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The Human Impacts of Flower Farm Development in the Ethiopian Rift Valley Region



by
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In Fulfilment of the requirement of Doctoral Degree in Philosophy

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2013

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Dedication

This thesis is dedicated to my father, Belachew Gezmu, the living legend, decorated veteran of the Ethio–Italian war (Maychaw), and renowned presiding Judge of the Federal Criminal Court of Ethiopia. The following biography was quoted and translated from his speech in the course of writing this thesis.

"*I, Belachew Gezmu was born in June 8, 1916 in Sellale region, Ethiopia. As a son of farming family, I grew up tilling land and herding sheep and livestock. When I was 16, I moved to Addis Ababa and enrolled at Medihane-Alem boarding school in 1932. The school was established in 1932 for students who lost their families in a royal service to the Emperor Haile Sellase I. I am one of the first 86 students enrolled at the school, and the only student from the first batch, privileged to be guest of honour at the 80th anniversary of the school in 2012.*

During the outbreak of war with Italy in 1935, all students aged 17 and above were enrolled at Holleta Military Academy, trained as military officers, and joined the army to defend our motherland and restore the pride of our people. I lost most of my friends during the war. Later in my pursuit of knowledge and wisdom, I joined Haile Seilasse I, University (now Addis Ababa University) and graduated in Law; Certificate in 1965 and Diploma in 1968. I served my mother land in different administrative positions for 40 years. Eventually I accepted the offer of his majesty title "Afe –Negus" and was appointed as presiding Judge to the federal criminal court of Ethiopia – a position I held until retirement. I am father to 6 sons and 4 daughters and lived long and see many grand and great grandchildren. Now I am living comfortably with my beloved wife Tadesech Gebre Meskel, looking forward to my 100th birthday celebration".

Acronyms and Abbreviations

ADLI	Agriculture Development Led Industrialization policy
CADU	Chilalo Agricultural Development Unite
CETU	Confederation of Ethiopian Trade Union
CRGE	Climate Resilient Green Economy Strategy
CSA	Central Statistic Authority
DWCP	Decent Work Country Programme
EHDA	Ethiopia Horticulture Development Agency.
EHPEA	Ethiopian Horticulture Producer and Exporters Association
ENCOP	Environment and Conflict Project
EIA	Ethiopian Investment Agency
EPA	Environmental Protection Authority
ERCA	Ethiopian Revenues and Customs Authority
FAO	Food and Agricultural Organization
FDRE	Federal Democratic Republic Ethiopia
FEG	Food Economy Group
EWCTU	Ethiopia Workers Confederation Trade Union
FOSA	Forestry Outlook Studies in Africa
FSCB	Food Security Coordination Bureau
GTP	Growth and Transformation Plan
IBC	Institute of Biodiversity Conservation
ILO	International Labour Organization
ILRI	International Livestock Research Institute
IWMI	International Water Management Institute
ITC	International Trade Center
ITUC	International Trade Union Confederation
MDG	Millennium Development Goal
MoFED	Ministry of Finance and economic Development
MOI	Ministry of Information
MOLSA	Ministry of Labour and Social Affairs
MWR	Ministry of Water Resource
NGO	Non Governmental Organizations
OECD	Organization for Economic Co-operation and Development
OESPO	Oromia Economic Study Project Office
OLF	Oromo Liberation Front
ONLF	Ogaden National Liberation Front
ONRS	Oromia National Regional State
PASDEP	Plan for Accelerated and Sustainable Development to End Poverty
SDPRP	Sustainable Development and Poverty Reduction programs
SSA	Sub Saharan Africa
USITC	United States International Trade Commission
UNDP	United Nations Development Programme

UNHCR	United Nations High Commissioner for Refugees
UNEP	United Nation Environmental Program
WADU	Wallamo Agricultural Development Unite
WHO	World Health Organization
WMO	World Metrological Organization
WECD	World Commission on Environment and Development

Abstract

The flower industry has a reputation for heavy usage of toxic chemicals and polluting the environment, enormous consumption of water, and poor working condition and low wage level in various parts of the world. It is unfortunate that this industry is adamant to change and repeating the same mistakes in Ethiopia. Because of this, - there is a growing concern among the general public and the international community about sustainability of the Ethiopian flower industry. Such concerns and controversies over the Ethiopia flower industry has initiated this research to properly address the social, economic, and environmental impacts of flower farm development in the Rift Valley regions of Ethiopia. Consequently, working conditions in the flower industry, impacts of wage income on the livelihoods of employees, coping strategies of low wage flower farm workers, impacts of flower farms on the livelihoods of local people and environmental pollution and conflict, were analysed. Both qualitative and quantitative research methods were employed. Four quantitative data sets were collected between 2010 and 2012. A labour practice, and employees' income and expenditure survey was conducted on 195 and 139 randomly selected farm workers, respectively. About 168 households were involved in the displaced household survey, and farm officials from 30 flower farms participated in the flower grower views' survey. Qualitative data ranges from observations to in-depth focus group discussions. Robust regression to identify the determinants of wage levels, and Multinomial logit to identify the determinants of coping strategies of flower farm workers and displaced households were employed. The findings show the working conditions in flower farms are characterized by low wages, job insecurity and frequent violation of employees' rights, and an absence of social dialogue and poor safety measures. Most flower industry employees are living below the poverty line, and to cope with low wages they adopt detrimental strategies. To ensure survival of their family, displaced households adopt a wide range of strategies including reduction in food consumption, sharing oxen, renting land, share cropping, and shifting staple food crops. Most experienced scarcity of water resources, lack of grazing areas, death of herds and reduced numbers of livestock due to water source pollution. Despite the Ethiopian government investment in attracting and creating a conducive environment for investors, not much was accomplished when it comes to enforcing labour laws. The foregone benefit from loss of farm land for the displaced households was not compensated by income earned from the flower industry. Flower growers also face a number of institutional obstacles. Flower farm expansion in Ethiopia, as it is now, can be viewed as part of the global land and water grab and is not all inclusive and sustainable. There is an urgent need to establish a federal and state minimum wage and to enforce labour laws. Several recommendations are made to improve working conditions, maximize the benefits of flower industry to the society, and to minimize pollution of the environment, to resolve the ailing relations between the flower growers and local community, and institutional obstacles faced by flower growers in Ethiopia.

Key Words: Flower Farms, Livelihoods, Decent work, Land Grab, Water Grab, Conflict, Ethiopia, Central Rift Valley

CHAPTER 1: Introduction

1.1. Overview of the Ethiopian Socio-economic Environment

Ethiopia is a landlocked country that lies within 15 degrees north of the equator. With a total land area of 1.1 million Km^2, it is bounded in the north by Eritrea, on the north east by Djibouti, on the east and south east by Somalia, on the south by Kenya and on the west by Sudan. Ethiopia is endowed with abundant natural resources. It has some mineral and natural gas reserves, 66 per cent of its land is regarded as suitable for cultivation, though only 14.8 percent of it is currently under cultivation, and has huge livestock and human resources (EPA, 2003). Ethiopia has twelve river basins with an annual runoff volume of 122 billion m3 of water and an estimated 2.6 - 6.5 billion m^3 of ground water and 110 billion m3 surface water potential (MWR, 2001; Aaronson and Zimmerman, 2006).

Ethiopia is the second most populous country in Sub-Saharan Africa. The current population growth rate (2.6 per cent) is one of the highest in the world. The population that was 40 million in 1982 has reached 74 million in 2008[1] (CSA, 2008), and is projected to be 145 million in 2050 (United Nations, 2011: p. 80). The majority of its citizens (84 per cent) live in rural areas, while the urban community accounts only for 16 percent (CSA, 2008). The working age group between 15 to 64 years accounts for 52 percent whereas the youngest population (< 15 years) comprise 45 percent and the elderly constitutes only 3 percent (ibid).

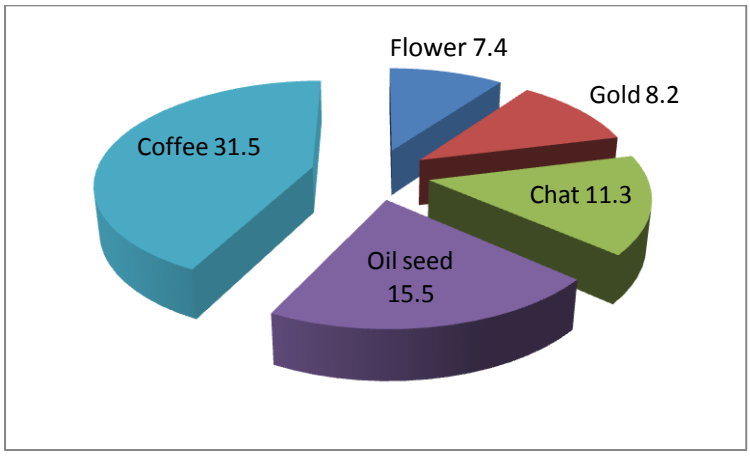
As the population continues to grow, the pressure on natural resources and the ecosystem to provide the basic necessities increases immensely. Most of the resources that the Ethiopian people depend on for a living are consumable and non-renewable. It is projected that with such a rate of population growth the country will soon lose its ability to sustain life. Even today, evidence of deforestation and desertification (FOSA, 2001; Gessesse and Johan, 2007), loss of biodiversity (IBC, 2005), land degradation (Deininger et al., 2008; Garedew, 2009), depletion of potable water and aquatic resources (Amare and Kameswara, 2011) are pervasive.

[1] United Nations World Population Prospect 2011 reports the total population of Ethiopia as 84.7 million (United Nations, 2011)

The sectoral distribution of GDP in 2010/11 was 41.1 percent agriculture, 46.6 percent services, and 13.4 percent from industry (MoFED, 2012). Agriculture is the mainstay of the Ethiopian economy. About 85 percent of the people earn their livelihood from agriculture and agriculture generates 90 percent of total foreign exchange earnings. (MoFED, 2006). It also plays a crucial role in providing raw materials to local industry. However, agriculture is predominantly rain fed and underdeveloped. Production is overwhelmingly of a subsistence nature, and a large part of commodity exports are provided by the small agricultural cash-crop sector. The traditional smallholder farmers contribute more than 90 percent of the agricultural production and possess 95 percent of the total cropped area.

Ethiopia exports few commodities to the international market. The top five exports in 2010/11 were coffee, oilseeds, chat, gold and flowers (see Figure 1.1).

Figure 1. 1: Top Five Exported Commodities in 2010/11



Data source: Ethiopian Customs and Revenue Authority (ERCA, 2012)

By all standards, Ethiopia is a poor country with a high poverty rate (World Bank, 2013). The population living below the absolute poverty line is 30.4 percent in rural areas and 25.7 percent in urban areas (MoFED, 2012). Ethiopia has experienced a critical food shortage for the last four decades. It is estimated that 12.4 million people in Ethiopia are food insecure while 6 million of them are chronically affected (FEWS NET, 2012). Even though this food shortage can largely be attributed to poor performance of the agriculture sector, other factors such as small land holding, population growth, recurring drought, low soil fertility, inadequate agricultural policies and social instability have contributed to the present and past food insecurity of this country (Devereux, 2001).

Today there is a pressing need for concepts and strategies that will promote sustainable use of resources, improve food security, create social stability, and accelerate economic growth and development. It is believed that without making necessary adjustments and abating abuse of natural resources, modernizing the farming system, enacting viable land use policy, stabilizing social and political issues, and mobilizing human resources, Ethiopia will continue to experience difficulties in breaking the vicious poverty cycle and prevailing food crises (FDRE, 2010: pp.21-22). To this effect, since early 2000 the Ethiopian government has set basic economic and social development strategies, adopted various environmental protection policies, and introduced a number of investment plans (MoFED, 2006).

One of the strategies has been to promote investment in commercial agriculture (MoFED, 2006: p.44; MOI, 2001). As a result, over the last two decades, large and small scale flower farming has dramatically increased in the Rift valley areas. This is because the agro ecological condition of the Ethiopian Rift Valley region (lowland area) is very suitable for the production of different kinds of horticultural crops. The Ethiopian government has also introduced several incentive packages in order to encourage the involvement of private investors (both foreign and domestic) in the production of fruits, vegetables and flowers in the Rift Valley region (EIA, 2008).

However, the impacts of such a rapid expansion of flower farming activities in this fragile lowland ecosystem area have not been studied in detail. This thesis is, therefore aimed at evaluating the socio-economic and environmental impacts of such interventions on the livelihoods of the people and environment in the Ethiopian Rift Valley regions.

1.2. Background to the Study

There is a growing global concern regarding the environmental, social, and economic impacts of agricultural modernization and development efforts, partly because the cost of restoring degraded environments and stabilizing ineffective socioeconomic systems can be enormous (OECD, 1996; Stern et al., 1996; Grabl et al., 2005; WCED, 1987). Finding a permissible level of change and insuring sustainability is a key to success for effort geared toward economic growth and development and vice versa. Because of these, policy and decision makers in the Global South are trapped between the urgent needs to alleviate poverty and hunger and the intricacy of agriculture development projects (Grabl et al., 2005; Eswaran and Kotwal, 2006; Mookherjee, 2006).

Agriculture has paramount importance in many developing nations. The agricultural sector employs a greater share of the labour force than any other sector, especially in developing countries of Sub-Saharan Africa (SSA). It is a major source of food and feed and a main source of livelihood (Eswaran and Kotwal, 2006; Maxwell, 2001). It also supplies the market directly through its output and indirectly by virtue of expenditure of people who, either directly or indirectly, are involved in agriculture (Maxwell, 2001). In addition, it is a source of raw materials for various industries, generates foreign earnings, and contributes to GDP. In its entirety the agricultural sector is considered as the foundation of non-agricultural growth in many parts of the world (Eswaran and Kotwal, 2006).

Agriculture in developing countries is predominantly traditional (low input, small and fragmented land holdings) and largely underdeveloped. The ever-growing population pressure, degradation of land, and food insecurity seen in many parts of the developing world call for a radical change and improvement in this sector. All the main development paradigms in the past - the green revolution in the 1960s (Borlaug et al., 1969), integrated rural development in the 1970s (Ruttan, 1984; Cleaver, 1997: pp. 4 - 9), and structural adjustment programmes in the 1980s (World Bank, 1979: p. 49), -- emphasized the importance of improving the agricultural sector of developing countries. Many theorists also believe that all other sectors, such as industry and trade, will develop if agricultural sectors develop (Adelman et al., 2000: p.161; Eswaran and Kotwal, 2006; Mellor and Dorosh, 2010).

