒር ቦታ በአዲስ አበባ መስተዳደር
በ 3/21/15 ክፍለ ከተማ _____ ወረዳ 1 በሰሜን _____ በደቡብ _____
ምዕራብ _____ ምስራቅ _____ የሚዋሰን _____ ካ.ሜ _____ ስፋት _____
ያለው ቦታ በጊዜያዊነት ለዉል ተቀባይ በአንቀጽ 6 ላይ ለተጠቀሰው ጊዜ የሚሰጥ ነው። 13 0917

አንቀጽ 3

የዉል ሰጪ ግዴታ

ዉል ሰጪ በፍቃደኝነት ለማጠር የተጠየቀውን ቦታ ዉል ተቀባይ ቀና ሁኔታዎችን እንዲፈጠሩለት በመንግስት ህግና ደንብ መሰረት አስፈላጊውን ትብብር ያደርጋል።

አንቀጽ 4

የዉል ተቀባይ ግዴታ

- 4.1 ዉል ተቀባይ በማንኛውም ምክንያት የቦታውን አገልግሎት መለወጥ አይችልም ፣ በጠየቀው መሰረት ለተፈቀደለት የማልማት ስራ ብቻ ያወላል ። ይህ ዉል ለሶስተኛ ወገን አሳልፎ መስጠት አይችልም ።
- 4.2 ዉል ተቀባይ ቦታ ተረክቦ በፍቃደኝነት የሚያጥረውንና የሚንከባከበውን መንገድ ዳርቻ



ችግኖች በመንግስት ደንቦችና መመሪዎች ተገዢ ይሆናል ።

4.4 ወል ተቀባይ ቦታውን ተንክባካቢ መሆኑን የሚያሳይ መጠኑ 40 በ 50 ሳ.ሜ ከክፍያ ነጻ የሆነ ስያሜውን ማኖር ይቻላል።

4.5 ወል ተቀባይ በሚንከባከበው ቦታ ላይ ከተረከበበት ጊዜ ጀምሮ ወ.ሉ እስከሚያበቃበት ጊዜ ድረስ እንክብካቤ ያደርጋል ።

4.6 ወል ተቀባይ በተራ ቁጥር 6.1.1 እስከ 6.1.3 በተተቀሱት ምክንያቶች የተረከበውን ቦታ ሲመልስ ለማልማት ያወጣው ወጪ አይመለስለትም ።

4.7 ወል ተቀባይ ወል በገባ በ1 ወር ጊዜ ውስጥ ወደ ልማት መግባት አለበት።

አንቀጽ 5

የወል ዘመን

ይህ ወል ከዛሬ 14/12/2015 ዓ.ም ጀምሮ ለ 2 ዓመታት የጸና ይሆናል ።

አንቀጽ 6

ወል መታደስንና መቋረጥ

6.1 ወል መቋረጥ

6.1.1 በወል ተቀባይ በአንቀጽ 4 የተገለጹትን ግዴታዎችን ሳይወጣ ሲቀር

6.1.2 በአንቀጽ 5 የተጠቀሰው ወል ጸንቶ የሚቆይበት ጊዜ ሲፈጽም /ሲጠናቀቅ /

6.1.3 ወል ሰጪ አገራዊ ግዴታ ወይም ጉዳይ ሲያጋጥመውና ቦታውን በሚፈልግበት ጊዜ

6.1.4 ወል ተቀባይ ወል ከማለቁ በፊት ማቋረጥ ሲፈለግ የ3 ወር ቅድም ማስጠንቀቂያ ሲያበቃ

6.2 ወል ዕድሳት

6.2.1 በሁለቱ ተዋዋይ ወገኖች መሰረት ሆኖ ወል ተቀባይ ወል ከማለቁ ከ1 ወር በፊት የማደስ ጥያቄ በጽሁፍ መቅረብ አለበት

አንቀጽ 7

የወል ሰነድ

7.1 በወል ሰጪና ተቀባይ የጸደቀው ይህ ወል

7.2 ወል ተቀባይ ያቀረቡት ማመልከቻና የፕሮጀክት ሰነድ

አንቀጽ 8

ጠቅላላ ሁኔታዎች

8.1 በሁለቱ ተዋዋይ ወገኖች አለመግባባት ቢፈጠር ተዋዋሮች በመቀራረብና በመወያየት ይፈታሉ።

8.2 የተፈጠረው አለመግባባት በወይይት የማይፈታ ሆኖ ከተገኘ ስልጣን በተሰጠው የሕግ አካል

እንዲፈታ ይደረጋል። የዚህ አካል ወሳኔም መጨረሻ ይሆናል።

ወል ሰጪ

ወል ተቀባይ

ስም ጌደራ ገ/ጊዮርጊስ
ፊርማ *[Signature]*
ቀን 12/12/04

ስም ጌደራ ገ/ጊዮርጊስ
ፊርማ *[Signature]*
ቀን 12/12/04

እማኞች

1. ስም _____ አድራሻ:-ክ/ከተማ _____

ወረዳ _____ ቤት ቁጥር _____ ፊርማ _____

2. ስም _____ አድራሻ:-ክ/ከተማ _____

ወረዳ _____ ቤት ቁጥር _____ ፊርማ _____

ማሳሰቢያ :-ይህ የወል ሰነድ በ3 ቅጂ የሚዘጋጅ ሆኖ አንደኛው ለወል ሰጪ ሁለተኛው ለወል ተቀባይ ሰነድ ቅጽ ደግሞ በመሸኛ ደብዳቤ ለክ/ከተማ የወ.በት መናፈሻና ዘላቂ ማረፊያ ልማትና አገልግሎት ጽ/ቤት መላክ አለበት።

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APPENDICES

Appendix-1 Research questionnaires for HH survey, key informants and FGD

1. Instructions for interviewers

- ✦ Give greeting and thanks to their coming
- ✦ Make brief introduction about your self to each farmer before starting the interviews. Tell them the purpose and objectives of your study clearly.
- ✦ Try to avoid any expectations
- ✦ Please ask each question so clearly and patiently until the farmer understands.
- ✦ Please fill up the interviews schedule according to the farmers reply (don't put own opinion).
- ✦ Please, don't try to use technical terms while discussing with farmers and don't forget the local units.
- ✦ Please pass your appreciations and thanks at the end of the interviews for the relevant information they delivered and for the time they spent with you.

2. General points about the interviewee, the study area & Personal background

Name of the interviewer _____

Name of supervisor _____

Date of interview; Date /month /year ____ ____ ____

Full name of interviewee _____

Household code number _____

Name of PA's _____

Signature of interviewee _____

Personal data of the sample HH heads

Variable	Frequency	%
-Sex		
❖ Female		
❖ Male		
-Age		
❖ <14		
• Female		
• Male		
❖ 15—64		
• Female		
• Male		
❖ >64		
• Female		
• Male		
Marital status		
❖ Married		
❖ Single		
❖ Divorce		
❖ Windowed		
Literacy		
❖ Illiterate		
❖ Read only		
❖ Write only		
❖ Read and write		
❖ Elementary		
❖ High school		
❖ Other		
Occupation		
• Farming		
• Wage labour		

Variable	Frequency	%
• Petty trader		
• Daily		
• Local drink trading		
• No job		
• Other		
Religion		
• Orthodox		
• Islam		
• Protestant		
• Mission		
Ethnicity		
• Amhara		
• Others		