Table 1.1 shows two main strategies that are currently employed worldwide for improving the agricultural sector (Maxwell, 2001). Some countries in Africa such as Botswana (MAGB, 2011) have pursued agricultural strategies that involve large scale development projects, regardless of the repercussions or impacts they may have on economic and social welfare (Baker, 2005). Others are opting for the second option or a combination of both strategies.

Table 1. 1: Choice in Agricultural Strategy

Option 1 - Large Scale	**Option – 2 Small Scale**
Large Farms	Small Farms
Extensive	Intensive
Capital Intensive	Labour Intensive
Food Crops	Cash Crop
Trade	Self Sufficiency
High Potential Area	Low Potential Areas
Production Growth	Production Stability
Free Market	State Control

Adapted from (Maxwell, 2001)

Ethiopia is following a strategy of Agricultural Development Led Industrialization Policy (ADLI) as discussed by Adelman et al. (2000), (see Chapter Two: Section 2.3.3. for further discussion). ADLI is aimed at achieving rapid and sustainable economic growth by implementing economic development activities in rural areas (Adelman et al. (2000). This strategy is chosen because Ethiopia is too poor to afford economic development activities that require heavy capital investment, but has vast areas of land and a huge work force that depends on farming for a living (MoFED, 2006).

The ADLI strategy promotes the use of less capital, but mostly labour-intensive technologies and inexpensive inputs, to boost agricultural productivity. It emphasizes focusing on small and medium farmers and a shift to higher-value crops that foster development of light industry rather than large scale export oriented industry (Adelman et al., 2000). Since the introduction of this strategy, Ethiopia has made some strides and remarkable achievements in developing its agricultural industry (MoFED, 2006). One of the achievements was the rapid growth of the flower sector over the last few years.

Although Ethiopia began exporting fruit and vegetables in the 1970s and cut flowers in the 1980s (Siska and Sindy, 2007), rapid development in the flower sector was observed after the

late 1990s, following the introduction of attractive incentive packages by the Ethiopian government. As land is state owned, investors have easy access to cultivable land. Banks have been instructed to lend 70 percent of the total investment capital at a lower interest rate. Given this driving force and the suitability of the agro-ecological condition for the production of various horticultural crops, a number of native and foreign investors have launched massive horticultural activities in the Ethiopian Rift Valley (Siska and Sindy, 2007; EHDA, 2011).

1.3. Significance of the Study

There is a growing controversy and concern in relation to the sustainability of the Ethiopian flower industry. Moreover, over the past few years, there has been large-scale acquisition of farm land by national and multinational commercial entrepreneurs, whose main goal is making a profit from production and export of crops, flowers, fruit, and vegetables (Cotula et al., 2009; Human Rights Watch, 2012b). Although lands allocated for agricultural investment are referred to as bare land, the majority of the lands currently used for flower production were once used by local small land holders and were, in many cases, obtained by displacing poor farmers from their lands. The flower industry also has a reputation for the heavy usage of toxic chemicals and water consumption. Therefore, the rapid expansion of flower farms in the fragile Rift Valley ecosystem and an intensive mono-cropping farming system, may pose serious environmental and socioeconomic problems in the long run.

Though some scholars have studied various aspects of the Ethiopian flower industry, there have been few if any overall studies of the impact of flower production on the Ethiopian economy. Melese and Helmsing (2010) examined the evolution of the Ethiopian cut flower industry using a value chain framework and assessed the impact of foreign dominance based on secondary and aggregate data in the flower industry. Belwal (2008) assessed the catalysts and barriers to the growth of the flower industry, Gebreeyesus and Sonobe (2011) analysed the role of various factors in the 'market formation' process and the extent of local capabilities to join the international flower market. Gebresenbet (2012) has reported the health impacts of chemicals used in flower production.

None of the studies have specifically addressed the working conditions of flower farms, the impacts of wage level on the livelihood of the employees, or changes in livelihood and social strata of the displaced farmers.

However, there are some affiliated reports. A report compiled by a team of consultants under assignment of the Dutch-Ethiopian Horticultural Partnership Programme promotes the benefits of investment in the horticultural sector in Ethiopia (Joosten et al., 2011). An account prepared under assignment of the National Federation of Farm, Plantation, Fishery and Agro-Industry Trade Unions of Ethiopia shows poor working conditions in the sector (Nigatu, 2010).

Given the dearth of information on the social, economic and environmental impacts of such development interventions, it is important to assess the multiple impacts of flower development activities in the Rift Valley region of Ethiopia. Although the main focus of the study is the Central Rift Valley region, conclusions and recommendations drawn from this study could potentially be applied to other parts of Ethiopia and other African countries currently advocating large scale investment in commercial agriculture: a phenomenon, in some cases, referred to as "land grabbing" (Cotula et al., 2009) or "water grabbing" (Woodhouse, 2012).

1.4. Aims and Objectives of the Study

The overall aim of this study is to examine and analyse the direct and indirect social, economic and environmental impacts of flower farm development in the Central Rift Valley regions of Ethiopia, and suggest possible impact mitigation strategies.

Specific objectives are:

1. to study the working conditions in flower farms and to assess the relationships between wage income and livelihoods of the flower farm workers.
2. to study the impact of flower farm expansion on the livelihoods of the local community.
3. to examine the incidence of environmental conflicts among flower growers and local farmers.

The study is, therefore in two parts, one of which engages with pay and working condition among wage workers in Zeway and the second section engages with dynamics of land expropriation/transfer and their implication for welfare in Debre Zeit area. The conceptual framework for the study draws on the livelihood framework (Ellis, 2000), decent work agenda (ILO, 1999) and other impact assessment frameworks. These are discussed in the next chapter.

1.5. Structure of the Thesis:

This thesis is divided into eleven chapters. The first chapter provides a brief introduction and background of the study, and highlights the significance and objectives of the study. Chapter Two reviews literature and presents the theoretical conceptual framework used for analysis. Chapter Three depicts the natural and social environment of the study area. Chapter Four discusses the research methods and specifies quantitative and qualitative data collection methods. It further describes analytical methods employed in this study. Each of the remaining chapters (five to ten) addresses one specific objective central to this study.

Chapter Five describes the working conditions in flower farms in the Ethiopian Rift Valley region, based on the data set collected during the first round employee labour practice survey data. Chapter Six assesses the contribution of wage income to the livelihoods of flower farm workers, based on the second round employee survey data collected on income and expenditure of the household. Chapter Seven examines the coping strategies of flower farm workers to low wage income. Chapter Eight deals with the impact of flower farm development on the livelihoods of land dispossessed people. Chapter Nine analyses the emerging conflicts over resources posed by the introduction of flower farms in Ethiopia in the last decades. The last chapter summarizes the main findings of this study and provides policy recommendations.

CHAPTER 2: Literature Review

2.1. Structure of the Literature Review

After a brief description of the development of the global cut flower industry, this chapter reviews literature pertaining to the study of the impacts of flower farms in the Central Rift valley region of Ethiopia. It also reviews a number of conceptual approaches relevant to such a holistic study and describes the framework used in this thesis. The literature review addresses key components of the analysis as outlined below.

I: ***Development of the cut flower industry:*** this section provides an overview of the development of the global flower industry and explains the opportunities and the challenges the sector is facing today.

II: ***Concept of Environment and sustainable development****:* to trace the impact of flower farms on the livelihoods of the local people, the study employed a retrospective Environmental and Social impact assessment approach. This approach is discussed under the concept of sustainable development and is employed to identify main impact indicators.

III: ***Rural Livelihoods in developing countries:*** In line with the second and third objectives of the study that address the impact of flower farm development on the livelihoods of flower farm workers and the local people, this section reviews rural livelihoods in developing countries in general and provides a framework to trace the impacts of the expansion of flower farms on the livelihoods of individual households.

IV: ***Labour Conditions, International and National Labour Standards:*** The objective of this section is to highlight the major international and national labour standards and provide a framework for analysis of labour conditions, with a view to identifying major decent work deficits in the flower production sector. This also relates to the first objective of this study.

V: ***Land, Land Use Policy and Internal Displacement in Ethiopia:*** This section thoroughly reviews and examines Ethiopian land policy and the impact of displacement.

VI: ***Environmental change and conflict:*** This section examines the nexus between environmental change and conflict with a view to assessing the emerging conflicts between flower growers and local people.

2.2. Development of the Cut Flower Industry

2.2.1. Introduction

The objective of this section is to provide an overview of the global flower industry and to show the growth of this sector over time. It also highlights the opportunities available to the actors involved in flower production and the challenges that the flower growers are facing today.

2.2.2. The Global Cut Flower Industry

For centuries flowers have given much happiness to people of all nations, because their beauty has the unique ability to bring cheer when someone is ill or downhearted, and people used them to represent love and desire (Shepard and Holland, 1854; Relf, 1992). Even though much of the ancient religious or traditional symbolism has been lost, people still use flowers in agreement with their age old symbolism and attach significant meaning to them.

Such sentimentality has led to an increased use of flowers and other ornamental plants all over the world. Today, flowers are widely used for decorative purposes at formal events (weddings and funerals); gifts on various occasions (Valentine's day, Mother's day, in times of illness and at holidays such as Christmas and Easter); to glorify success and victory; express sympathy, love, desire, or respect (USITC, 2003b). It is no wonder then that the flower industry has become one of the most lucrative businesses in the global market. The value of the annual consumption of commercially grown flowers is estimated to be between 40 to 60 billion USD (ITC, 2012c).

Cut flower[2] production has a long history. Flower production within greenhouses and the establishment of auction markets was reported in the 1600s in The Netherlands (Campos, 2002) and in the mid-1700s in the USA (USITC, 2003b). Since then, flower production for commercial purposes has grown worldwide. USITC 2003b

[2] Cut flowers refer to flowers starting to blossom or flower buds that are cut with branches, stems, and leaves to be used for bouquets or decorations. Cut flowers are grouped into two categories of "fresh cut flowers" and "non-fresh cut flowers" such as preserved flowers. Typical fresh cut flowers include roses, carnations, orchids, chrysanthemums, and lilies (USITC, 2003b)

Today, the major cut flower producing countries in the world are Colombia, USA, and The Netherlands (USITC, 2003b). Prior to the 1970s, the vast majority of the world's cut flower demand was met by local producers; however, since the 1970s international flower markets largely rely on import (ibid).

Today, countries in the North, Europe (CBI, 2009), USA and some Asian countries (ITC, 2012c), are the main cut flower consumers, accounting for 90 percent of demand. In the emerging new markets such as Eastern Europe, Russia, China, India, and East Asian countries, consumption is still on the rise because of additional disposable income (ibid).

On the other hand, many countries in the Global South - East Africa, South America, and the Middle East are the major producers and exporters of cut flowers and ornamental plants (ITC, 2012a; ITC, 2012c). Colombia, Ecuador, The Netherlands, Israel, and Kenya have dominated the international market for the last ten years as cut flower producers and suppliers. (Figueroa et al., 2012 ; Rikken, 2011; Parker, 2004). Although cut flowers from Colombia and Ecuador are exported to many countries around the world, they are mainly destined to North America.

Table 2.1: Top Flower Supplier Countries to the EU in 2010

Country	Amount of Stems Supplied	Value in Thousand Euro	Rank in Value
Kenya	2,647,893	275,927	1
Ethiopia	1,029,342	103,972	2
Ecuador	274,936	92,668	3
Colombia	83,441	27,564	4
Uganda	271,612	22,661	5
Zambia	190,442	16,829	6
Zimbabwe	305,961	11,212	7
Tanzania	60,559	6,424	8
India	21,853	2,303	9
Brazil	2,615	221	10

(Source: ITC, 2011)

The world's largest flower auction market is located in The Netherlands. The Netherlands alone accounts for 50 percent of the world cut flower trade (NL Agency, 2012). Despite a sharp decrease in domestic greenhouse cut flower production over the last few years (Rikken, 2011), The Netherlands still continues to dominate the global flower market. It has become a

major importer of flowers to the EU and a main supplier (exporter) of flowers to many countries around the world.

The increased demand for cut flowers in the world market, availability of land and cheap labour (skilled and unskilled) in many Latin American, African and Asian countries, expansion of reliable commercial air freight services, and improvements in handling and shipping of perishable product, has opened the door for new players to participate in the world flower market (USITC, 2003a). Among other countries, Kenya and Ethiopia are at the forefront from African nations (Table 2.1).

2.2.3. Opportunities and Challenges for the Global Cut Flower Industry

2.2.3.1. Opportunities

Because of the substantial employment opportunity that it provides and its significant contribution to GDP growth, the World Bank encourages the expansion of the flower industry in poor countries (World Bank, 1996; Dolan and Sorby, 2003). Several studies show that the sector creates employment opportunities mostly to low skilled labourers of which the majority are females. For example, in Colombia it provides over 100,000 direct jobs (of which 60 percent are female) and 94,000 indirect jobs (Aguila et al., 2009). In Kenya, the flower industry directly employs 90,000 workers of which 75 percent are female (KFC, 2012). Such huge employment opportunities are considered as a path way out of poverty in developing countries that are experiencing economic crisis (Dolan and Sorby, 2003).

The Kenyan and Ethiopian flower industry are typical examples of the contribution of the sector to growing agricultural exports. The contribution of the sector to the Kenyan economy is valued as 1 billion USD every year (KFC, 2012). As shown in Figure 1.2, in 2011, Ethiopia generated over 178 million USD from flower exports. Although the contribution of the sector to GDP growth is undeniable, many scholars are sceptical about the long term impacts of this sector on the environment and welfare of the rural families, in areas where flower farms are developed.

2.2.3.2. Challenges

Despite flower farm investors and individual flower grower countries adopting specific strategies to develop a competitive position on the international market, there are a number of challenges that hamper cut flower production and the further expansion of the flower industry. Major challenges are costs of transport, availability and reliability of markets, and environmental concerns and opposition from the general public.

The main cost of flower production is believed to be transportation, as flowers are usually transported by air cargo (Gebreeyesus and Sonobe, 2011). Today's fuel price fluctuation on the international market and the distance that these items are transported are affecting the costs of the transportation of flowers, chemicals, fertilizers, and packing materials (Hummels, 2007). This may undermine the competitive position of flower growers in the international market.

An increase in flower production seen in the past decades was chiefly due to new countries coming to the flower business (ITC, 2007) and the increased use of modern technology (Figueroa et al., 2012). Unfortunately, increases in production were not accompanied by increased demand. An imbalance between supply and demand is pushing down the price of flowers and producers are facing a loss of earnings (Hansen, 2013). This is identified as an imminent threat to the survival of the cut flower industry in some countries.