3. Household interview questionnaires

3.1. Farming system & production

1. What are the major levels of subsistence (stable food) of the HH in order of importance? 1. Rice 2. Tef 3. Millet 4. Maize 5. Cattle 6. Others
2. Have you ever planted rice? 1. Yes 2. No
3. If No, why? _____
4. If yes, when did you start using (planting) it ----- year, if not, why?
5. Why do you choose the crop rice? 1. High yielding 2. Flood resistance 3. Drought resistance 4. Pest resistance 5. High yielding & Flood resistance 6. All 7. Others specify
6. What are the major crops you grow in the plain? _____
7. Where did you get the rice seed you first saw? 1. Extension agent 2. Woreda Agricultural office 3. From farmers 4. Adet research institute 5. Others specify
8. From where did you first hear about rice? 1. TV 2. Radio 3. DA

4. Producer Cooperatives 5. 1 & 2 6. All 7. Others specify

9. How long is the time since you have first heard about rice _____ years?

10. If you know rice how do you compare the characteristics of this crop with substitute crops teff?

Perceived status	Yield %	Drought resistance	Disease%	Early maturity	Labor requirement	Weed resistance	Hail resistance	Flooding resistance
Better								
Inferior								
No.D/c								

11. If you know rice how do you compare the characteristics of this crop with substitute crops millet?

Perceived status	Yield %	Drought resistance	Disease%	Early maturity	Labor requirement	Weed resistance	Hail resistance	Flooding resistance
Better								
Inferior								
No.D/c								
No.clue								

12. What do you think of the yield of rice? 1. High 2. Low 3. Medium 4. Others specify

13. How much yield do you get per hectare?

Rice	Unit	Total
Area		
Yield/ha		

14. Land use patterns of the individual HH in local measurement (2006)

Crops	Area in Timad
Rice	
Teff	
Millet	
Chickpea	
Rough pea	
Maize	
Others	
Total	

15. How did you weed your rice land? 1. Family labor 2. Hiral labor 3. Herbicides
4. 1 & 2 6. All 7. Others specify
16. If you weed the rice land manually and hiral labor, how much is the price of labor per day?
Before rice _____ after rice _____ in non rice producer
Area's _____
17. Did you grow crops next to rice? 1. Yes 2. No
18. If yes, what did you grow next to rice? Why? _____
19. What benefit did you get from the rice production? _____
20. On which type of field you normally plant rice? 1. On hillside 2. On swampy plain area 3. On Swampy hill area 4. Others specify
21. Why do you grow rice on this type of field? 1. Flood resistance 2. Water lover
3.Both 4. Others
22. Which soil type is the most preferred for rice production? _____
23. What are the planting methods of rice in the plain? 1. Row planting
2. Transplanting 3. Broadcasting 4. Other specify
24. What are the problems & constraints you encountered during the process of rice cultivation? _____
25. Are grazing lands enough for your livestock? 1. Yes 2. No
26. What are the reasons for the decline of livestock number in the plain? 1. Over flooding 2. Government Policy 3. Rice introduction 4. Land reform 5. Shortage of grazing land 6. 5. 2& 3 6. All 7. Others specify

3.2 Credit availability and input used

1. Types & use of improved farm inputs by the HH?

Types of crops	Fertilizer use in Q	Improved seed use in Q	Pesticides use in Kg	Herbicides use in litter	Others inputs used	Total birr incurred
Rice						
Tef						
Millet						
Maize						
Others						

2. Cost of inputs per Ha of land for different crops

Activity	Rice	Teff	Millet
Seed Q/Ha			
Cost of seed/Birr			
Fertilizer Q			
Cost of fertilizer			
Chemicals/Lit			
Cost of chemicals			
Others			
Total cost			

3. Have you ever used fertilizer with rice? 1. Yes 2. No

4. Have you used manure for rice? 1. Yes 2. No

5. If yes, what are the types of manure used? _____

6. Have you ever received any credit service during the last production season? 1. Yes
2. No

7. If yes, for what purpose did you use the loan? _____

8. From which agency did you borrow? _____

9. Have you paid back your loan 1. Yes 2. No

10. Have you faced cash shortage for down payment to obtain input credit? 1. Yes
2. No.
11. Where you get the cash to buying inputs? 1. Crop sale 2. Livestock sale 3. Off farm Income 4. Non-farm income 5. 1 & 2 6. All 7. Others specify
12. If your answer is from crop sale, which crop? _____
13. What are the major problems you faced to get in put credit?

3.3 Extension Service

1. Are you benefiting /using from extension services? 1. Yes 2. No
2. Which institution was your primary source of information (first heard) about rice?
1. Agricultural office 2. Producer cooperatives 3. Adet research center
4. Korean project 5. Others
3. Did you have any contact with extension agents during the last crop season? 1. Yes
2. No
4. If yes, on average how many days did the Development agents contacted you per month 1. Once 2. Two times 3. Three times 4. Four times 5. Non 6. others
5. Have you been attending any agricultural training program? 1. Yes 2. No
6. Have you ever attend any field demonstration day arranged? 1. Yes 2. No,
7. If yes, which types of crops were demonstrated? _____
8. From whom do you get advice on the use of rice/new technology/ other than extension agents? __

3.4 Labor availability

1. Did you face any labor shortage during the last cropping season? 1. Yes 2. No.
2. If yes, for which farm operations did you face the shortage of labor? 1. Ploughing 2. Weeding 3. Harvesting 4. Threshing 5. 1 & 2 6. All 7. Others specify
3. How did you solve the shortage? 1. Family labor 2. Hiral labor 3. All 4. Other specify
4. For which farm operations did you hire labor for rice? 1. Ploughing 2. Planting 3. Weeding 4. Harvesting 5. 1 & 2 6. All 7. 3 &4 8. Others specify
5. Can you get labor to hire when you are in need? 1. Yes 2. No

6. How were the labor requirements (need) after rice? 1. Increased 2. Decreased
3. No difference 4. Others
7. How was the labor price per day after rice for rice weeding? 1. Increased 2.
Decreased 3. No difference 4. Others
8. Are there family members who are engaged in off farm activity? 1. Yes 2. No
9. Average labor requirements and cost of different crops per Ha of land

Activity p/day & Birr/Ha	Rice	Teff	Millet
Labor for plowing			
Cost of plowing			
Labor for weeding			
Cost of weeding			
Labor for harvesting			
Cost of harvesting			
Labor for Threshing			
Cost of Threshing			

3.5 Income and Expenses

1. What are your main sources of income In order of importance? 1. Crop sale 2.
Livestock sale 3. Off farm in come 4. Non farm income 5. Other specify
2. What is the income earned from livestock and livestock products during last
season?

Livestock product	Hides/S kin	Honey	Egg	Milk	Live animal sale	Butter	Total
Average income							

3. What is the income earned from crop products during last season?

Crop	Area	Production	Market price	Total value	Share in %
Rice					
Tef					
Millet					
Maize					
Rough pea					
Chickpea					
Total					

4. Have you earn non-farm in come during last crop season? 1. Yes 2. No
5. If yes, the amount of in comes earned; handcraft----- Petty trade -----
Sale of Firewood -----Others-----
6. Have you earned an off farm in come during the last crop seasons? 1. Yes 2. No.
7. If yes, in what activities and the amount of in come? Selling of labor ___ Renting of oxen ___ Renting of land _____ others specific -----
8. Are you saved money? 1. Yes 2. No
9. If yes, where it comes? 1. From crop sale 2. From livestock sale 3. From non-farm income 4. Off farm income 5. 1 & 2 6. Others
10. If your answer is from crop sale, which crop contributes more? 1. Onion 2. Rice 3. Maize 4. Noug 5. Peppers 6. Others

3.6 Health and Education issues

1. What is the contribution of rice production on health? _____
2. What is the contribution of rice on Education? _____
3. How many children you have and number of children reach schooling?
4. How many children you send to school last year?

School age boys/HH	Boys attending school	School age girls/HH	Girls attending school

3.7 Food security issues

1. Duration of HH consumption coverage (self sufficient) per year? 1. 12 months
2. 9 months 3. 6 months 4. 3 months 5. Others specify
2. Number of daily meals of HH members by type of harvest? 1. Once 2. Two times
3. Three times 4. > Four times 5. Others
3. What is your main staple food by type of food item? 1. Rice 2. Teff 3. Millet
4. Maize 5. Rice with Teff 6. Others
4. What is your perception on food security situation of the area after coming rice?
1. Improved 2. The same 3. Decreased 4. Others
5. How was the availability and requirement of **Kcal** to your families?

Source of Kcal	Unit	Production	For sale	Crop purchase	Loan/credit	Crop loss	for Seed	Net consumption availability per HH	Kcal availability	Kcal required
Crop										
Rice										
Teff										
Millet										
Maize										
Rough pea										
Chickpea										
Others										
Total										

6. Of the crops produced to which one do you give due attention regarding food security?

1. Rice 2. Teff 3. Millet 4. Maize 5. Others

7. Why do you pay more attention to that crop? _____

8. Perception of rice cultivars on their Livelihood situation after the intervention

Description	Deteriorated	Same	Improved	Don't know
Food consumption				
Livestock possession				
Income increment				
Schooling				
Clothing				
Saving				
Housing				
Other investment				
Health care				

9. For how many months/year have you received food aid? _____

HH responses	Need of food aid Before rice	Need of food aid After rice	Involved in food aid Before rice	Involved in food aid After rice	Need of food aid /non rice producers
Yes					
No					
Total					

10. Is the food you produced this year enough to feed the whole family all year and cover other expenses? 1. Yes 2. No

11. Have you ever fulfilled family consumption since you have started to grow rice? 1 Yes 2. No.

12. If yes, what is the reason? _____

13. What is the type of house you build? 1. Grass 2. Tin 3. Both grass & Tin 4. Others

14. If your answer is tin, what is the source of income to build the house? 1. From crop sale 2. From livestock sale 3. From non-farm income 4. Off farm income 5. Others
15. If your answer is from crop sale, which crop contributes more? 1. Rice 2. Tef 3. Maize 4. Peppers 5. Onion 6. Millet 7. Others

3.9 Consumption habits

1. Did you consume rice? 1. Yes 2. No
2. What are your staple foods for your family? 1. Rice 2. Tef 3. Millet 4. Maize 5. Rough pea 6. Others specify
3. Which type of diet do you prefer more? Why? _____
4. In what form do you consume rice? 1. Injera 2. Bread 3. Local drink 4. Porridge 5. 1 & 2 6. All 7. Others specify
5. Do you use rice alone or mixed with other crops? _____, Why?
6. Have you accepted rice as a food now? 1. Yes 2. No

3.10 Marketing process of rice

1. Have you sold crops recently? 1. Yes 2. No.
2. If yes, what is the total amount produced, consumed, you have sold and price you have received during last production year?

Types of crops	Total produced		Amount consumed		Amount sold	
	Q	Birr	Q	Birr	Q	Birr
Rice						
teff						
Millet						
Maize						
Noug						
Others specify						
Total						

3. Do you know price of rice in the market? 1. Yes 2. No
4. If yes, do you think the price is fair? 1. Yes 2. No

5. What is the price of rice in quintal? At harvest, husked rice _____ White rice _____; after harvest, husked rice _____ white rice _____; in summer, husked _____ white _____
6. Where do you sell your agricultural product? 1. At farm gate 2. Market 3. All 4. Others
7. At what season do you usually sell your farm product? 1. At harvest 2. After harvest 3. In summer 4. Others
8. What do you feel, about the price of the crops at harvest? 1. Normal 2. Costly 3. Cheap 4. Others
9. What are the major products you delivered to the market? _____
10. Do you store rice, why? For how long? _____
11. Is your rice quality accepted by the customers/traders? 1. Yes 2. No
12. If No, what is the reason? _____
13. Do you produce other farm products for market instead of rice?
14. Which product is the most important in terms of price and production? 1. Rice 2. Tef 3. Millet 4. Maize 5. Rough pea 6. Others

Crop	Area in Ha	Yield/Ha	Total production	Unit price	Total value in Birr
Rice					
Tef					
Millet					
Maize					
Noug					
Pepper					
Others					
Total					

15. To whom did you sell your rice product this year? 1. Rice machine owners 2. Rice whole sellers 3. Middlemen 4. Consumers 5. 1 & 2 6. All 7. Others specify

16. What are the transports means to transport your rice product? 1. Cart 2. Head load 3. Pack animal 4. Cars 5. 1 & 2 6. All 7. Others specify
17. How much you pay to transport your paddy product to reach to the market?

18. What are the processing activities in preparing the paddy product for sale and consumption? Sale _____ consumption _____
19. How do you thresh your paddy rice? 1. By hand 2. Husker (Mill) 3. Polisher (Machine) 4. Oxen 5. 1 & 2 6. All 7. Others specify
20. What are the costs incurred in polishing and husking (Milling) per Quintal?
___ & ___
23. What are the major problems in marketing process of rice as a whole? 1. Lack of processing machine 2. Lack of market information 3. Low price
4. Lack of storage facilities 5. Low quality 6. 1 & 2 7. All 8. Others specify

3.11 Production technology & Weather

1. Did you use production increment methods /technological package /? What are they? Which one is frequently used?
2. What are the convenient and inconvenient weather conditions for rice production? _____
3. Which weather condition affects rice production more? _____
4. Can you tell the most suitable rainfall condition for rice production from your experience in terms of: -
 - Distribution -----
 - Duration -----
 - Intensity -----
5. Did you practice water-harvesting techniques for rice production? 1. Yes 2. No
6. If yes at what stage of the crop and what kind of water harvesting system you used? _____
7. Would flooding affects other crops other than rice? 1. Yes 2. NO
8. If Yes, why? _____

9. Would flooding affect rice? 1. Yes 2. No
10. If yes, why? _____
11. Are flooding affects your livelihood? 1. Yes 2. NO
12. If yes, do you need settlement for the future? 1. Yes 2. No
13. If yes, Why? If no, why?

4. **Check lists for Focus group discussion,**

4.1. Social Contribution

1. Impacts of rice on Employment, Job creation
2. Daily wage of labor in *Fogera plain* before and after rice, in summer and winter
3. The health condition of the household in the plain and health service
4. The sources of money for health service
5. Education /schools in the plain
6. Number of children and enroll school in the households
7. Source of income for school expenses
8. The roles of teachers in rice production
9. Number of students before and after the rice
10. The impact of rice production on Education
11. farmers education and health service fee in the plain

4.2 Economic Contribution

1. The impact of rice production on creating fixed and variable assets
2. Farmers investment other than own farming
3. The income change of the household before and after the rice production
4. The size of land you sown and amount of production you have got starting from rice coming.
5. Years you involved in food aid
6. Need of food and material aid
7. The food security situations of the area
8. People benefited from rice production
9. The households well being and capabilities in the plain

4.3 Cultural Contribution

1. The attitudes of people in the plain on rice
2. Social relations before and after rice among people
3. The level of acceptance as food, purpose they used rice
4. The sayings of people about rice negatively and positively
5. Level of acceptance of rice immediately after coming
6. Time of acceptance rice as a livelihood system and as a food
7. Rice production and religion or cultural values
8. Rice production and livestock farming
9. Rice production and other crop cultivation

4.4 Role of institution and Extension service

1. The institutions and organizations involved on rice production
2. The role of different institutions and organizations for rice production
3. Rice marketing
4. The levels of their role on rice production
5. Extension contact
6. Frequency of extension contact
7. Communication with DA's
8. Access to credit, input supply, market & Cooperative.
9. Use of inputs for rice production
10. Need of credit from the government

4.5 Trend, adoption, Extent, and Intensity of rice

1. Time of Cultivation of rice at first time
2. Access of rice seed for the first time, where and who gave the seed
3. Acceptance of rice to the rural people of *Fogera* plain
4. Shift of farmers to rice instead of cattle herding
5. The history /trend of rice on the plain
6. The level of adoption of rice on the plain
7. The factors for adoption and not adoption of rice starting from rice coming
8. The Extent and Intensity of rice cultivation on the plain

4.6 problems and prospects of rice

1. The problems and constraints for rice production
2. Crop managements of rice
3. Problems you encountered during the process of rice production
4. Any complaint against rice
5. The prospects of rice production in the plain

5. Check list for Key informant's interview

5.1 Check list for Key informants' interview for Adet and IMPS Staffs.

1. How was the program of rice production started?
2. Who contributes the coming of rice in the plain?
3. Is the policy supports rice production? If not, why?
4. What was your role in rice production?
5. Have you noticed any effect of the rice production on the peasants social, cultural, economic, and political life?