There are a number of public concerns with regard to flower production, mainly associated with the type and amount of chemicals used by the flower industry that have a significant environmental impact. Sometimes, employees are compelled to work without any protective clothing and are exposed to different kinds of health problems (Fleming et al., 1999; Abell et al., 2000; Bolognesi, 2003). Lack of respect for workers' rights (Aguila et al., 2009) and labour exploitation (Campos, 2002) are frequently reported.

Evidence of pollution and the deterioration in the quality and quantity of water bodies (due to lack of proper handling of farm waste) are pervasive. The situation in Lake Naivasha in Kenya (Harper et al., 2011), Lake Zeway in Ethiopia (Yifru, 2010), and the floricultural regions in Ecuador (Breilh, 2012) are often cited as places where there is evidence of the deterioration in water quality and quantity.

Because of such poor production practices, consumers in developed nations have started to demand socially and environmentally fair products (Riisgaard, 2009). Complying with high standards required by consumers in some countries is another big challenge to flower growers (Hansen, 2013).

Some of the challenges addressed in this section: working conditions, environmental pollution, are the direct concerns of this study. Therefore, the socio-economic and environmental issues associated with flower production will be discussed in detail in the next sections.

2.2.4. The Ethiopian Cut Flower Industry

In addition to the suitability of agro ecological conditions of Ethiopia and few other driving forces mentioned in the previous paragraph that encourage investment in the Global South, the Ethiopian government investment policy is a key promoter to the development of the flower sector. The exponential growth- noted over the last decades, in flower production and export is however, attributed to three main reasons (1) the incentive packages launched by the government, (2) role played by the Ethiopian Horticulture Producer and Exporter Association, and (3) measures taken by Ethiopian flower growers to remain competitive in the international market.

2.2.4.1. The Incentive Packages

The Ethiopian government had introduced a number of incentive packages for flower grower. These include easy access to land and loans, and tax holiday (MOI, 2001; EIA, 2008). About 80 percent of the surveyed farms reported confidence in the intention and commitment of the Ethiopian government to promote the flower industry in the country, and arrangements and provisions made to attract and support investors. Most are appreciative of the government efforts such as allowing long term land lease at very low rates[3] ($ 10 per hectare/year), tax

[3] Price of land rent in Oromia Regional State where this study was conducted range from 70.4 to 135 Birr per hectare per year. *EIA. (2008) Investing in the Agricultural Sector of Ethiopia: A guide for New Investors:* .

free import of equipment and planting materials for the first five years), and granting loan up to 70 percent of their total investment capital at lower interest rates

Although 56 percent of the flower farms did not need loans to start their flower businesses, the other 44 percent of flower farms were grateful for the financial assistance received in the forms of loan from various local banks (Construction and Development Bank of Ethiopia, Zemen Bank and Abyssinia Bank). Most flower growers are also contented with the government's direct involvement in searching for new flower markets, provision of security for trucks from farms to the airport, arrangements made to pay freight fee after selling flowers, and permitting flower industry to conduct research at state owned research institutes. They are also appreciative of the establishment of the Ethiopian Horticultural Development Agency (EHDA) by the Ethiopian government with a mandate to provide all necessary support to the flower sector.

About 77 percent of the surveyed farms authorities appreciated training and technical support they received from EHPEA. Through, and 56 percent were grateful to EHDA for involving in the search for new flower market opportunities, facilitating duty free imports, representing flower growers in dealing with banks, handling legal matters and attending to problems that are of great concern to flower growers.

Almost all flower growers acknowledged the suitability of agro-ecological conditions of Ethiopia for production of high quality flowers and the abundance of cheap labour force. About 56 percent of flower growers attested that the labour and land costs are relatively cheaper in Ethiopia when compared to many other commercial flower producing African countries, including the neighbouring Kenya.

Ethiopia Investment Agency, Ministry of Trade and Industry. Addis Ababa. .p.33: With an average exchange rate in 2008 of ($ 1 to 9.64 Birr), this is equivalent to $ 7 to 14.

2.2.4.2. Contribution of Ethiopian Horticulture Producer and Exporter Association

The Ethiopian Horticulture Producer and Exporter Association (EHPEA) has also played an important role in the expansion of the flower industry in Ethiopia. As an association of flower growers, its tasks are to lobby the government and tackle growers' problems (EHPEA, 2013). After EHPEA establishment in 2002, additional incentives were made available to horticultural crop growers and exporters. The establishment of the Ethiopian Horticulture Development Agency (EHDA) in 2008 by the Ethiopian government was one of the major achievements of this lobby group (EHDA, 2011). The EHDA is a state agent which was established to ensure fast and sustainable growth of the horticulture sector, by facilitating flower export and providing all necessary supports to the horticultural sector.

The EHPEA is expanding its horizon and getting stronger with time. Today, the association has 85 member farms, and represents its members at national and international levels, and addresses all matters pertinent to member farms. The association is also involved in capacity building of member farms and provides training and advisory service to all its members (EHPEA, 2013). Recently, the association has introduced a code of practice to achieve sustainable environmental and social responsibility, and insure competitiveness of the Ethiopian flower industry on international markets (EHPEA, 2011).

2.2.4.3. Measures Taken by Ethiopian Flower Growers

With the rapid expansion of the flower industry all over the world, access to markets, delivery of quality products at lower production costs and complying with rising consumer demands, are the major challenges that today's flower growers are facing. In these regards, the Ethiopian flower growers had taken some measures to remain competitive in the international market and to stay in the flower's production business.

The overwhelming majority of Ethiopian flower growers agree with the need to improve quality of flowers to remain competitive on the international market (Table 2.2). However, strategies adopted to supply quality products vary from farm to farm. Training local staff, minimizing post harvest damage, shift from high to low usage of chemicals, and introducing alternative pest management practices were highlighted.

Table 2. 2: Measures Taken To Remain Competitive in the International Market

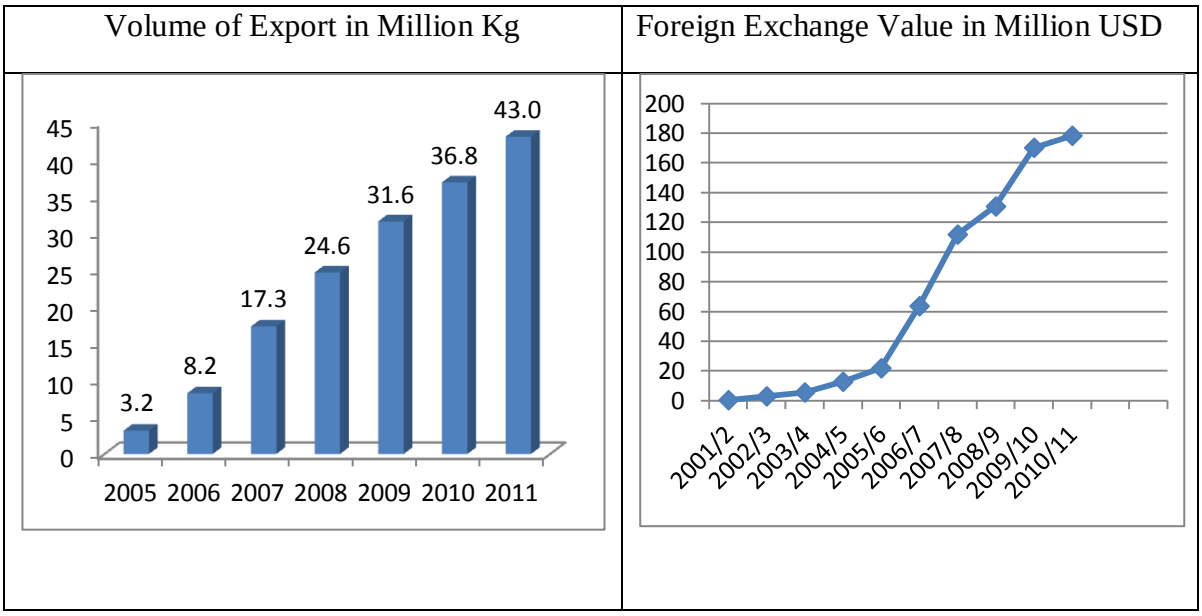
Response Type	Percentage	Measures Taken by Flower Growers
Improving Quality	83	Low level of chemical usage and use of other pest control mechanisms, training local staff, use of good packing materials, standard cutting, less post harvest damage, follow-up based on customer feedback, rely on technical support from consultants,
Market and Product Diversity	33	Market diversity other than EU, diversity of product (always supply new product), engage with foreign companies (as joint ventures)
Transparency	10	Transparency between producer, exporter and external markets, comply with environmental policy and labour laws, certifying for fair flower trade and global gap
Stability	10	Stay within the market, be consistent (not off and on), foster strong relationships with local people, make adjustments according to forecast analyses and market research trends

(Source: Own Survey)

About 33 percent of Ethiopian flower growers indicated availability of markets as one of the major problems of their business and emphasized the need to search additional markets instead of totally relying on auction markets in the EU countries. They also emphasized the need for diversification and supply of best quality flowers to remain competitive in the international market.

In this era of a global recession and economic downturn, increase in global flower production with little or no domestic market, and lack of regulation of international flower markets, reliance on one or few products, was reported as risky business. To this effect 13 percent of the flower growers have also started growing vegetables to offset losses from fluctuation of the flower market (Table 2.2).

Figure 2. 1: Ethiopian Flower Trade



Author Drawing: Data Source (ITC, 2012b; ERCA, 2012)

As a result of all the effort put together by the Ethiopian government, EHPEA, EHDA and Ethiopian flower growers, the foreign exchange earning of Ethiopia from the flower trade jumped from less than a million USD in 2002 to 178 million USD in 2011, while the volume of cut flowers exported increased from 3.2 to 43 million kilograms in just seven years (Figure 2.1). The progress made so far in promoting the flower industry is promising, however it contribution as a strategy to reduce poverty in Ethiopia needs to be explored.

2.3. Concepts of Environment and Sustainable Development

2.3.1. Sustainable Development

Since the early 1970s, growing concerns about environmental deterioration have led to the promulgation of international conferences, treaties, conventions and protocols pertinent to the management of the earth's resources, to ensure sustainable economic development (OECD, 1996; WCED, 1987; United Nations, 2012; United Nations, 1992). The concept of sustainable development is the result of the growing awareness of the global link between ever growing environmental problems and socio-economic issues, such as poverty, inequality, and concerns about the future of humanity.

Sustainable development is defined as development that seeks to satisfy the needs of the present without compromising the ability of future generations to meet their needs (WCED, 1987: p.11). According to a UNEP report, the more than doubled economic growth since 1980 was accompanied by a decline in natural capital and degradation of ecosystem's ability to support life (UNEP, 2011: p.14). Unfortunately, today nearly one billion people worldwide are at risk of hunger and malnutrition (FAO et al., 2012: p. 8).

Table 2.3: Component of Environments

Component		Components that can be Altered
Physical Environment	Air and Atmosphere	Air quality, atmospheric chemistry and composition
	Water Resources	Water quality and quantity
	Soil and Geology	Mineralogy, biochemistry, and physics
	Flora and Fauna	Biodiversity, density, function
	Human Beings	Physical and mental health, and well being
	Landscape	Characteristic of landscape and geophysical components
	Cultural Heritage	Conservation areas, historic, archeological sites, museums,
	Climate	Temperature, rainfall, wind, humidity,
Socio-economic Environment	Economic base-direct	Direct employment, labor market characteristics
	Economic base-indirect	Non basic service employment, labor supply and demand
	Demographic	Population structure and trends
	Housing	Supply and Demand
	Local Service	Supply and demand of services, health, education
Socio-Cultural Environment		lifestyle, quality of life, social problems
		Community stress and conflict

Adapted from (Glasson et al., 2005)

2.3.2. Overview of the Environment.

The term environment has a broad definition. Primarily it focuses on the biophysical environment, but it has also economic and socio-cultural dimensions (Table 2.3). These components of the environment are intricately interconnected and vary in space and time (Glasson et al., 2005: p.18). As we change the nature and intensity of our activities, we affect the functioning of our environment which, in turn, has adverse consequences on us and our surroundings (ibid).

There is clear evidence of acceleration of land degradation, desertification, and overgrazing, (Millennium Ecosystem Assessment, 2005a: p. 6); overexploitation of fisheries, extinction of species, loss of forest biodiversity and other aquatic resources (Millennium Ecosystem Assessment, 2005b: pp.2-24) as well as evidence of pollution of air, water and diminishing capacities of large water bodies to absorb waste and a scarcity of fresh water (UNEP, 2007: pp. 52, 118). Humanity is witnessing change in global climate, a rise in sea levels, recurring droughts, heat waves, and changes in the composition of the atmosphere (WMO, 2013).

Worldwide, it is estimated that about five million hectares of forest have been lost in the past ten years alone (FAO, 2012b: p.5), and yet the rate of deforestation and loss of biodiversity is still on the rise. Many cities are polluted and overcrowded. As a result, over two million people die every year due to breathing in polluted particles from the air (WHO, 2011). Because of financial crises, millions of people worldwide have lost their jobs (ILO, 2012c: p.30), while food and fuel prices are rising and reached a historical pick in 2011 (World Bank, 2011). Furthermore, the world population is growing very fast and expected to reach 9.3 billion by 2050, and the majority of growth will be in developing countries (United Nations, 2011: p.1).

This evidence shows that there is an urgent need for concepts and strategies to abate these phenomena and ensure sustainable use of renewable and non-renewable resources as well as nurture a culture that would foster growth and development that will not jeopardize future generations. Sustainable development, in the context of this study, implies improving the quality of life of the communities where flower farms are established, and reducing the burdens posed on the environment, due to discharge of harmful waste which may affect the present as well as the future generation. The following section reviews plans and strategies implemented by the Ethiopian government to achieve sustainable development.

2.3.3. Ethiopia Plan to Achieve Sustainable Development.

Since the 1980s, numerous environmental protection protocols were signed by the United Nations member states, and standards and policies have been enacted to protect our environment and ensure sustainable use of natural resources. Ethiopia is signatory to many of these international agreements. These include, the 1994 Convention on Biological Diversity, Convention on International Trade in Endangered Species of Wild Fauna and Flora since 1989, United Nations Convention to Combat Desertification since1997, United Nations Framework Convention on Climate Change since 1994, Basel Convention on the Control of Trans-boundary Movement of Hazardous Waste and Their Disposal since 2000, and Cartagena Protocol on Bio-safety since 2000 (EPA, 2012: pp. 22, 23).