5.2 Check list for Key informant's interview for Rural Development staffs

(Woreda experts & Developing Agents)

1. When was the program started?
2. How was the program of rice production started?
3. Who contributes the coming of rice in the plain?
4. How your office participated in it?
5. Is the policy supports rice production? If not, why?
6. Is there any change in extension services in rice production?
7. What are the attitudes of people in the plain on rice?
8. What are the sayings of people about rice negatively and positively?
9. What are the institutions and organizations involved on rice production?
10. What are the role of different institutions and organizations for rice production?
11. What are the levels of their role on rice production? Who involved more?
12. What is the history /trend of rice on the plain?
13. What is the level of adoption of rice on the plain?
14. What are the factors for adoption and not adoption of rice starting from rice coming?

15. Of the crops produced to which one do you give due attention.
16. Why do you pay more attention to that crop?
17. What are the food security situations of the area?
18. How was the households well being and capabilities in the plain? Why these happen?
19. Why farmers shift to rice instead of cattle herding?
20. What types of effects are observed in the plain after the coming of rice on livelihoods of farmers?
21. It is only due to rice or others? Justify?
22. What are the prospects of rice production in the plain?
23. What are the problems and constraints that limit rice production?
24. How do you over come the above-mentioned problems locally?

5.3 Check lists for key informants of Health staffs.

1. How many health services are there?
2. Can farmers paid health service fee on time, if yes, why, if not, why?
3. What do you think the impacts of rice on health services?

5.4 Check lists for key informants of Education staffs

1. Number of students before and after the rice? It is increasing, if yes, why, if not, why?
2. What is the impact of rice production on Education? Do you think they have direct relation ship?
3. Can farmers paid education fee on time, if yes, why, if not, why?

5.5 Check lists for key informants of Administration staffs.

1. What was the role of your institution in rice production?
2. Has the rice production minimized the expense of government?
3. What problems rice production solved in the plain?
4. What are the political impacts of rice production on the plain?

4.6 Check lists for key informants of Processors & Traders

1. Can you state about the quality of paddy rice product supplied by farmers to you for further processing or sale.
2. Is the quality of rice supplied by farmers comparable to that of rice imported and supplied to the market?
3. If not comparable, why? _____
4. How much is the processing cost per Q of rice, which is produced and offered by farmers,
5. Can you estimate the price of one Q of processed rice?
6. Can you tell main problems in purchasing, processing and marketing of rice?

6. Conclusion of Interview Questionnaires

- 🔒 What are the Extents and Intensity of rice cultivation in *Fogera Woreda* plain?
- 🔒 What are the contributions of rice cultivation on the Food Security of rural households in *Fogera plain*?
- 🔒 What are the major problems of the plain for rice cultivation in your perception? What will be your measure?

Appendix 2: Conversion factor used to estimate the adult equivalent units

Age Group	Male	Female
0-24 Months	0.4	0.4
25-48 Months	0.48	0.48
49-59 Months	0.56	0.56
5-6 years	0.56	0.56
7-8 years	0.64	0.64
9-10 years	0.76	0.76
11-12 years	0.80	0.88
13-14 years	1.00	1.00
15-18 years	1.20	1.00
19-59 years	1.00	0.88
60-98 years	0.88	0.72
Not specified	1.00	1.00

Source; World Bank, 1993 cited in Tsegue, 2006; MEDaC, 1999

Based on the above scales and in accordance to the categorized data on age of family members the average values were used to generate the following table.

Adult equipment values used in the study for age groups

Age Group(years)	Male	Female
≤ 14 years	0.65	0.66
15-64	1.1	0.94
>64	0.94	0.86

Appendix 3: Calorie composition of foods commonly used in Ethiopia (in terms of 100 gm)

Crop	Calorie/100 gm
Cereals	
Barely	334
Maize	356
Wheat	336
Rice	344
Millet	326
Sorghum	338
Teff	339
Pulses	
Horse bea	344
Chick pea	363
Field pea	354
Vetch	347
Vegetables	
Carrot	42
Tomato	28
Garlic	118
Potato	74
Shallot	57
Pepper	40
Oil Seeds	
Line seed	349
Nug	486

Source: Agren Gunnar and Rosalind Gbson, 1968 cited inTsegue, 2006

Appendix 4: Number of relief beneficiaries in South Gondar Zone

Year	No. of people assisted		Amount distribution quintal	
	Other 9 Woredas	Fogera	Other 9 Woredas	Fogera
1993	177639	9085	81954.4	3089.9
1994	514129	0	308623	0
1995	281036	0	193242.7	0
1996	133417	164	56420	63.96
1997	126621	5610	61612.9	1504.7
1998	225081	9775	94870.4	5228.9
1999	356040	9780	178113.6	8557.5
2000	592202	18304	348378.6	8128.97
2001	326731	21360	228960.2	267
2002	265728	0	235712.9	0
2003	666400	10000	367988.9	9000
2004	251600	0	274890	0
Total	3916624	64854	6398207	26840.93

Source; Regional DPPC, 2005

Appendix-5; Ethiopia vulnerable population to acute food insecurity, 1981-2003

Year	Total population	Vulnerable population (million)	% of total population
1981	36.67	2.82	7.7
1982	37.77	3.7	9.8
1983	38.9	3.3	8.5
1984	40.07	4.21	10.5
1985	41.21	6.99	17
1986	42.39	6.14	14.5
1987	43.4	2.53	5.8

Year	Total population	Vulnerable population (million)	% of total population
1988	44.84	4.16	9.3
1989	46.12	5.35	11.6
1990	47.44	3.21	6.8
1991	48.79	7.22	14.8
1992	50.18	7.85	15.6
1993	51.61	4.97	9.6
1994	53.09	6.70	12.6
1995	54.65	3.99	7.3
1996	56.37	2.78	4.9
1997	58.2	3.36	5.8
1998	59.88	4.10	6.8
1999	61.67	7.19	11.7
2000	63.5	10.56	16.6
2001	65.34	6.24	9.6
2002	67	10.72	16
2003	68.09	14.3	21

Source; Degefa, 2005 cited in DPPC for vulnerable population size; and CSA for population size

Appendix-6; List of key informants in the study area

No.	Full Name	Sex	Position	Site
1	Mitiku ASfaw	Male	Rice Researcher	Adet
2	Sewagegne Tariku	Male	International Rice Research Coordinator	Adet
3	Alemayehu Walle	Male	Agr. & RD office, Agronomist head	Fogera
4	Tewabe Getu	Male	Agr. & RD office, Head	Fogera
5	Ajebush Azene	Male	Agr. & RD office, Development Agent	Quire Michal

No.	Full Name	Sex	Position	Site
6	Tilahun Agmassie	Male	Agr. & RD office, Development Agent	Abuha & Kokit
7	Abebaw Reta	Male	Agr. & RD office, Development Agent	Wereta zuria
8	Melesse Liyhe	Male	Sasakawa Global 2000 Rice programe Expert	Wereta
9	Teshome Deriso	Male	ILRI,IPMS- Research & Dev. Assistant	Wereta
10	Belay Getenet	Male	Rice Trader & Rice machine owner	Wereta
11	Adamitie Mengesha	Male	Rice Trader	Wereta
12	Addis Humer	Male	Rice Trader & Rice machine owner	Wereta
13	Grimachew Melaku	Male	Teacher	Kokit
14	Haymanot melaku	Female	Health expert	Kokit

Appenidx-7;

Some formulas used in the study to compute the food security of the household in the plain.

- ✦ **Net Kilo calorie availability per household** = Production per household-crop sale-post harvest crop loose-seed reserve + crop purchase.
- ✦ **Kilo calorie requirement per household** = Number of Adult Equivalent per household *minimum standard requirement per household per day.
- ✦ **Subsistence potential ratio** = Kilo calorie availability per household /Kilo calorie requirement per household.
- ✦ **Calculated t** = $\frac{\text{Mean 1}-\text{Mean 2}}{\sqrt{\text{sd1}/n_1+\text{sd 2}/n_2}}$

(Source; Edilegnaw, etal, 2006)

Appendix 8 - Distribution of available Kcal per sample HH per year from crop production 2006 cropping season

Available Kcal	Rice producers		Non rice producers		Total Frequency	Total %
	Frequency	%	Frequency	%		
500000-1000000						
1000001-2000000			5	11.6	5	5.6
2000001-3000000	2	4.3	6	14	8	8.9
3000001-4000000	6	12.8	13	30.2	19	21.1
4000001-5000000	3	6.4	8	18.6	11	12.2
5000001-6000000	4	8.5	3	7	7	7.8
6000001-7000000	8	17	2	4.7	10	11.1
7000001-8000000	4	8.5	4	9.3	8	8.9
>8000001	20	42.6	2	4.7	22	24.4
Total	47	100	43	100	90	100

Source; Survey data, 2007

Appendix-9 ; Kcal availability by type of net crop production/HH

No	Rice			tef			Millet			others			T kcal Av.		Findex (SPR)
	kcal/Q	N.qu an.	T kcal av.	kcal/Q	Nqua n.	T kcal av.	kcal/Q	qua n.	T kcal av.	kcal/Q	qua n.	T kcal av.	qua n.	T kcal av.	
1	344000	21	7224000	339000	0.75	254250	326000	3	978000	355000	5.7	2023500	30	10479750	3.8957
2	344000	53	18232000	339000	1	339000	326000	2	652000	355000	6.5	2307500	63	21530500	8.0038
3	344000	27	9288000	339000	0	0	326000	5	1630000	355000	9	3195000	41	14113000	2.562
4	344000	23	7912000	339000	0.7	237300	326000	7.6	2477600	355000	2.7	958500	34	11585400	2.581
5	344000	15	5160000	339000	2	678000	326000	0	0	355000	5	1775000	22	7613000	2.8301
6	344000	38	13072000	339000	1	339000	326000	2.6	847600	355000	10	3550000	52	17808600	4.7591
7	344000	22	7568000	339000	2.5	847500	326000	6.6	2151600	355000	17	5857500	48	16424600	5.1135
8	344000	37	12728000	339000	1.5	508500	326000	3.5	1141000	355000	7	2485000	49	16862500	4.1095
9	344000	15	5160000	339000	0	0	326000	2.5	815000	355000	4.5	1597500	22	7572500	1.3909
10	344000	20	6880000	339000	0.9	305100	326000	2.9	945400	355000	9	3195000	33	11325500	2.1019
11	344000	21.5	7396000	339000	0	0	326000	0	0	355000	6	2130000	28	9526000	2.5457
12	344000	7.6	2614400	339000	0.5	169500	326000	0	0	355000	2.3	816500	10	3600400	0.8774
13	344000	8	2752000	339000	0.7	237300	326000	0.7	228200	355000	5.6	1988000	15	5205500	1.2208
14	344000	6	2064000	339000	1	339000	326000	4	1304000	355000	6.5	2307500	18	6014500	2.7741
15	344000	6	2064000	339000	1.2	406800	326000	3.6	1173600	355000	9.2	3266000	20	6910400	2.5689
16	344000	6	2064000	339000	1	339000	326000	4	1304000	355000	6	2130000	17	5837000	1.8127
17	344000	4.5	1548000	339000	0	0	326000	3	978000	355000	6	2130000	14	4656000	1.7308
18	344000	25	8600000	339000	1	339000	326000	2.5	815000	355000	10	3550000	39	13304000	2.5807
19	344000	14	4816000	339000	0	0	326000	5.5	1793000	355000	3.5	1242500	23	7851500	1.4572
20	344000	18	6192000	339000	1	339000	326000	0	0	355000	0.9	310625	20	6841625	1.1576
21	344000	8	2752000	339000	0.9	305100	326000	0	0	355000	5.3	1863750	14	4920850	1.502
22	344000	14	4816000	339000	0.75	254250	326000	0	0	355000	4.5	1597500	19	6667750	1.4854
23	344000	30	10320000	339000	1	339000	326000	2.5	815000	355000	3.8	1331250	37	12805250	2.8733
24	344000	8	2752000	339000	0	0	326000	0	0	355000	2	710000	10	3462000	1.0751
25	344000	21	7224000	339000	0	0	326000	0	0	355000	2	710000	23	7934000	1.5936
26	344000	6	2064000	339000	1.5	508500	326000	0	0	355000	2.8	976250	10	3548750	0.8323
27	344000	16	5504000	339000	0.5	169500	326000	0	0	355000	4.3	1508750	21	7182250	1.0855