In response to the ratified international protocols and treaties, Ethiopia has introduced a sequence of policies and strategies to achieve sustainable development. Amongst others are the Sustainable Development and Poverty Reduction Programs (SDPRP) and Agricultural Development Led Industrialization Policy (ADLI) (FDRE, 2002). The distinctive features of ADLI polices are: (i) commercialization of smallholder agriculture through product diversification; (ii) a shift to higher-valued crops; (iii) promotion of niche high value export crops; (iv) support for the development of large scale commercial agriculture; (v) effective integration of farmers with domestic and external markets and (vi) tailoring interventions to address the specific needs of Ethiopia's varied agro-ecological zones (FDRE, 2002: pp.38).

In 2005, a Plan for Accelerated and Sustainable Development to End Poverty (PASDEP) to execute important strategies pursued under SDPRP and ADLI was introduced for the period 2005 to 2010 (MoFED, 2006). The main objective of PASDEP was eradicating poverty. To achieve its objective, PASDEP outlined programs and policies in each of the major sectors, such as agriculture, health, transport, communication and so on. The eight pillars of this strategy were 1) building all-inclusive implementation capacity; 2) a massive push to accelerate growth 3) creating the balance between economic development and population growth; 4) unleashing the potential of Ethiopia's women; 5) strengthening the infrastructure of the country; 6) strengthening human resource development; 7) managing risks and vulnerability, and 8) creating massive employment opportunity (MoFED, 2006: p. 46).

Based on the achievements of PASDEP and lessons learned from its implementation, Ethiopia drafted a 5 year Growth and Transformation Plan (GTP) in 2010, for the period up to 2015 (FDRE, 2010). The principal agenda of this plan is to maintain the rapid growth achieved in the last decades and lay the groundwork for the achievement of Millennium Development Goals (MDG) by 2015 (FDRE, 2010). In the meantime, a Climate Resilient Green Economy (CRGE) strategy was developed in 2011 (EPA, 2011). It mainly focuses on (i) adoption of agricultural and land use efficiency measures, (ii) increased Green House Gases sequestration in forestry, by protecting and re-establishing forests for their economic and ecosystem service, including carbon stock, (iii) deployment of renewable and clean power generation, and (iv) use of appropriate technologies in industry, transport and building.

As observed from the successive plans over the last two decades, the concept and operationalising of sustainable development have significantly improved. All policies and strategies initially emphasized social and economic development to alleviate poverty, but sustainable development in Ethiopia can only be attained if development is followed in social, economic and environmental areas using a balanced approach. Since the introduction of these policies and strategies, Ethiopia experienced rapid improvement in the agricultural sector, delivery of public services, growth in the private sector, progress in telecommunications and transportation, infrastructure, education and health and registered a historic average of 8 percent economic growth (MoFED, 2012).

However, none of these strategies address the age old tenure insecurity problem that the Ethiopian farmers are living with (for more specific discussion about tenure insecurity see Chapter Two: Section 2.6). Without reforming the land tenure policy, it appears that there is a contradiction between the sustainable development strategies that Ethiopia would like to pursue, and the practice of promoting large scale commercial farming by displacing farmers from their ancestral land, that already invoked criticism and condemnations from the international community (see Chapter Two; Section 2.6.2.2).

At a global scale, as a result of these treaties and protocols mentioned earlier, traders and producers have been pressured by donors, governments, international institutions, and nongovernmental organizations to improve the sustainability of their outputs. On the other hand, consumers, especially in the western hemisphere, are demanding environmentally friendly products (Raynolds, 2007; Valkila and Nygren, 2010). Although fair trade is a

contested approach (Raynolds, 2012), it has emerged as a popular initiative in the global food, flower, coffee, and tea markets. It promotes socially responsible production and consumption behaviour (Aaronson and Zimmerman, 2006). Shanahan and Carlsson-Kanyama (2005), emphasizes the positive contribution of consumption habits in the North on sustainable development. Such types of national and global concerted efforts have the potential to mitigate the negative impacts of development projects and production sectors on environment and society. The next section will review some of these approaches developed to promote more sustainable development practice.

2.3.4. Approaches to Promoting Sustainable Development

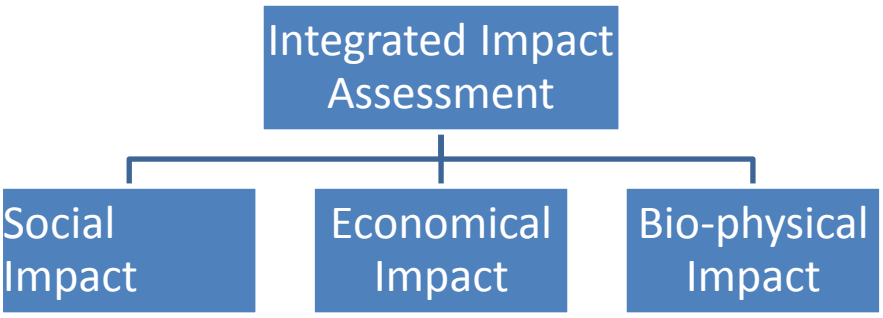
To an increasing extent, sustainable development is acknowledged as a crucial objective for public policy and decision making (Glasson et al., 2005: p.9). It includes the environmental, economic and social dimensions of the development process, while also alleviating poverty and enhancing trade opportunities. As a result of growing awareness, communities and governments in many parts of the world conduct integrated impact assessments before or after implementation of proposed projects, policies and plans, in order to mitigate the degradation of the environment and reduce spending of public money on the rectification of negative environmental and socio-economic impacts imposed by the private sector (UNEP, 2009: pp. 26-28; Morgan, 2012).

Integrated impact assessment is defined as a holistic instrument for evaluating all three components of sustainable development (Abaza et al., 2004: p.3). It can be undertaken as Ex-ante assessment that can provide policy makers with vital forward looking information that will allow them to clarify and devise integrated sets of policies, or as an ex-post assessment, to provide a retrospective examination of the environmental, social and economic impacts of a given intervention (Baines et al., 2003: pp. 26-40). The relative advantage of ex-post assessment is that they can often draw on a large data set and tangible evidence (ibid).

Under the umbrella of Environmental Impact Assessment (EIA) a number of specific impact assessment approaches were developed in the past few decades (Morgan, 2012). In the past most impact assessment focused on the biophysical environment and ignored the social

environment. However, today many scholars have the tendency to choose a much wider definition of environment (Baines et al., 2003; Glasson et al., 2005).

Figure 2. 2: Integrated Impact Assessment



(Abaza et al., 2004)

Unbiased development planning should take into account the environmental and socio-economic impact of economic development. As illustrated in Figure 2.2 an integrated impact assessment must include the social, economic, and biophysical aspects of life (Abaza et al., 2004). Since these components act and intricately interact, omitting any part of them from impact evaluation may lead to misleading conclusions (Barrow, 1997). Therefore, a combination of Environmental Impact Assessment (EIA), Social Impact Assessment (SIA) and Biodiversity Impact Assessment (BIA) are an accepted way of quantifying and mitigating the potential impacts of development activities. Now, they are part and parcel of the planning and decision making processes throughout the world (Slootweg et al., 2003: pp.56-73).

2.3.4. 1. Environmental Impact Assessment

Environmental Impact Assessment is the process of identifying the future consequences of a current proposed action or development project on the environment; it is used to ensure that projects, programmes, and policies are economically viable, socially equitable, and environmentally sound and sustainable (Glasson et al., 2005: pp.3-7). It was started in the USA in the late 1960s and ever since spread to most other countries in various forms (Glasson et al., 2005: p.28).

The purpose of EIA is: i) to predict and manage the likely adverse impacts of development projects, thus it is used as an aid to decision making; ii) to design environmentally sensitive

development projects which in turn improve relations between the developer, the authorities and the local community, thus it can be a signal of potential conflict; iii) to deal with stewardship of nature (development that does not cost the earth), harmful development activities have to be managed as best as possible and in extreme cases be stopped. Thus, EIA is used as a tool of sustainable development (Glasson et al., 2005: pp. 8 - 12).

2.3.4.2. Social Impact Assessment

Social Impact Assessment is the process of analysing (predicting, evaluating, and reflecting) and managing the intended and unintended consequences of planned interventions (policies, programmes, or projects) and any social change processes invoked by it, on the human environment so as to bring about a more sustainable and equitable biophysical and human environment (Vanclay, 2003: pp. 1-9). It considers the social relationships that govern interaction at different organizational levels, including households, communities, and social groups (Vanclay, 2003).

The following two points should be taken into account when conducting SIA. First of all, it is difficult to detail all aspects of social impacts in one study because they are situation specific and dependent on the socio-economic, political, cultural and historical context of the community in question (Van Schooten et al., 2003: pp.74-90). Second, to evaluate the consequences of policy reforms and development interventions, scholars use a combination of methods and techniques; even units of analysis in most cases vary. Therefore, there is no specific method to be employed in SIA, it rather depends on the context of the study (Fenton et al., 2003: p. 211).

Although SIA helps to assess ways in which people live, work, play, relate to one another, and organize to meet their needs and cope with burdens as members of a society (Vanclay, 2003: pp. 2-3), the prime concern in developing countries is to identify a burden experienced by vulnerable groups and to ensure that such development interventions are equitable and sustainable (ibid). Many SIA scholars believe that assessing the vulnerability situation at household or community level is a good indicator of the likely ‘winners’ and ‘losers’ of development interventions (Vanclay, 2003: p.7; Van Schooten et al., 2003: p.75; Toro et al., 2012).

Therefore, impact assessment is seen by many as a promising tool in the quest for sustainable development, thus, it is used around the world to manage environmental and social effects of proposed development projects and activities (Hayo et al., 2002; Vanclay, 2003; Glasson et al., 2005). For impact assessment to become an integral part of planning, it must be applied before development decisions are made and implemented.

However, large bodies of literature are based on retrospective impact assessments. For example, Shahidur et al. (2009) evaluates the impact of rural roads on poverty. Bryan (2009) assessed the social impact of the Three Gorges Dam in China and the Lesoto Highland water project in South Africa. Irit and Weyni (2012) examined the social impact of the Koga irrigation scheme in Ethiopia. All these are still of value because they help to clarify problems and add to hindsight knowledge of how the projects affected the socio economic environment, even though they do not assist in identifying causes of sustainable development or ensure optimum planning decisions (Baker, 2005).

Development projects, through mobilization of capital, labour, goods and services to the rural areas, create a range of opportunities and could have direct or indirect, long or short term and negative or positive impacts on rural communities (Baker, 2005; Haggblade et al., 2007: pp.402-406). However, impacts cannot be simply measured by the outcomes of a project. There may be other factors or events that are related to the outcomes but not caused by the project. Therefore, to ensure methodological rigour, an impact evaluation must estimate the counterfactual, or what otherwise would have been true. This could be accomplished through the use of a comparison group (Baker, 2005: p.15) or collection of baseline data (Vanclay, 2003: p.8).

This study examines the impact of flower farms that are already in operation, on the vulnerability of local people and on the biophysical environment, by employing a retrospective social impact assessment and environmental risk assessment, respectively. To overcome the problem of methodological rigour, the poverty status of displaced households was examined in comparison with non-displaced households: the latter were randomly selected from the same population, to assess the impact of displacement on the household and their vulnerability to poverty. The main socio-economic and environmental impact indicators that are relevant to the study are discussed in the following sections.

2.3.5. Socio-economic Impact Indicators

To evaluate the impact of any development intervention impact indicators have to be identified in advance (Van Schooten et al., 2003: pp. 84-88). A number of impact evaluations have been carried out for different types of development interventions worldwide. Therefore, review of such documents enables identification of impact indicators.

a) Loss of Livelihoods

The livelihoods of most rural poor are dependent on environmental resources such as farm land, forests and fisheries, of which land is a critical resource for over 500 million people in Sub-Saharan Africa (World Resource Institute, 2005: p.34) and employs 68 percent of the working population in this region (Rigg, 2006). Although there are other factors contributing to loss of livelihoods such as climate change, in this case the loss of farm land due to land grabbing is what severely impacted the livelihoods, and considered as socio-economic impact indicator in this study.

Land grab is a contentious issue of large-scale land acquisitions: the buying or leasing of large pieces of land in the Global South, by domestic and transnational companies, governments, and individuals. While used broadly throughout history, land grabbing as used today primarily refers to large-scale land acquisition following the 2007-2008 world food price crisis. Cotula (2011), reported an increase in large scale acquisition of farmland in Africa by foreign investors over the past few years. Such large-scale acquisition of farmland in Africa by foreign private sector had increased over the past few years. The growing food security concern and global food price of 2007/2008, a shift to bio-fuels because of rise in fuel price and projected decline in world oil reserve, high return from agricultural investment, and investment policy reform in the Global South are the main agents and driving forces of land grabbing (Cotula et al., 2009).

As a result, local people are losing access to the resources on which they make a living, because of leasing of lands to national or foreign investment companies for crops, bio-fuels, livestock, and horticultural production (Cotula et al., 2009: pp.52-58). Seven African countries, namely Ethiopia, Ghana, Liberia, Madagascar, Mali, Mozambique and Sudan, are the worst affected by agricultural land grabbing (Table 2.4).

Foreign investors` growing demand for land in African countries may have a negative impact on the food security of the continent, because foreign investors respond primarily to the international market (but not to local demand for food crops), and often grow high value crops for export. Therefore, the majority of the population in a region that depends on land for livelihood will no longer produce food crops for their own consumption due to lack of land induced by land grabbing.

Table 2.4: Recent Land Deals in Seven African Countries

Country	Hectares
Ethiopia	1,190,000
Ghana	1,075,000
Liberia	1,602,000
Madagascar	1,720,000
Mali	242,577
Mozambique	2, 670,000
Sudan	3,965,000

Adapted from Cotula (2011)

The intensive farming system practiced by investors often interferes with the ecosystem's ability to support life as it is ecologically detrimental and environmentally harmful over the long-term (Robertson and Pinstrup-Andersen, 2010). Such large scale mechanized mono-cropping farming systems could pose a threat to local people by reducing the quantity of available water, by degrading water quality and damaging local waterways (Woodhouse, 2012). All of this, in turn, can undermine a nation's food self-sufficiency.

In Ghana, the current wave of agricultural investment is taking place in a context where legal and institutional frameworks at national and local levels that handle land transactions are very weak, where there is no secure tenure system and where there are large areas of unutilised land (FAO, 2012: p.196). In Tanzania the participation of local communities in land deals was primarily limited to superficial discussions involving a lot of oral promises but few binding commitments (ibid, p. 83).

In Senegal too, there are no large tracts of unused land and the agribusiness sector is characterized by poor governance; food production is hampered by environmental degradation and population growth (ibid, p.266). Despite mounting pressure on arable land

and water resources that threaten peace between pastoralists and farmers, the Malian government leased 540,000 hectares of land for 22 investors, which could have sustained over 112,000 farm families (Oakland Institute, 2011a: pp.23,39).

After assessing a number of cases from many developing countries, FAO (2012: p.336) recently compiled a report *Trend and Impact of Foreign Investment in Developing Country Agriculture* and advised that acquisition of already utilised land to establish new large farms should be avoided, especially in protracted countries.

b) Employment Opportunities

Studies have pointed to the positive impact of non-agricultural employment on rural households in many developing countries, including Sub-Saharan Africa (SSA) (Davis et al., 2010; Davis et al., 2009). Increasing wage labour in the local economy is not only what many poor dwellers want, but also what many scholars believe is an effective mechanism of reducing poverty (Reardon et al., 2001; World Bank, 2008b: pp.72-75). Because of its labour intensive nature, the horticultural sector is believed to make a significant contribution to employment opportunities and, thereby, reduce poverty in rural areas (Weinberger and Lumpkin, 2007).

c) Infrastructure Development

Over the last few decades, infrastructure development has taken place in many poor rural areas of developing countries, brought about by reforms, higher investment and transformation from subsistence farming systems to a large scale commercial mode of production (World Bank, 2005b: pp.21-25). Although public investment or Non Governmental Organizations (NGO) take the lead in infrastructure development such as schools, clinics, electricity, clean water and roads (Fan and Rao, 2003), involvement of the private sector (large, local and multinational companies) in the development process also facilitates improved basic services to the poor (Pessoa, 2008).

Some of the areas that the private sector participate in are building the capacity of local farmers through training, so that they can participate in the business supply chain (Chatterjee, 2009), and provision of social services such as schools, clinics, and clean water (Newenham-

Kahindi, 2011). Although the service extends to the local community, any such investment by the private sector is usually in the context of a commercial development, that is, provision of social facilities for workers.

d) Increased Government Revenue

Increased involvement of foreign and domestic investors especially in the high value horticultural sector, is argued by policy makers to not only create opportunities by providing jobs and expansion of basic services in rural areas but to also increase government revenue, GDP growth and foreign earnings (World Bank, 1996; MoFED, 2006). However, some scholars argue that the links between foreign investment and economic and human development are weak (Reiter and Steensma, 2010). Alfaro et al. (2010) also report that the benefits to developing countries are very marginal due to weak financial markets.

2.3.6. Bio-physical and Socio-Cultural Impact Indicators

Flower production involves the heavy consumption of water, chemicals, and energy resources. Excessive and uncontrolled use of such inputs disrupts the biophysical environment. The major biophysical impacts associated with horticultural production, and examined in this study, are pollution and associated scarcity of resources which, in turn, inevitably lead to conflict over resources.

a) Water Depletion

Globally, water is not only a scarce resource, but the global rural poor also often live on marginal lands with little or no access to controlled water sources (World Bank, 2008a: p.108). Thus, improved management of available water is central to poverty reduction and food security (ibid). By virtue of its nature, horticultural production uses large quantities of water and, therefore, over a longer time, may cause ground water depletion and/or diminishing of the flow volume of surface water. For example, deterioration of wetlands due to floriculture has been reported in Kenya (Becht, 2002; Becht and Nyaoro, 2006: p.384).

b) Pollution

The horticulture industry uses considerable amounts of pesticides and chemical fertilizers most of which are pollutants and toxic. They break down very slowly, pass on to the food chain and travel long distances through air and water and directly affect the wellbeing of an individual or a community (Gorman and Tynan, 2003). Those involved in agricultural work and the poor are often in disadvantaged positions (Goldman and Tran, 2002). The most common ways of spreading these chemicals to the local community are infiltration, run off, erosion, volatilization and dispersal by wind (FAO, 2000). Influx of these chemicals causes' atmospheric, soil and water pollution, and, alters biodiversity and population size of a given niche (ibid). Furthermore, water flow diversion, pollution, salinization, and flood related problems are identified as the major causes of water-related conflicts (UNEP, 1999: pp.12-15).

c) Conflict

Conflicts over resources often emerge because people have different uses for resources or want to manage them in different ways (Mason et al., 2009: p.325). The upstream countries of the former Soviet Union that use water for electric generation and the downstream countries that depend on the same water for agriculture are good examples (Kuehnast et al., 2008: pp.19-22). Disagreement also arises when interests and needs are incompatible; when inequalities in resource distribution prevail and when the priorities of some groups are not considered in policies, programmes and projects (Matiru, 2000; Swain, 2013: p.20).

When loss of farm land is accompanied by water pollution and depletion, it could increase tensions between resource users and may instigate conflict. Therefore, in this study conflict is considered as an indicator of the negative impact of flower production on society. A detailed review of the causes and socioeconomic impacts of conflict is presented later in this chapter.

d) Vulnerability

Vulnerability is defined as the degree of exposure and sensitivity to hazards, shocks, stress, and food insecurity (Chambers, 1989: p.33). Households are vulnerable if risky phenomena are likely to push them below a predefined welfare threshold (Swift, 2001: p.67). The risky phenomena which could be related to crop production and distribution, food prices, employment, health, demographics and policy failures (Heitzmann et al., 2002a: p.8) is generally correlated with loss of assets which, in turn, affects the welfare of a household (Devereux, 2001). The concepts of resilience and sensitivity are often used to understand the extent of vulnerability.

Resilience refers to the ability of a livelihood system to bounce back from stress or shock, while sensitivity refers to the magnitude of a system response to external events (Ellis, 2000: p.62). For instance, switching food sources in times of crises if there are alternatives, shows resilience, while widespread undernourishment, due to a small rise in food price, shows sensitivity (ibid). Those who are unable to cope with change are inevitably vulnerable, and the most vulnerable households, in most communities, are the poor (Holzmann and Jørgensen, 2000: p.9). Whenever there is change that negatively affects their livelihoods, the poor either experience further decline in welfare, or draw on a range of off-farm and non-farm income sources to cope with the problem (Reardon et al., 2007: pp.115-140).

This study examines the socio-economic and environmental impacts of flower farm development in the Rift Valley region of Ethiopia. It does so by assessing changes brought about by all the indicators outlined above. Impacts of each indicator on the livelihoods of the flower farm working community, the local people, or on the environment could be beneficial or harmful, direct or indirect. The next sections provide a framework to address the multidimensional impacts of flower production.

2.4. Rural Livelihoods in Developing Countries

2.4.1. Introduction

The livelihoods of most rural households in developing countries depend on a multiple of activities so as to manage risky events and achieve sustainable incomes over a period of time (Ellis, 2000: pp.15-17; Reardon et al., 2007: p.115). One of the major arguments for introducing flower farms into Ethiopia was the perceived benefits that they create in rural areas. These include but are not limited to employment opportunities, poverty reduction, and economic growth that is presumed to improve the quality of life of the rural community (FDRE, 2002: p.107).

The question to answer is, does the flower industry development help the rural poor or, by hindering their action, press them further into poverty? To capture the impacts associated with flower farm development on the livelihoods of individual households and to assess flower farms on the basis of their impact on poverty, the study partly adopts the framework for rural livelihood analysis developed by Ellis (Ellis, 2000). This framework is briefly presented in the following section.

2.4.2. A Framework for Livelihood Analysis

The concept of a sustainable livelihood framework (SLF) was first proposed by Conway in 1993, developed by Scoones in 1998, and further expanded by Ellis in 2000 (Conway, 1994; Scoones, 1998; Ellis, 2000). A livelihood is defined as the assets, activities and access that determine the living gained by the individual or household (Ellis, 2000: p.10). As depicted in Figure 2.2, the framework consists of six indispensable elements. Each element in the framework interacts with each other and results in livelihood outcomes that are measurable.

The starting points of the framework are the assets owned, controlled, and accessed by the households (Figure 2.3). These include natural, physical, financial, human and social capital (Ellis, 2000: p.30). The natural capital comprises mainly land, water and biological resources that are utilized by people and from which livelihoods are derived (ibid, pp.32)

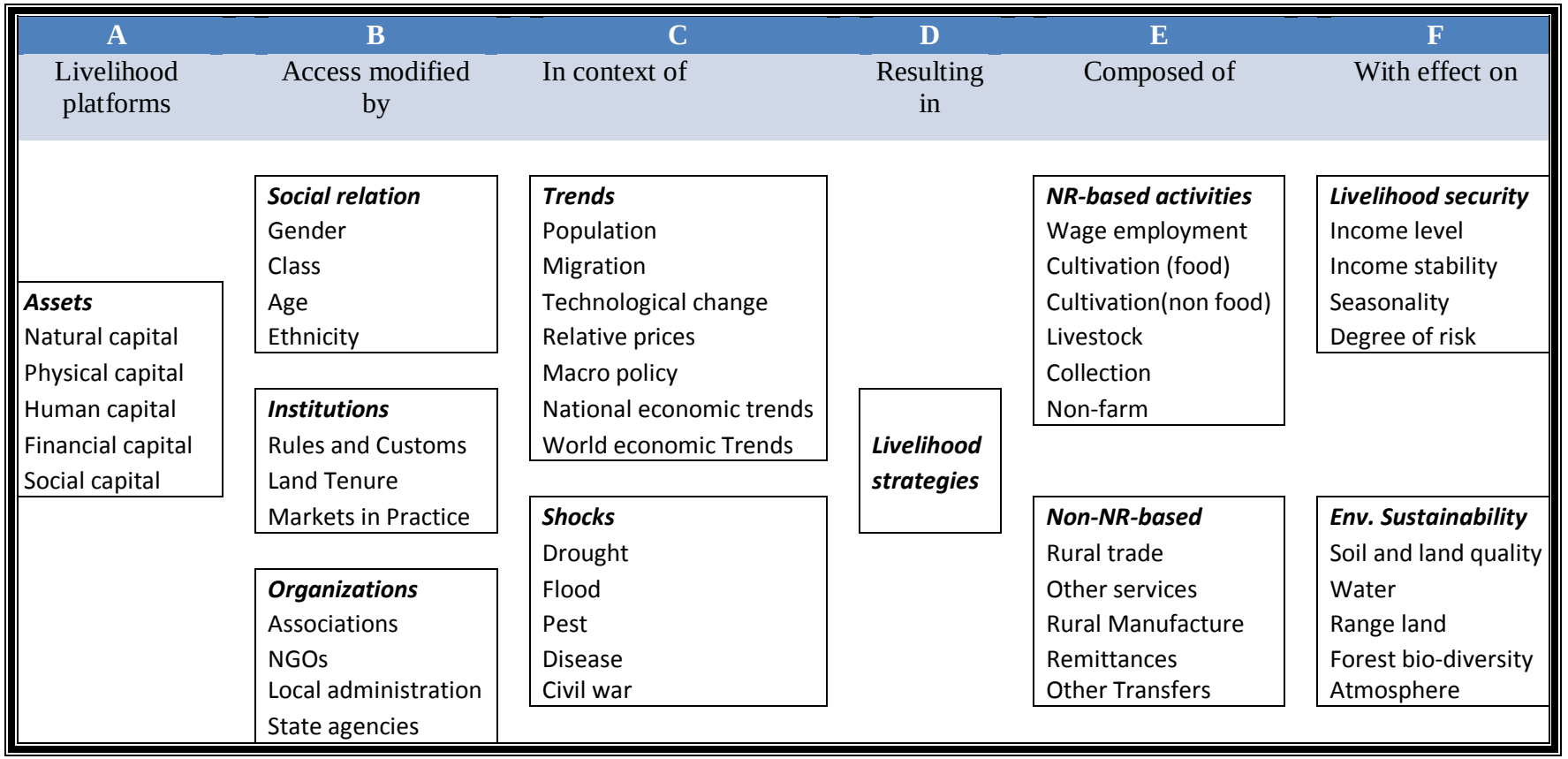
Physical capital comprises capital that is created by economic production processes such as buildings, roads, tools, machines, irrigation, and so on (Ellis, 2000). They are also referred to as producer goods that are bought to create a flow of outputs into the future. Human capital refers to the labour available to the household (ibid, p.33). It comprises education, skills, and health. Human capital can be increased through investment in education and training or through the skills acquired from on the job training. The main human capital possessed by the poor is their own labour.

Financial capital refers to the stock of money to which the household has access *(*ibid, p.34*)*. It includes savings and access to credit in the form of loans. Social capital refers to social resources that include the community, networks, social claims, social relations, affiliations, and associations on which individuals and households can draw by virtue of their belonging to that specific social group (ibid, p36).

Such assets outlined below, under the first column, enable households to pursue diverse activities that can generate income required for survival. However, access to these assets is subject to modification according to prevailing social relations, institutions and organizations (Figure 2.3). Social relations refer to the social positioning of individuals and households within society such as gender, caste, class, age, and ethnicity (Ellis, 2000). These elements are crucial to defend assets more effectively (Bebbington, 1999).

Institutions are the humanly devised constraints such as criminal law (legal court), land tenure systems and the way the market works in practice (North, 1990: pp.3-5). The major role of institutions is to shape human interactions and reduce uncertainty (ibid, p.6). Organizations are social entities such as political bodies (local government, city council, political parties); social bodies (churches, clubs, NGOs and farmer associations); or educational bodies like schools. All these are bound by some common purpose to achieve certain objectives (ibid, p.5), and are considered as endogenous factors that could modify access to assets.

Figure 2.3: Framework for Analysis of Rural Livelihoods



Adapted from Ellis (2000)

On the other hand, the potential of these assets to yield income or enable households to follow certain livelihood strategies, is also largely influenced by the trends and shocks experienced by the household (Figure 2.3). Shocks are events that have widespread impacts on rural populations in particular localities. They could be either idiosyncratic (affect specific individuals) or covariate (affect a group of households or entire community) Heitzmann et al. (2002b).

Events such as droughts, floods, pests, diseases of crops, animals and humans, civil war, theft, disability, divorce (Béné et al., 2012) , loss of access to rights of land due to resettlement programmes, and accident and death of family members all result in erosion of assets (Dercon and Krishnan, 2000). Trends like shocks are considered as exogenous factors that pose serious challenges to livelihood sustainability. They include macro policies that mediate rates of population growth, population density, rates of outmigration, growth of non-farm activities as well as national and international economic trends (Ellis, 2000).

2.4.3. Rural Livelihood Activities

In response to existing social relations, institutions and organizations, exogenous factors like trends and a series of covariate or idiosyncratic shocks, most rural households undertake diversified rural activities to secure their livelihoods as illustrated in the second column from last in Figure 2.3. Livelihood security is defined as

> *the capability, assets (stores, resources, claims and access) and activities required for a means of living; a livelihood is sustainable when people can cope with and recover from stress and shocks, maintain or enhance their capabilities and assets and provide sustainable livelihood opportunity for the next generation* (Chambers, 1992: p.6).