Appendix-9 ; Kcal availability by type of net crop production/HH

No	Rice			Jef			Millet			others			T Kcal Av.		Fsindex (SPR)
	kcal/Q	N.qu an.	T kcal av.	kcal/Q	Nqua n.	T kcal av.	kcal/Q	qua n.	T kcal av.	kcal/Q	qua n.	T kcal av.	qua n.	T kcal av.	
28	344000	5	1720000	339000	1.5	508500	326000	6.5	2119000	355000	5.5	1952500	19	6300000	1.3621
29	344000	8.5	2924000	339000	1	339000	326000	4.6	1499600	355000	4.6	1633000	19	6395600	1.9521
30	344000	21.5	7396000	339000	2	678000	326000	0	0	355000	3	1065000	27	9139000	2.995
31	344000	5.5	1892000	339000	0	0	326000	7.7	2510200	355000	4.9	1721750	18	6123950	1.9018
32	344000	23	7912000	339000	1.7	576300	326000	0	0	355000	0	0	25	8488300	1.705
33	344000	14	4816000	339000	0	0	326000	4.5	1467000	355000	3.1	1100500	22	7383500	1.5963
34	344000	2	688000	339000	0	0	326000	5	1630000	355000	9.5	3372500	17	5690500	1.8649
35	344000	5	1720000	339000	0	0	326000	1	326000	355000	1.5	532500	7.5	2578500	0.7485
36	344000	5	1720000	339000	0	0	326000	0	0	355000	3.6	1278000	8.6	2998000	0.839
37	344000	9.5	3268000	339000	0	0	326000	3.4	1108400	355000	8	2840000	21	7216400	1.0098
38	344000	4	1376000	339000	0	0	326000	0	0	355000	4.8	1704000	8.8	3080000	0.4627
39	344000	26	8944000	339000	0	0	326000	2.5	815000	355000	4.5	1597500	33	11356500	3.0349
40	344000	36	12384000	339000	0	0	326000	4.9	1581100	355000	4	1420000	45	15385100	2.5478
41	344000	13.8	4747200	339000	0	0	326000	0	0	355000	9.3	3301500	23	8048700	2.0456
42	344000	2	688000	339000	0	0	326000	5	1630000	355000	2	710000	9	3028000	0.5402
43	344000	16	5504000	339000	0	0	326000	0	0	355000	2.5	887500	19	6391500	2.948
44	344000	21.5	7396000	339000	0	0	326000	0	0	355000	17	6035000	39	13431000	3.144
45	344000	8	2752000	339000	0	0	326000	0	0	355000	3.5	1242500	12	3994500	1.8492
46	344000	10	3440000	339000	0	0	326000	0	0	355000	4.5	1597500	15	5037500	1.9979
47	344000	5	1720000	339000	0	0	326000	2	652000	355000	5	1775000	12	4147000	0.6447
48	344000	0	0	339000	1.5	508500	326000	7	2282000	355000	9	3195000	18	5985500	1.0866
49	344000	0	0	339000	4.5	1525500	326000	10	3260000	355000	17	6035000	32	10820500	2.7278
50	344000	0	0	339000	2.5	847500	326000	9	2934000	355000	10	3550000	22	7331500	1.9593
51	344000	0	0	339000	5	1695000	326000	15	4890000	355000	20	7100000	40	13685000	3.8212
52	344000	0	0	339000	0.5	169500	326000	1.5	489000	355000	2	710000	4	1368500	0.8354
53	344000	0	0	339000	2.5	847500	326000	5.5	1793000	355000	5.5	1952500	14	4593000	2.8038
54	344000	0	0	339000	0.5	169500	326000	6.5	2119000	355000	4	1420000	11	3708500	1.1546

Appendix-9 ; Kcal availability by type of net crop production/HH

No	Rice			tef			Millet			others			T Kcal Av.		Findex (SPR)
	kcal/Q	N.qu an.	T kcal av.	kcal/Q	Nqua n.	T kcal av.	kcal/Q	qua n.	T kcal av.	kcal/Q	qua n.	T kcal av.	qua n.	T kcal av.	
55	344000	0	0	339000	0	0	326000	6.5	2119000	355000	2.5	887500	9	3006500	1.3867
56	344000	0	0	339000	0	0	326000	9	2934000	355000	2.5	887500	12	3821500	1.1868
57	344000	0	0	339000	0.85	288150	326000	4.5	1467000	355000	6.5	2307500	12	4062650	1.2648
58	344000	0	0	339000	0.7	237300	326000	3.5	1141000	355000	0.7	248500	4.9	1626800	0.5052
59	344000	0	0	339000	1.5	508500	326000	2	652000	355000	5.5	1952500	9	3113000	0.6825
60	344000	0	0	339000	0.8	271200	326000	7.7	2510200	355000	7.8	2769000	16	5550400	0.9391
61	344000	0	0	339000	0	0	326000	4	1304000	355000	2	710000	6	2014000	0.4723
62	344000	0	0	339000	1	339000	326000	1	326000	355000	3.5	1242500	5.5	1907500	0.3105
63	344000	0	0	339000	0.5	169500	326000	6	1956000	355000	6.3	2218750	13	4344250	0.844
64	344000	0	0	339000	3	1017000	326000	8	2608000	355000	12	4082500	23	7707500	1.4789
65	344000	0	0	339000	0	0	326000	3.7	1206200	355000	4.7	1668500	8.4	2874700	1.0655
66	344000	0	0	339000	4.7	1593300	326000	9.7	3162200	355000	5.7	2023500	20	6779000	1.0823
67	344000	0	0	339000	1.2	406800	326000	14	4401000	355000	9.5	3372500	24	8180300	1.5917
68	344000	0	0	339000	0	0	326000	7.7	2510200	355000	2.7	958500	10	3468700	0.927
69	344000	0	0	339000	0.4	135600	326000	6.7	2184200	355000	9.7	3443500	17	5763300	1.1883
70	344000	0	0	339000	1	339000	326000	6	1956000	355000	5	1775000	12	4070000	0.8799
71	344000	0	0	339000	1	339000	326000	3.7	1206200	355000	2.7	958500	7.4	2503700	0.8227
72	344000	0	0	339000	0.6	203400	326000	4.7	1532200	355000	7.7	2733500	13	4469100	1.6613
73	344000	0	0	339000	1.7	576300	326000	6.7	2184200	355000	5.8	2041250	14	4801750	1.2832
74	344000	0	0	339000	4.6	1559400	326000	12	3749000	355000	13	4473000	29	9781400	2.2854
75	344000	0	0	339000	0	0	326000	4.7	1532200	355000	4.8	1686250	9.5	3218450	0.7548
76	344000	0	0	339000	1.3	440700	326000	2.5	815000	355000	4	1420000	7.8	2675700	0.6534
77	344000	0	0	339000	0	0	326000	6.5	2119000	355000	3	1065000	9.5	3184000	0.5577
78	344000	0	0	339000	0	0	326000	7.7	2510200	355000	4.5	1597500	12	4107700	0.8881
79	344000	0	0	339000	1.5	508500	326000	0.6	195600	355000	6	2130000	8.1	2834100	1.0567
80	344000	0	0	339000	0	0	326000	9.6	3129600	355000	10	3656500	20	6786100	2.1075
81	344000	0	0	339000	0.35	118650	326000	6.7	2184200	355000	4	1420000	11	3722850	1.159

Appendix-9 ; Kcal availability by type of net crop production/HH

No	Rice			tef			Millet			others			T Kcal Av.		Findex (SPR)
	kcal/Q	N.qu an.	T kcal av.	kcal/Q	Nqua n.	T kcal av.	kcal/Q	qua n.	T kcal av.	kcal/Q	qua n.	T kcal av.	qua n.	T kcal av.	
82	344000	0	0	339000	0.8	271200	326000	3.8	1238800	355000	4.6	1633000	9.2	3143000	0.6059
83	344000	0	0	339000	0	0	326000	4	1304000	355000	7	2485000	11	3789000	1.1767
84	344000	0	0	339000	0	0	326000	2.3	749800	355000	2.5	887500	4.8	1637300	0.5097
85	344000	0	0	339000	2.6	881400	326000	5.2	1695200	355000	4.7	1668500	13	4245100	1.5781
86	344000	0	0	339000	0.4	135600	326000	9.8	3194800	355000	1	355000	11	3685400	1.7061
87	344000	0	0	339000	0	0	326000	4	1304000	355000	2.7	958500	6.7	2262500	0.4892
88	344000	0	0	339000	0	0	326000	3	978000	355000	2	710000	5	1688000	0.7224
89	344000	0	0	339000	0.7	237300	326000	4.8	1564800	355000	4.8	1704000	10	3506100	1.3034
90	344000	0	0	339000	0	0	326000	5.7	1858200	355000	5	1775000	11	3633200	1.682

Appendix-10 ; Kcal requirement & adult equivalent conversion factor by sex and age