For the purpose of this study, household livelihood security is defined as the ability of a family or community to maintain and get a better income from the time flower farms were introduced to the present. Although the classification of activities is standardized by the United Nations Statistic Division (UNSD, 2013), to avoid misunderstandings, this thesis adopts the livelihood activities classification of Haggblade et al, to distinguish the different activities undertaken by the rural household (Haggblade et al., 2007).

a) Agriculture:

Agriculture includes the primary production of all unprocessed plant and animal products. It includes crop production, aquaculture, livestock husbandry, woodlot production, hunting, fishing and forestry. Thus, *Agricultural Income (Farm Income)* refers to income from these activities (Haggblade et al., 2007: p.19). It plays a major role in the livelihoods of many people in most African countries, where the share ranges from 59 to 78 percent of total income (Davis et al., 2010).

b) Non-Farm

This includes all economic activities, other than the production of primary agricultural commodities. It includes mining, manufacturing, construction, commerce, transport and agro-processing and so on. The activity may take place at home, or in a factory. It could be small scale or large scale activities. Therefore, *Non-Farm Income* refers to non-agricultural income sources. It could be in the form of wage or salary employment, remittances, rental income from leasing land and property and non-farm rural self employment (Haggblade et al., 2007).

To explore the poverty reducing impacts of non-farm activities and examine whether households have been pulled away from their original occupations because of introduction of flower farms in the Ethiopian Rift Valley region, non-farm activity or non-farm income sources are further broken down into Wage Employment and Self Employment.

c) Wage Employment

Wage employment refers to wage labour (income is generated primarily from the selling of one's labour). It could be full-time or part-time, seasonal or permanent, formal or informal (ibid). Although this kind of employment can include strenuous physical work, and health risks, such as exposure to chemicals, remuneration levels in casual non-farm wage employment are generally low (Lanjouw, 2007: p.58)

d) Self Employment

It involves either high return activity, based on one's own investment, thus, confined mostly to privileged groups because of high entry barriers; alternatively, in most rural settings, it

involves low income generating activities to ensure food security, stabilize an adequate resource base, and, thus, serve as a vital coping mechanism to reduce vulnerability and destitution (Lanjouw, 2007: p.61).

2.4.4. Determinants of Livelihood Diversification Strategies

Diversification is defined as the process by which rural families construct a diverse portfolio of activities and social support capabilities in order to survive and improve their standards of living (Ellis, 2000: p.15). Although an individual household can have major reasons to diversify livelihood strategies, conventional wisdom varies considerably on the causes, effects, and policy implications of diversification.

Recent livelihood literature has identified six main reasons for diversification that are firmly rooted in the microeconomic logic of farming households. These are seasonality, risk, labour markets, credit markets, asset strategies, and coping strategies (Ellis, 2000: p.57). All others, except coping strategies, are considered as voluntary motives for adoption of diverse portfolios, while coping strategies are considered as involuntary or exogenous factors for diversification (Reardon et al., 2007: p.126).

a) Seasonality

Seasonality refers to varying income, earned per day, or per week, to allocated labour time (Ellis, 2000). For example, the majority of farmers in Ethiopia are dependent on rain-fed agriculture, thus their entire annual income is generated during harvest time (Dercon, 1996a). Thus, on-farm returns to labour time vary throughout the year. The same is true for off-farm labour, as labour markets fluctuate throughout the year. Therefore, availability of surplus labour at different points in time may influence the household to engage in wage labour or other income generating activities, to ensure household consumption (Reardon et al., 2007).

b) Risk Management

Risky phenomena which could be climatic, economic or disease related are part of life and can affect a community or individual household. Natural or man-made disasters affect income earned by the household. Households in such risky environments often develop ex-ante risk management strategies aimed at smoothing income (Ellis, 2000: p.60). Self-insurance mechanisms include, but are not limited to, combining diverse activities or participation in off-farm activities to generate income, (Reardon et al., 2007: p.126), and asset building (Dercon, 2002).

c) Labour Market

When the marginal return to labour time in farming, for any individual, falls below the wage rate or the return to self-employment attainable for that person off the farm, then the household as a unit, is better off switching that individual into off-farm or non-farm activities (Ellis, 2000: p.66). Although availability of surplus household labour and labour market opportunities influence household decisions on whether to engage in wage labour, the market for labour, in most African rural settings, is not well developed (ibid). Nevertheless, strong linkages between surplus household labour and availability of labour markets have been reported in developing Asian countries (Lanjouw, 2007).

d) Credit Market

Absence of financial lending and saving institutions in rural areas is another motive for farm households to participate in diverse activities. Higher incomes from farm or other sectors allow farm households to reinvest in farm technology or diverse activities (Ellis, 2000: p.74). Therefore, diversification, due to failure of credit markets, allows farm households not only to overcome problems faced when they are in dire need of cash, but also helps to avoid paying high interest rates for credit markets that operate in uneven rural settings (ibid).

e) Asset Strategies

Investment in different assets to secure the future is described as a household asset strategy (Ellis, 2000). Major assets have been reviewed earlier under the Framework for Livelihood Analysis. They include natural capital, physical capital, human capital, financial capital and

social capital (ibid). The ability to pursue different livelihoods is dependent on the assets owned and accessed by the household. The more assets the households have the more diverse livelihood strategies open to them, and the less vulnerable they are to risky events (Moser, 1998).

f) Coping Strategies

As opposed to risk management strategies that are aimed at forward-risk- spreading across a diverse set of activities, coping strategies are ex-post strategies to maintain consumption when confronted by shocks (Ellis, 2000). Man-made hazards like civil war can result in chronic shortage of farming income (Heltberg et al., 2009). Climatic shocks such as droughts, oxen problems, and land reform make drawing income and food from assets owned by the household very difficult (Dercon and Krishnan, 2000). All these factors can push households below certain thresholds.

Under such circumstances, a household takes action to maintain consumption by adopting a range of coping strategies such as non-farm activities like self-employment, wage-employment, and migration (Reardon et al., 2007: p.116). When rural livelihoods are chronically precarious because of man-made or natural hazards, and unable to provide food and income, households may opt to distress diversification. These include reducing food and other expenditure, and selling durable assets that they own such as household goods, lands, and tree. This in turn makes returning back to normal life very difficult (Ellis, 2000: p.61; Reardon et al., 2007: p.130).

To simplify and capture the determinants of livelihood strategies, Reardon distinguishes the first five groups (from a - e) as pull variables or incentives that encourage diversification and the latter (f) as a push variable, which is a response to diminishing returns due to seasonal drops in income, transitory drops in income or chronic insufficiency of income (2007: p.126).

This study examines the livelihood coping strategies of flower farm workers with low wage incomes and the shock-coping strategies of displaced households. Factors outlined by Ellis (2000) and Reardon et al. (2007) as the major determinants of livelihood diversification strategies were taken into consideration in this study. Definitions of key explanatory variables that determine participation in alternative livelihood activities are given in the Methodology section.

2.5. Decent Working Conditions

2.5.1. Decent Work: Definition and Objectives

Many people in developing countries remain poor not only because of the absence of employment opportunities, but also because the majority are employed in the informal sector of the economy where income is insufficient and not secured (ILO, 1999). Therefore, eradicating poverty in many developing nations is a function of creating employment opportunities and ensuring the quality and quantity of available jobs that would lead to poverty reduction. In response to this challenge, in 1999 the decent work agenda was developed by the ILO (1999).

Decent work is described as the opportunities for women and men to obtain decent and productive work in conditions of freedom, equity, security, and human dignity (ILO, 1999: p.3). It encompasses a fair income, security in the work place and social protection (ibid, p.17). The idea emerges from the fact that the traditional focus of solving unemployment through job provision does not reduce poverty in itself and, it does not tell us much about the poverty status of a person being employed (ibid, p. 4).

Anker et al. (2003) argued that the statistical tabulation of the population of a given country living in extreme poverty per se does not tell much about whether poverty results from insufficient employment, low rates of pay, inability to work due to lack of uncompensated injury at work, discrimination, lack of access to social protection, unavailability of basic pension or labour market problems. Thus, a clear understanding and assessment of working conditions provides useful insights into the many possible policy options to address poverty. Different aspects of decent working conditions are reviewed in the following section.

2.5.2. Framework for Analysis of Decent Working Conditions

The International Labour Organization identified four important characteristics of work that individuals around the world consider as important elements of decent work. These are employment opportunities, rights, protection (security) and social dialogue (1999). Anker et al. (2003) argue that in the absence of these indicators, states, trade unions, employers, and the general public have no means of knowing how well a sector is doing compared to other sectors. It is also difficult to monitor and address deficits in decent working conditions and evaluate the impact of wage employment on poverty reduction strategies and policies (ibid).

2.5.2.1. Employment Opportunities

Employment access refers to the existence of remunerative employment opportunities for all who are available and actively seeking work (Anker et al., 2003). Decent work applies to access, not only to the formal sector but also to the informal sectors that employ millions of poor people around the world (ibid). There are several approaches that address access to employment opportunities. Labour force participation, employment to population ratio, and share of wage employment in the non-agricultural sector, are used to measure employment opportunities at national levels, while measuring the share of females and males in wage employment provides information to assess equal access to waged labour (Ghai, 2003; Bescond and Chataignier, 2003).

An important characteristic of work is that it pays an adequate living wage and its continuity in providing adequate income (Ghai, 2003). Pay can be measured in terms of rate per day or rate per hour. An individual may work many hours because the rate of pay may not be sufficient or they may earn insufficient income (Ghai, 2003; Bescond and Chataignier, 2003). In most developing countries the absolute poverty line is the most commonly used method for measuring adequacy of wage levels (Ghai, 2003; ILO, 2012a: p.72).

2.5.2.2. Employment Rights

Decent work conveys the idea of work that is acceptable to the society. On the other hand, unacceptable work refers to conditions of work that are not acceptable to society. The main unacceptable forms of work are forced labour and child labour (Anker et al., 2003). Since the inception of the ILO in 1919, the minimum working age was defined as 14 years (ILO, 1973). However child labour is a widespread phenomenon in many developing countries. The ILO estimates 117 million children between the ages of 5 and 14 are engaged in child labour worldwide (Diallo et al., 2010).

The problem of child labour is multifaceted: it could crowd out schooling and inhibit the accumulation of skills because of the nature of the work or the conditions in which the work is carried out (ILO, 2004b: p.49). Physical burden and hazardous work harms children physically and mentally and inhibits children's development (ibid, pp. 50-53). The worst forms of child labour, slavery and forced labour, armed conflict and commercial sex, are detrimental to life (ibid, pp.54-57). Child labour also reduces the availability of employment options for adults, because they work for lower wage for longer hours (ILO, 2009). Measuring the percentage of children not attending schools and children working as wage employees or in self-employment are good indicators of child labour prevalence (Anker, 2000; Ghai, 2003).

Decent working hours is another aspect of workers' rights. Excess working hours are detrimental to physical and mental health (Burke and Fiksenbaum, 2008: pp.9-12), and interfere with family life and children's development (Humbert and Lewis, 2008: p.159). Working for extended hours is a sign of inadequate hourly wages and inadequate employment opportunities (Anker et al., 2003). Many people work extended hours because income earned from one job may not be sufficient to maintain a living, or because corporate norms demand extended working hours (Kelliher and Anderson, 2010).

2.5.2.3. Employment Protection and Social Security:

Job stability and security refer to an employment relationship that will not end within a certain period, at the employer's initiative (Anker et al., 2003). Thus, job security is an important aspect of decent work, because losing a job is a serious event for most people. It involves a loss of pay, and disrupts and makes useless the accumulated human capital.

Sometimes an individual will be forced to take a job in another location. Such compulsory relocation might affect the entire household (ibid).

Because of increased participation of women in waged labour, family-friendly working conditions have become more important than in the past. There are three categories of family-friendly employment policies that the decent work agenda tries to improve (Anker et al., 2003):

i) Job protection when worker needs to be absent from work for an extended period of time, such as maternity and child care;
ii) Monetary benefits in the event of major family contingencies;
iii) Day-to-day accommodation of workers' needs to integrate their work and family lives, such as provision of flexible hours and adequate child care.

Job security also implies fair treatment, absence of discrimination, safe working conditions, and provision of social security for all workers. Fair treatment in employment refers to equality of opportunities in employment and occupations, and equal pay for work of equal value (Anker et al., 2002). The 1958 ILO's Discrimination Convention, Article 1 (a) (ILO, 1958) restricts any distinction on the base of race, sex, colour, religion, political opinion, national or social origin; while the 1951 Equal Remuneration Convention (ILO, 1951) prohibits unequal pay for the same service. Decent work implies the absence of discrimination at work including application, hiring, promotion, fringe benefits, pay, discharge, job training, classification, referral, and other aspects of employment (Anker et al., 2003).

As poverty has become more feminized, decent work also emphasizes the gender dimensions of employment. Thus, absence of discrimination at work also means working without harassment, retaliation, or exposure to violence (ILO, 2009: pp.33,34). It signifies the existence of some degree of autonomy, and fair handling of conflicts and grievances (ibid). Assessing the perceptions of males and females on issues outlined above, and measuring the ratio of males to females by sector, by position or by wage level, are good indicators of fair treatment and the presence or absence of discrimination (Ghai, 2003).

Safe working environment is another aspect of workers' protection. The ILO estimates that there are 317 million accidents and 2.3 million work related deaths every year; and four

percent GDP loss due to death, injury, and absence from work due to injury (ILO, 2012b). Almost half of the injuries are believed to occur in the agricultural sector (ibid). Such work-related risks arise from repetitive actions, working long hours, machinery, exposure to harmful chemicals, noise and so on (ILO, 2004a).

Since there is a close relationship between safety of the working conditions and performance of the worker, a safe working environment is required to preserve the integrity of the worker and is a fundamental part of decent work (ILO, 2012b). Measuring the number of injuries and deaths at work is considered as a good proxy indicator of workplace safety (ILO, 2012a), although in most cases these are under-reported (Ghai, 2003). Injury rates, sick leave entitlements, entitlement to breaks, availability of toilet services, and safety measures for pesticide exposure are good indicators of safety conditions (Anker et al., 2003).

Social security is a benefit that society or government provides to individual workers to protect them from declining in living standards due to sickness, injury, or old age (Ginneken, 2003). The protection may include pensions, compensation for injured workers, food stamps, health care provision, and development of policies that support minimum standards at work, including workplace accommodation (ibid). However, currently there is a debate on how to address all those in need (Chen et al., 2004; Chen, 2008).

2.5.2.4. Social Dialogue

The ability of the workers to organise freely to defend their interests and ability to negotiate with employers is a vital element of decent work. Thus, social dialogue refers to any type of negotiation, consultation or exchange of information between or among employers and workers on issues of common interest directly related to work, economic, and social policies (Anker et al., 2003). At firm level, in addition to increasing the wage bargaining power of the workers, it also helps to save jobs from being relocated abroad in search of cheap labour (Lehndorff and Haipeter, 2011: p.20), and it improves compliance to standards and enforces regulations (ILO, 2010a: p.87). It also improves participation of various groups in the decision making process and contributes to the formulation of decent policies at a national level, that, in turn encourages good governance (Anker et al., 2003).

For any social dialogue to take place, it is necessary for workers to be organized and form a union of their choice. Thus, trade union density rates and collective wage bargaining coverage rates are used as a proxy for trade union representation and strength, social dialogue and work place relations (Ghai, 2003). The trade union density rate is calculated as percentage of the total wage employment, preferably disaggregating workers based on sex. This helps to assess the representation of females among union members and union leaders (ibid). Absence of bargaining power could indicate the absence of social dialogue.

Forms of employment that are characterized by atypical employment, absence of rights, lack of protection and social dialogue which result in low wage incomes and a high degree of insecurity and occupational injury are referred to as precarious employment (Evans, 2009: pp.16-18). Evans and Gibb (2009) argue that precarious employment makes workers and their families more vulnerable to poverty. Chen considers precarious employment as a missing link in the global poverty and development debate (Chen et al., 2004: p.9).

The decent work agenda argues that employment opportunities for the poor should be accompanied by rights, representation, and protection (Anker et al., 2003). Because of its relevance to improving living conditions and addressing strategies that are aimed at reducing poverty and achieving sustainable development, the Millennium Development Goals (MDGs) have been amended[4] in order to incorporate the goals of decent work for all, including women and young people (ILO, 2007). .

The Ethiopian government believes the flower industry improves the quality of life in rural areas by providing employment opportunities and better incomes, and promoting stability of the rural community (FDRE, 2002: p.107). According to the preceding framework for the analysis of working conditions, this study examines all aspects of employment (opportunities, rights, protection and social dialogue) in the Ethiopian flower sector to assess the contribution of this sector to poverty reduction and sustainable development in the rural areas.

[4] The employment target of MDG 1' is to achieve productive employment and decent work for all by 2015: United Nations. (2010) The Millenium Development Goals Report: Economic and Social Affairs of the United Nation. *MDGs Report.* New York.

2.5.3. Ethiopian Context

Decent working conditions 'is not a one size fits all' approach. A number of socio-economic factors affect its sustainability and performance. The following section reviews the socio-economic context of Ethiopia within which decent working conditions are analysed.

The sustainability and performance of decent work is highly influenced by the socio-economic condition of each country (Anker et al., 2002). Therefore, it is important to consider the economic and social contexts within which decent work occurs. The main socio-economic factors to take into consideration are the composition of employment by economic sector (agriculture, industry, service), poverty levels (percent of population living on less than 1 USD/day or 2 USD/day), informal economy employment (percent of non agricultural or urban employment), education of the adult population (literacy rate, secondary, graduate) and GDP (Anker et al., 2003).

Decent work is also subject to the international labour standards that member states have ratified. In this regard, Ethiopia has ratified 21 ILO conventions of which 20 are in force; eight conventions are identified by the ILO as being fundamental to the rights of human beings at work. These include the 1973 Minimum Age Convention (No. 138) that sets the minimum working age at 14 years and the Worst form of Child Labour Convention (No 182) (ILO, 2010b). Currently, any employment relations between Ethiopians or Ethiopian and foreign citizens within the territory of Ethiopia are governed by these proclamations unless the Council of Ministers decides otherwise (ILO, 2009b).

Despite Ethiopia being a member of the ILO since 1923, enforcement of labour laws only started in 1963 with the ratification of "Labour Relations Proclamation No. 210/1963" that recognized the rights of associations of employers and workers, as well as a system of collective bargaining (Bersoufekad, 2003: p.25). As a result, the "Federation of Employers of Ethiopia" was founded in 1963, while later on the "Confederation of Ethiopian Labour Unions" was established in 1964 (Sommer, 2003).

However, trade unions have been under government control for most of the time for many years (Sommer, 2003). Following fundamental changes in the political structure from 1991, both entities (Federation of Employers of Ethiopia and the Confederation of Ethiopian

Labour Unions) were re-established in 1997 (Bersoufekad, 2003). ITUC (2012) shows the current FDRE government also continues to interfere in all affairs of trade unions. Currently, the confederation of Ethiopian Trade Unions has about 702 trade unions affiliated to nine national industrial federations and claims to have 370,000 members (CETU, 2012). This number is extremely low, and is accounts for less than one percent of the 42 million labour forces (World Bank, 2012).

2.6. Land, Land Use Policy and Internal Displacement in Ethiopia

As of March 2012, about 100 foreign and national companies were registered to produce flowers in Ethiopia, of which 91 are now operational (EHPEA, 2013). The majority of these farms are located in the Oromia Regional State, within a 50 km radius of the capital Addis Ababa. The total land allocated for flower production has reached 3,500 hectares (EHDA, 2011). Although a fraction of the land allocated for agricultural investment is used for flower production, displacement caused by the flower industry is one of the central themes of this study. Therefore, land, land use policy and history of internal displacement are reviewed in this section

2.6.1. Ethiopian Land and Land Policy

Agriculture is the backbone and mainstay of the majority of the Ethiopian population. Over 80 percent of the population, directly or indirectly, depend on agriculture. Studies have shown that poverty in rural Ethiopia is increasingly caused by lack of productive resources, mainly land (Holden and Yohannes, 2002; Deininger et al., 2008; Holden et al., 2012). Indeed, 87% percent of rural households possess less than 2 hectares (Rahmato, 2008), while the national average holding is 1.2 hectares (CSA, 2011).

Many farmers in Ethiopia often struggle to feed their families. Because of this, improving small holder agriculture through intensification and modernization of farming systems is considered vital by Ethiopian policy makers to eradicate poverty and achieve national food self-sufficiency (MoFED, 2006: p.46). Because of the reasons outlined below, many scholars argue that this goal cannot be achieved without changing the current land tenure system.

It is widely believed that the insecure Ethiopian tenure policy leads to land degradation, by debarring people from investing in improved land management practices (Kebede, 2002; Fenske, 2011) and decreases access to capital such as credit, because land cannot be used as collateral (Deininger and Jin, 2006). Families, especially women who are unable to produce for their own but opt to rent out their land, feel more insecure (Holden and Yohannes, 2002). Although land redistribution reduces landlessness, it has created such small farms that the owners have become too poor, thus, it has contributed to increased poverty levels in the rural areas (ibid).

2.6.1.1. Imperial Regime Tenure Policy (1930-1974)

Tenure insecurity is an age-old problem in Ethiopia. During the imperial period, the emperor reserved the sovereign right over all land (Hoben, 1972: p.563), with authority to grant and withdraw land rights at all levels (Markakis, 1973: p.362). In practice, the tenure system was characterized by feudalism and a peasantry chain of relationship, where peasants view their lowly position in the social order as a natural and normal phenomenon (Cohen, 1974). Throughout the imperial regime, in northern part of the country, the tenure system was known as "*Rist"* where ownership resided in an extended families or a remote ancestor, and land owners were paying tax (Hoben, 1972; Brietzke, 1976).

Members of the elite held large tracts of land because of the privilege granted to them by the administrative and judicial right known as "*Gult"*. Land ownership rights were bestowed to members of the ruling class as a reward for their royal service to the monarch and to religious institutions as endowment (Hoben, 1972). In the southern part of the country the tenure system was mainly referred as the "*Gult"* system (absentee landlords) where tenants gave one- third of their produce to the landlord (Brietzke, 1976; Rahmato, 1984: p.16).

During the imperial regime, the tenure system was mainly feudal one, by which land was held by tenants but owned by lords (tenants held the resources and lords benefited from it). This system created drastic power imbalances between landlords and the peasantry, inequality in land ownership (Cohen, 1974), underutilization of resources, low investment and productivity, and grievances over the autocratic land tenure system (Brietzke, 1976). The

synergy developed by the grievances of the Ethiopian people from all walks of life over the autocratic land tenure system and the 1974 famine that claimed more than 200,000 lives (Rahmato, 1984) eventually led to the overthrow of the imperial regime in 1975.

2.6.1.2. Military Regime Tenure Policy (1974-1991)

In 1975 the Marxist military government of Ethiopia that overthrew the imperial regime nationalized all lands and declared all rural lands to be the collective property of the Ethiopian people, and abolished private ownership of rural land (Negarit Gazzeta Proclamation No 31, 1975). Peasant associations were established at every level throughout the country to oversee redistribution, cultivation and administration of rural lands (ibid, section three).

The redistribution of land was based on family size and the maximum allotted per household was 10 hectares (Negarit Gazzeta Proclamation No 31, 1975). Farmers were allowed to transfer their usufruct rights to family members such as spouses and children, upon death of the land-rights holder. However, sale, mortgaging and leasing were strictly prohibited (ibid section two). Unfortunately, the 1975 land reform did not solve Ethiopia decades' old problem, and, the country has been frequently haunted before and since by famine and poverty.

2.6.1.3. Current Ethiopia Tenure Policy (Since 1991)

Following the fall of the military government in 1991, the new Ethiopian constitution reaffirmed state ownership of land. Article 40 No 3 states that

> *The right to ownership of rural and urban land, as well as all natural resource, is exclusively vested in the state and in the people of Ethiopia. Land is a common property of the nations, nationalities and people of Ethiopia and shall not be subject to sale or to other means of exchange* (FDRE, 1995).

The subsequent Land Administration Proclamation 89/1997, transferred the authority of land administration to regional governments and commissioned them with the power and rights to distribute land (FDRE, 1997).

In accordance with the Constitution, the Oromia Regional State (where this study was conducted) announced state ownership of land in 2002 (the proclamation was amended in 2007) and granted farmers usufruct right (ONRS, 2007). The following amendments were made since then: the Oromia Rural Land Use Administration Proclamation, Article 6.1, granted lifelong usufruct rights of agricultural land; Article 6.11 granted the right to compensation in case of expropriation; Article 10.1 permitted land rental and leasing up to 50 percent of a holding, for 3 to 15 years, Article 14.1 ruled out confiscation and redistribution of peasant or pastoralist land holdings with the exception of irrigation land, whereas Article 15.6 entitled holders to lifetime certificates of holding (ONRS, 2007).

Some scholars believe that this recent development in land tenure could have a positive effect as it contributes to tenure security. It is believed to promote land consolidation, proper land management and its utilization, (Deininger and Jin, 2006; Deininger et al., 2008). Others argue it could improve short-term investment on land, and create better labour productivity in a household that leased in land, and that it helps female headed households and older people to get better benefits from competitive land rental markets (Rahmato and Assefa, 2006). However, no relationship was found between land title certificates and access to formal or informal credit in a study conducted in Uganda (Carly and Pender, 2009).

Conversely, pessimistic policy makers are anxious about recent changes made to the land tenure system. They fear that a freely operating land rental markets could lead to unproductive accumulation of land that would end up in the hands of a few rich people and lead to the creation of multitudes of landless households (Gebreselassie, 2006: p.47). Senior policy makers also argue that, in cases of crises like major droughts, affected families with little income from land have nothing to stop them from selling their productive assets and migrating to big cities (Rahmato and Assefa, 2006: p.143).

They presume state ownership of land prevents the development of a free land market, landlessness and overcrowding of cities by landless migrants (ibid). However, a recent World Bank report by Plummer (2012: p.300) shows that the tenure system in Ethiopia is not only insecure but also plagued by weak governance and corruption. It is used by the ruling class to manipulating the political system in order to gain ground and as a means to get community thrust (Ibid, P.300).

2.6.2. Displacement of Rural Households in Ethiopia

As defined by the guiding principles on internal displacement, Internally Displaced Persons (IDPs) refer to *a person, or a group of people, who are willingly or unwillingly moved from their habitual place of residence, as a result of, or in order to circumvent the effect of a natural calamity, conflict and manmade disaster, and resettled within the country* (United Nations, 1998). Although conflicts and natural disasters are usually cited as major causes, events like development projects frequently cause internal displacement, without adequate compensation (UNHCR, 2006: p.154). Displacement, dislocation, eviction, exclusion, and involuntary resettlement are synonymously used in the literature.

Since agriculture is the mainstay and source of livelihood of over 85 percent of the Ethiopian population, for a long period of time the development of this sector was considered as a viable means of eradicating poverty and hunger (MoFED, 2006). To this effect, resettlement programmes (moving people from densely populated and highly degraded parts of the country to more fertile and sparsely populated regions) was practiced since the mid twentieth century. Hence, internal displacement is a persistent problem in Ethiopia. Since the 1960s millions of the impoverished rural poor were evicted from their ancestral lands and resettled in uncharted territories and unfamiliar cultures (Pankhurst, 1992).

2.6.2.1. Past Internal Displacement

The issue of planned resettlement was first mentioned by the Ethiopian government in the early 1960s, with establishment of Chilalo Agricultural Development Unit (CADU) and Wallamo Agricultural Development Unit (WADU) (Bahru Zewde, 2001: p.195). For the first time, 700 farmers were relocated from the Aswash Valley to the Sidamo region (Woube, 2005: p.45). During the Derg regime alone, about 4.6 million people were relocated (Ofcansky and Berry, 2004: p.184). The main aims of the Derg's regime resettlement program were agricultural and community development so as to improve the livelihoods of families and communities (ibid, p. 236).

A number of studies have shown that, in most cases, such displacement had a catastrophic ending. For example, from half a million people who were moved from the drought and famine-stricken areas of the northern part of Ethiopia, to the western part of the country, between 1984 and 1986, (Pankhurst, 1992: p.51) one hundred thousand deaths were reported after just one year of resettlement (Korn, 1986: p.141).

The major causes of fatalities were lack of food (Kloos and Aynalem, 1989), water polluted by upstream settlers (Sivini, 1986), rampant diseases notably malaria, typhus, typhoid, yellow fever and sleeping sickness, and a failure to provide sanitary facilities and medication (Korn, 1986), overexertion (owing to intensive labour), incarceration, persecution and abuses of human rights (Pankhurst and Piguet, 2009). Besides, some of the land selected for resettlement was far less fertile than expected and was difficult to access (Woube, 2005: p.40).