NO.	<14 age		Ave. Conversion		Adult Eq.			15--64 age		Ave. Conversion		Adult Eq.			>64 age		Ave. Conversion		Adult Eq.			Total Adult Eqv.	Kcal req. Standard	kcal req./Year
	F	M	F	M	F	M	Total	F	M	F	M	F	M	Total	F	M	F	M	F	M	Total			
1	1	1	0.7	0.7	0.7	0.7	1.3	1	1	0.9	1.1	0.9	1.1	2	0	0	0.9	0.9	0	0	0	3.35	803000	2690050
2	1	1	0.7	0.7	0.7	0.7	1.3	1	1	0.9	1.1	0.9	1.1	2	0	0	0.9	0.9	0	0	0	3.35	803000	2690050
3	2	2	0.7	0.7	1.3	1.3	2.6	1	3	0.9	1.1	0.9	3.3	4.2	0	0	0.9	0.9	0	0	0	6.86	803000	5508580
4	1	3	0.7	0.7	0.7	0.7	2.6	2	1	0.9	1.1	1.9	1.1	3	0	0	0.9	0.9	0	0	0	5.59	803000	4488770
5	1	1	0.7	0.7	0.7	0.7	1.3	1	1	0.9	1.1	0.9	1.1	2	0	0	0.9	0.9	0	0	0	3.35	803000	2690050
6	2	2	0.7	0.7	1.3	1.3	2.6	1	1	0.9	1.1	0.9	1.1	2	0	0	0.9	0.9	0	0	0	4.66	803000	3741980
7	1	2	0.7	0.7	0.7	1.3	2	1	1	0.9	1.1	0.9	1.1	2	0	0	0.9	0.9	0	0	0	4	803000	3212000
8	2	1	0.7	0.7	1.3	0.7	2	1	2	0.9	1.1	0.9	2.2	3.1	0	0	0.9	0.9	0	0	0	5.11	803000	4103330
9	1	0	0.7	0.7	0.7	0.7	0.7	3	3	0.9	1.1	2.8	3.3	6.1	0	0	0.9	0.9	0	0	0	6.78	803000	5444340
10	3	1	0.7	0.7	2	0.7	2.6	2	2	0.9	1.1	1.9	2.2	4.1	0	0	0.9	0.9	0	0	0	6.71	803000	5388130
11	2	2	0.7	0.7	1.3	1.3	2.6	1	1	0.9	1.1	0.9	1.1	2	0	0	0.9	0.9	0	0	0	4.66	803000	3741980
12	2	1	0.7	0.7	1.3	0.7	2	1	2	0.9	1.1	0.9	2.2	3.1	0	0	0.9	0.9	0	0	0	5.11	803000	4103330
13	2	3	0.7	0.7	1.3	2	3.3	1	1	0.9	1.1	0.9	1.1	2	0	0	0.9	0.9	0	0	0	5.31	803000	4263930
14	1	0	0.7	0.7	0.7	0.7	0.7	1	1	0.9	1.1	0.9	1.1	2	0	0	0.9	0.9	0	0	0	2.7	803000	2168100
15	1	1	0.7	0.7	0.7	0.7	1.3	1	1	0.9	1.1	0.9	1.1	2	0	0	0.9	0.9	0	0	0	3.35	803000	2690050
16	2	1	0.7	0.7	1.3	0.7	2	1	1	0.9	1.1	0.9	1.1	2	0	0	0.9	0.9	0	0	0	4.01	803000	3220030
17	1	1	0.7	0.7	0.7	0.7	1.3	1	1	0.9	1.1	0.9	1.1	2	0	0	0.9	0.9	0	0	0	3.35	803000	2690050
18	3	2	0.7	0.7	2	1.3	3.3	1	2	0.9	1.1	0.9	2.2	3.1	0	0	0.9	0.9	0	0	0	6.42	803000	5155260
19	3	1	0.7	0.7	2	0.7	2.6	2	2	0.9	1.1	1.9	2.2	4.1	0	0	0.9	0.9	0	0	0	6.71	803000	5388130
20	3	2	0.7	0.7	2	1.3	3.3	2	2	0.9	1.1	1.9	2.2	4.1	0	0	0.9	0.9	0	0	0	7.36	803000	5910080
21	0	0	0.7	0.7	0	0	0	2	2	0.9	1.1	1.9	2.2	4.1	0	0	0.9	0.9	0	0	0	4.08	803000	3276240
22	1	3	0.7	0.7	0.7	0.7	2.6	1	1	0.9	1.1	1.9	1.1	3	0	0	0.9	0.9	0	0	0	5.59	803000	4488770
23	1	1	0.7	0.7	0.7	0.7	1.3	1	3	0.9	1.1	0.9	3.3	4.2	0	0	0.9	0.9	0	0	0	5.55	803000	4456650
24	2	1	0.7	0.7	1.3	0.7	2	1	1	0.9	1.1	0.9	1.1	2	0	0	0.9	0.9	0	0	0	4.01	803000	3220030
25	1	2	0.7	0.7	0.7	1.3	2	1	3	0.9	1.1	0.9	3.3	4.2	0	0	0.9	0.9	0	0	0	6.2	803000	4973600
26	2	3	0.7	0.7	1.3	2	3.3	1	1	0.9	1.1	0.9	1.1	2	0	0	0.9	0.9	0	0	0	5.31	803000	4263930

Appendix-10 ; Kcal requirement & adult equivalent conversion factor by sex and age

NO.	<14 age		Ave. Conversion		Adult Eq.			15-64 age		Ave. Conversion		Adult Eq.			>64 age		Ave. Conversion		Adult Eq.			Total Adult Eqv.	Kcal req. Standard	kcal req./year
	F	M	F	M	F	M	Total	F	M	F	M	F	M	Total	F	M	F	M	F	M	Total			
27	1	2	0.7	0.7	0.7	1.3	2	2	4	0.9	1.1	1.9	4.4	6.3	0	0	0.9	0.9	0	0	0	8.24	803000	6616720
28	2	2	0.7	0.7	1.3	1.3	2.6	1	2	0.9	1.1	0.9	2.2	3.1	0	0	0.9	0.9	0	0	0	5.76	803000	4625280
29	0	0	0.7	0.7	0	0	0	2	2	0.9	1.1	1.9	2.2	4.1	0	0	0.9	0.9	0	0	0	4.08	803000	3276240
30	1	0	0.7	0.7	0.7	0	0.7	1	2	0.9	1.1	0.9	2.2	3.1	0	0	0.9	0.9	0	0	0	3.8	803000	3051400
31	2	1	0.7	0.7	1.3	0.7	2	1	1	0.9	1.1	0.9	1.1	2	0	0	0.9	0.9	0	0	0	4.01	803000	3220030
32	1	2	0.7	0.7	0.7	1.3	2	1	3	0.9	1.1	0.9	3.3	4.2	0	0	0.9	0.9	0	0	0	6.2	803000	4978600
33	2	2	0.7	0.7	1.3	1.3	2.6	1	2	0.9	1.1	0.9	2.2	3.1	0	0	0.9	0.9	0	0	0	5.76	803000	4625280
34	1	0	0.7	0.7	0.7	0	0.7	1	2	0.9	1.1	0.9	2.2	3.1	0	0	0.9	0.9	0	0	0	3.8	803000	3051400
35	1	1	0.7	0.7	0.7	0.7	1.3	2	1	0.9	1.1	1.9	1.1	3	0	0	0.9	0.9	0	0	0	4.29	803000	3444870
36	1	1	0.7	0.7	0.7	0.7	1.3	1	2	0.9	1.1	0.9	2.2	3.1	0	0	0.9	0.9	0	0	0	4.45	803000	3573350
37	2	2	0.7	0.7	1.3	1.3	2.6	2	4	0.9	1.1	1.9	4.4	6.3	0	0	0.9	0.9	0	0	0	8.9	803000	7146700
38	2	3	0.7	0.7	1.3	2	3.3	3	2	0.9	1.1	2.8	2.2	5	0	0	0.9	0.9	0	0	0	8.29	803000	6656870
39	2	2	0.7	0.7	1.3	1.3	2.6	1	1	0.9	1.1	0.9	1.1	2	0	0	0.9	0.9	0	0	0	4.66	803000	3741980
40	3	2	0.7	0.7	2	1.3	3.3	1	3	0.9	1.1	0.9	3.3	4.2	0	0	0.9	0.9	0	0	0	7.52	803000	6038560
41	1	0	0.7	0.7	0.7	0	0.7	1	3	0.9	1.1	0.9	3.3	4.2	0	0	0.9	0.9	0	0	0	4.9	803000	3934700
42	1	2	0.7	0.7	0.7	1.3	2	3	2	0.9	1.1	2.8	2.2	5	0	0	0.9	0.9	0	0	0	6.98	803000	5604940
43	1	0	0.7	0.7	0.7	0	0.7	1	1	0.9	1.1	0.9	1.1	2	0	0	0.9	0.9	0	0	0	2.7	803000	2168100
44	3	2	0.7	0.7	2	1.3	3.3	1	1	0.9	1.1	0.9	1.1	2	0	0	0.9	0.9	0	0	0	5.32	803000	4271960
45	0	1	0.7	0.7	0	0.7	0.7	1	1	0.9	1.1	0.9	1.1	2	0	0	0.9	0.9	0	0	0	2.69	803000	2160070
46	0	0	0.7	0.7	0	0	0	1	2	0.9	1.1	0.9	2.2	3.1	0	0	0.9	0.9	0	0	0	3.14	803000	2521420
47	3	3	0.7	0.7	2	2	3.9	1	2	0.9	1.1	0.9	2.2	3.1	0	1	0.9	0.9	0	1	0.9	8.01	803000	6432030
48	2	2	0.7	0.7	1.3	1.3	2.6	1	3	0.9	1.1	0.9	3.3	4.2	0	0	0.9	0.9	0	0	0	6.86	803000	5508580
49	1	2	0.7	0.7	0.7	1.3	2	1	1	0.9	1.1	0.9	1.1	2	0	1	0.9	0.9	0	1	0.9	4.94	803000	3966820
50	2	2	0.7	0.7	1.3	1.3	2.6	1	1	0.9	1.1	0.9	1.1	2	0	0	0.9	0.9	0	0	0	4.66	803000	3741980
51	2	0	0.7	0.7	1.3	0	1.3	1	2	0.9	1.1	0.9	2.2	3.1	0	0	0.9	0.9	0	0	0	4.46	803000	3581380
52	0	0	0.7	0.7	0	0	0	1	1	0.9	1.1	0.9	1.1	2	0	0	0.9	0.9	0	0	0	2.04	803000	1638120

Appendix-10 ; Kcal requirement & adult equivalent conversion factor by sex and age

NO.	<14 age		Ave. Conversion		Adult Eq.		Total Adult Eq.	Kcal req. Standar ed	kcal req./year
	F	M	F	M	F	M			
53	0	0	0.7	0.7	0	0	0	803000	1638120
54	1	2	0.7	0.7	0.7	1.3	2	803000	3212000
55	1	0	0.7	0.7	0.7	0	0	803000	2168100
56	2	1	0.7	0.7	1.3	0.7	2	803000	3220030
57	1	2	0.7	0.7	0.7	1.3	2	803000	3212000
58	2	1	0.7	0.7	1.3	0.7	2	803000	3220030
59	1	0	0.7	0.7	0.7	0	0	803000	4561040
60	3	2	0.7	0.7	2	1.3	3.3	803000	5910080
61	2	3	0.7	0.7	1.3	2	3.3	803000	4263930
62	3	1	0.7	0.7	2	0.7	2.6	803000	6142950
63	2	3	0.7	0.7	1.3	2	3.3	803000	5147230
64	1	1	0.7	0.7	0.7	0.7	1.3	803000	5211470
65	2	0	0.7	0.7	1.3	0	1.3	803000	2698080
66	2	2	0.7	0.7	1.3	1.3	2.6	803000	6263400
67	1	4	0.7	0.7	0.7	2.6	3.3	803000	5139200
68	2	2	0.7	0.7	1.3	1.3	2.6	803000	3741980
69	1	2	0.7	0.7	0.7	1.3	2	803000	4850120
70	2	2	0.7	0.7	1.3	1.3	2.6	803000	4625280
71	0	1	0.7	0.7	0	0.7	0.7	803000	3043370
72	1	1	0.7	0.7	0.7	0.7	1.3	803000	2690050
73	2	2	0.7	0.7	1.3	1.3	2.6	803000	3741980
74	4	1	0.7	0.7	2.6	0.7	3.3	803000	4279990
75	2	3	0.7	0.7	1.3	2	3.3	803000	4263930
76	1	2	0.7	0.7	0.7	1.3	2	803000	4095300
77	2	3	0.7	0.7	1.3	2	3.3	803000	5709330
78	2	2	0.7	0.7	1.3	1.3	2.6	803000	4625280

Appendix-10 ; Kcal requirement & adult equivalent conversion factor by sex and age

NO.	<14 age		Ave. Conversion		Adult Eq.			15--64 age		Ave. Conversion		Adult Eq.			>64 age		Ave. Conversion		Adult Eq.			Total Adult Eqv.	Kcal req. Standard	kcal req./year
	F	M	F	M	F	M	Total	F	M	F	M	F	M	Total	F	M	F	M	F	M	Total			
79	0	2	0.7	0.7	0	1.3	1.3	1	1	0.9	1.1	0.9	1.1	2	0	0	0.9	0.9	0	0	0	3.34	803000	2682020
80	2	1	0.7	0.7	1.3	0.7	2	1	1	0.9	1.1	0.9	1.1	2	0	0	0.9	0.9	0	0	0	4.01	803000	3220030
81	1	2	0.7	0.7	0.7	1.3	2	1	1	0.9	1.1	0.9	1.1	2	0	0	0.9	0.9	0	0	0	4	803000	3212000
82	2	2	0.7	0.7	1.3	1.3	2.6	1	1	0.9	1.1	0.9	1.1	2	1	1	0.9	0.9	1	1	1.8	6.46	803000	5187380
83	2	1	0.7	0.7	1.3	0.7	2	1	1	0.9	1.1	0.9	1.1	2	0	0	0.9	0.9	0	0	0	4.01	803000	3220030
84	1	2	0.7	0.7	0.7	1.3	2	1	1	0.9	1.1	0.9	1.1	2	0	0	0.9	0.9	0	0	0	4	803000	3212000
85	1	1	0.7	0.7	0.7	0.7	1.3	1	1	0.9	1.1	0.9	1.1	2	0	0	0.9	0.9	0	0	0	3.35	803000	2690050
86	0	1	0.7	0.7	0	0.7	0.7	1	1	0.9	1.1	0.9	1.1	2	0	0	0.9	0.9	0	0	0	2.69	803000	2160070
87	2	2	0.7	0.7	1.3	1.3	2.6	1	2	0.9	1.1	0.9	1.1	3.1	0	0	0.9	0.9	0	0	0	5.76	803000	4625280
88	2	1	0.7	0.7	1.3	0.7	2	1	0	0.9	1.1	0.9	1.1	0.9	0	0	0.9	0.9	0	0	0	2.91	803000	2336730
89	1	1	0.7	0.7	0.7	0.7	1.3	1	1	0.9	1.1	0.9	1.1	2	0	0	0.9	0.9	0	0	0	3.35	803000	2690050
90	0	1	0.7	0.7	0	0.7	0.7	1	1	0.9	1.1	0.9	1.1	2	0	0	0.9	0.9	0	0	0	2.69	803000	2160070
Total	136	132						110	144					2	8									



Fig 3. Rice Wedding, transportation and Market

Declaration

I, the undersigned, declare that the thesis is my original work, has not been presented for a degree in any other university and that all sources of material used for the thesis have been duly acknowledged.

Declared by:

Legege Gelaw



Candidate

Confirmed by:

Wondwosen Negatu



Advisor