2.6.2.2. Current Internal Displacement

Regardless of criticisms of the past resettlement programmes, the current FDRE administration has also planned the voluntary resettlement of millions of people from degraded areas to fertile and/or sparsely populated areas (MoFED, 2006: p.95). Ending the country's dependence on foreign aid, provision of basic services and the perceived multiplier effects of development projects are the main motives of the current internal displacement (ibid). Since 2003, the current Ethiopian government planned to resettle 2.2 million people (FDRE and UNDP, 2005: p.7) and has relocated more than half a million rural households from degraded areas to more fertile and moisture rich areas (ibid).

Others are displaced because of development projects. Unlike the other group, the latter were evacuated and enticed by the promise given to them; fair monetary compensation, employment opportunities, schools for their children, clinics, clean water, sanitation, infrastructure, and better social amenities and services (Human Rights Watch, 2012a: p.26). Those who have shown resistance and refused relocation were forcibly removed, while a few have been threatened, detained, or assaulted (ibid, p.28). Overall quite a large number of people have been internally displaced in Ethiopia over the past few decades. Even today, food

security, health, and access to water still remain the major concerns of displaced people (Oakland Institute, 2011b).

Critics of such internal displacement argue that the inner motive of the current EPRDF administration is to create huge tracts of high-value land for leasing to foreign investors, in order to promote agricultural productivity, through a large scale mechanized farming system (Human Rights Watch, 2012a: p.54). The Human right groups believes that the 1997 Land Proclamation (that grants farmers the right to use but not ownership) weakened the protection of traditional farmers and nomads from government policies whose ambition is to eradicate poverty and achieve food self-sufficiency and rapid economic growth in a short period of time (ibid, pp.70-72).

It appears that displacement of the rural poor will continue at an increasing rate. The Ethiopian government has already identified potentially irrigable agricultural lands and is willing to offer tax breaks, pools of cheap labour, and long-term leases of fertile land at affordable rates to foreign investors (EHDA, 2011). As shown in Table 2.5, about 4.3 million hectares of land have been mapped as suitable for agricultural purposes.

Table 2.5: Potential Areas Identified for Agricultural Production in Ethiopia

Region	**Specific Location**	**Irrigable Potential**
Oromia Region	Eastern Shoa, Northern Shoa, Western Shoa and Southern Shoa	1,350,000
Amhara Region	Tana catchment including Bahirdar Zuria, West Gojjam and South Gonder	500,000
Tigray Region	Raya Azebo valley, Mekele Zuria and Adwa-Axum	300,000
SNNPR	Hawassa Zuria, Arba Minch and Chencha	700,000
Gambela		600,000
Benshangul Gumuz		121,177
Other areas		685,280
National Total		**4,256,457**

Adapted from (Awulachew et al., 2005: p.8; EHDA, 2011: p.15)

The tragedy is that, most of these lands are already occupied and used by local communities for crop production and livestock grazing and are currently being farmed under traditional small scale and environmentally friendly farming systems. Development of large scale mechanized farms on these lands via leasing to investors could be achieved only through

eviction of people currently living on the land (Oakland Institute, 2011b: p.21). Nonetheless, the Ethiopian government is pursuing its vision of boosting economic growth and reaching middle-income status by 2025 (EPA, 2012: p.20). Opening its doors to foreign investors is part of the government's growth and transformation plan (ibid, p.29) and, hence, is likely to continue displacement of people to free land for investors.

2.6.3. Impacts of Displacement.

Although the rationale behind moving people from degraded land and drought prone areas to fertile and productive lands is plausible, the expected benefits tapped from large development projects seem unattainable; both voluntary and forced displacement have unintended negative consequences. Even though proponents of project based displacement try to justify their means and action by monetary compensation/land substitution deals or other benefits tapped from the project, studies have shown that displacement in itself is a crisis with far-reaching social, economic, cultural, and environmental consequences.

Cernea (1997) identified the following eight hazards of displacement that significantly impact livelihoods: landlessness; homelessness; joblessness; marginalization; increased morbidity and mortality; food insecurity; loss of access to common property, and social disarticulation. Failure to restore these hazards not only leads to extreme poverty, but is also detrimental to life and stability (ibid). Since adaptation to new environments, socio-economic, and geo-political systems is so difficult, those who fail to acclimatize often face exodus and social disarticulation of the community living in the vicinity (ibid).

Worldwide, there is empirical evidence that highlight the significance of Cerenea's viewpoints. The failed Ethiopia resettlement programme during 1984-1986 that claimed the life of more than 100,000 people is a good example (Korn, 1986). More recently, Abbink (2011) reported a rise in the frequency and magnitude of conflict induced by displacement and relocation in the Southern and Eastern parts of Ethiopia.

Studies conducted by human rights experts have highlighted the deterioration of the legal rights and freedoms of indigenous communities, following displacement. As reported by

Human Rights Watch (2012a: pp.40-48), and the Oakland Institute (2011b: p.42), displacement in the western part of Ethiopia has disrupted the culture and tradition; interfered with people's rights to continue their current mode of life in their own environment and entitlement to self-determination, and is characterized by a loss of cultural heritage.

The Oakland Institute and Hurd (2013) has reported that those who resist relocation usually experience persecution, harassment, arrest and arbitrary detention, rape of women and girls, torture, humiliation, destruction of crops and vandalism of property. Similar types of human rights abuses were reported in the western part of Ethiopia (Human Rights Watch, 2012a: pp.34-37). Thus, as argued by Cernea (1997), in most cases displacement is characterized by a loss of dignity.

Usually forests in leased out areas are cleared to make lands available for large scale agriculture. In its recent publication (Deininger and Byerlee, 2011), The World Bank is warning of the dangers of the rising global interest in farm land and land grabbing on forest resources:

> *...although deforestation associated with the expansion of the agricultural frontier has been a serious problem (and one of the world's contributors to greenhouse gas emission), our analysis shows that the projected increase in the demand for agricultural commodities over the next decade could be met, without cutting down forests, by increasing productivity and farmland expansion in non-forested areas*…. (Deininger and Byerlee, 2011: p.xiv).

Cutting down forests undermines the services that the ecosystem provides to the local community, such as a regular food supply or buffer in case of food scarcity, building materials, fuel wood, and medicine (Millennium Ecosystem Assessment, 2005a: p.vi,vii).

Concerns for the multiple users of water are often neglected by development and, in leased out areas, by large scale agricultural investment projects (Woodhouse and Ganho, 2011; Woodhouse, 2012). There are many empirical examples that show contamination of potable water and conflict over water resources. For example: contamination of water sources was found due to extensive agriculture in the Iringa region of Tanzania, that serves 45,000 people

(Arduino et al., 2012); nitrate contamination of the Dangu water shed region was reported in China (Youyuan et al., 2010); and intensive farming of horticultural crops, that caused quality and quantity deterioration of Lake Naivasha, in Kenya (Stoof-Leichsenring et al., 2011) was evidenced.

The recent construction of the Renaissance Dam on the Blue Nile by the Ethiopian government has already caused tensions and is straining the relationship between Ethiopia, and its neighbours, Sudan and Egypt (Land, 2013), while the Gibe III hydroelectric dam, built by the Ethiopian government, is raising fierce opposition and condemnation from environmentalists and conservationists (Eshelby, 2010).

All the evidence presented above shows that displacement and leasing land have serious negative social, economic, cultural consequences. If it is not properly planned, the quantity and the quality of water available to people can be severely impacted by development projects, and negligence in development-related investments could threaten livelihoods and jeopardize biodiversity (Wood et al., 2000).

2.7. Conflict Analysis:

Although the amount of land currently allocated for flower production is small, the environmental concerns associated with it are enormous, For example, pollution of water sources affect tens of thousands of people and wildlife. Such pollution can lead to conflict, and that in a sense measuring conflict is also a way of measuring environmental impact – also taking into account the difficulty of measuring pollution directly. Therefore, analysis of conflicts that arise out of economic or resource issues between flower growers and local people is another theme of this study. The nexus between environmental change and conflict is reviewed in this section.

2.7.1. Theoretical Approach to Conflict Analysis

In the last decades scholars have tried to develop a number of theoretical strands which can be employed for the analysis of poverty, conflict and development. These include the Greed and Grievance theory that economists use to examine the economic motivation of conflict (Berdal and Malone, 2000: pp.1-6). According to this theory, rebellion is considered as a means to generate income (Collier and Sambanis, 2005: p.3) and economic grievance and political greed are used to explain conflict (ibid, p.329).

Unlike the economists, political scientists argue the other way around. The latter consider elite greed over valuable resources and grievance over deprivation, and the State's failure and government illegitimacy as a cause of conflict (Gurr, 1970: pp.12-21). Marxist Class Theory highlights class boundaries as causes of conflict (Marx and Engels, 1977: pp.82-95; Weil, 1995: pp. 82-95), and the Basic Human Needs hierarchy argues that conflict is caused by a threat to basic human needs, goals, and values (Maslow, 1970: pp.108-111).

Although there are a number of theories of conflict, this study adopted Maslow's Human Needs Theory (HNT) because it is most relevant for analysing basic needs, and could better explain the context of this study. The HNT argues that the prevalence of conflict and instability in today's world is because people are denied, not only their biological needs, but also psychological needs, for both are vital for development and deserve equal attention (Maslow, 1970: pp.289-293).

According to this theory, basic human needs mainly food, water, shelter and health unlike interests cannot be traded, suppressed, or bargained for (Doyal and Gough, 1984). The human need's theory argues that

> *…when political structures attempt to do so or deprive the need (satisfaction for certain segments of society could be economic, security, identity or well-being), it results in conflict* (Christie, 1997).

Thus, conflicts are caused by basic "universal" human needs that are not satisfied. For conflict to be resolved, therefore, it is the root cause of the problem that needs to be analysed and addressed. If the problems are still, there the conflict may occur again.

As witnessed in many countries around the world (including in Sub-Saharan Africa), conflict is a major cause of underdevelopment (Stewart and Fitzgerald, 2011). The following section illustrates how the Human Needs Theory (HNT) is useful in explaining causal relationships between environmental resource dependence and scarcity, and civil strife and low economic development.

2.7.2. Environmental Change and Conflict:

The livelihoods of millions of people around the world are entirely dependent on renewable environmental resources such as crop land, forests, fish and water supplies. Ultimately, these resources have a capacity to regenerate by natural processes. If they are used wisely, they should continue to support an adequate standard of living for the foreseeable future. However, studies have shown that scarcity and disparity in the use of vital environmental resources, mainly fresh water[5] (Shiva, 2002), forest and land (Collier and Sambanis, 2005; Brauch et al., 2009) are contributing to significant conflict around the world. Two schools of thoughts, the Toronto Group and Environment and Conflict Project (ENCOP) group in Zurich, are at the forefront of the endeavour to show and characterize the causal mechanisms between resources and conflict.

[5] Examples of Trans-boundary water conflict are listed at the Oregon State University web site and can be accessed at <http://www.transboundarywaters.orst.edu/publications/>; and water conflicts are listed based on their chronology by Gleick, P. 2008: Water Conflict Chronology: Pacific Institute for Studies in Development, Environment, and Security, can be accessed at < http://www.worldwater.org/conflictchronology.pdf>

According to the Toronto Group, conflict can be, or is frequently, caused by a scarcity of renewable resources (Homer-Dixon, 2010: p.13). A condition where scarcity of renewable resources has a negative impact on human society and destabilizes the interface in the ecosystem equilibrium to sustain life and human activities, is referred to as environmental scarcity (Homer-Dixon, 1999: p.19). Environmental scarcity does not cause wars among nations, but can invoke social stress within the state, ethnic conflict and urban instability. Such conflicts induced by environmental scarcity are referred to as environmental conflict (ibid, p.13).

Scarcity is caused by environmental change, population growth and unequal social distribution. Environmental change refers to a human induced decline in the quantity or quality of a renewable resource that occurs faster than the speed it is renewed by natural processes, thereby destabilizing the ecosystem equilibrium (Homer-Dixon, 1994). For example, population growth reduces resource availability by dividing it among more people; unequal distribution concentrates the resource in the hands of a few people and subjects the rest to greater scarcity (ibid). The Toronto Groups believes these factors often act and interact to generate chronic, diffused, and sub-national conflict, but rarely leads to inter-state conflict (Homer-Dixon, 2010: p.13).

The Environment and Conflict Project (ENCOP) group based in Zurich advocates that the scarcity of environmental resources rarely causes inter-state or intra-state conflict as has been observed in Lake Victoria region. Even though this region exhibited severe scarcity, notable conflict was not observed within or across the national borders (Canter and Ndegwa, 2002). Conversely, the conflict among the Nile Basin countries is not because of scarcity, but because the riparian countries want to use the water for different purposes (Mason et al., 2009). On the other hand, opponents of the Toronto Group assert that, not scarcity, but disparity and degradation, resulting from the indirect and direct use of such resources, is the major cause of environmental conflict.

Indirect use refers to the uses of environmental resources such as timber, fish, oil and diamonds in connection with global trade, whereas direct use means the use of environmental resources directly by the actors involved. Examples of direct use are land and water shared among pastoralists or shared lakes and river basins between countries. Conflict induced by disparities in the use of vital environmental resources is known as environmental conflict

(Libiszewski, 1992). However, such conflicts manifest themselves as political, economic, social, religious or ethnic conflicts (ibid).

After decades of research and numerous enriched theories employed for the analysis of poverty, conflict and development, the literature on environmentally induced conflict remains inconclusive and controversial. Therefore, as proposed by Hagmann (2005), in this study, it is assumed both resource scarcity and disparity in use/environmental degradation predispose communities and countries to civil conflict. Irrespective of its cause, whether it is resource scarcity or use of resources for different objectives, conflict often generates severe social, economic, and political stresses within or/and outside.

2.7.3. Socio-economic Impacts of Conflict

Conflict is an expressed struggle between two or more interdependent parties to attain incompatible goals (Bartos and Wehr, 2002: p.13). It often emerges because of scarcity and inequalities in resource distribution, as in the case of central Asian countries such as Kyrgistan, Tajikistan and Uzbekistan that share the same water resources (Kuehnast et al., 2008). Alternatively, it could be because people have different uses for the same resources and want to manage them in different ways, such as the tensions between Ethiopia and Egypt on the use of the Nile River (Mason et al., 2009: p.325). Regardless of the causes as described earlier, it has a serious negative impact on individuals, families, communities, and the national economy, as well on existing social and political institutions.

Conflict prevents many people from meeting their basic needs by destroying crops, land and environment and results in destitutions. The conflict in Darfur is a prime example of this type (UNEP, 2008; Alix-Garcia et al., 2013). It also displaces many people. Frequently men migrate and women and children bear the burden of conflict. Women who are left behind do not have access to credit and other resources as men do, and must also assume men's responsibility in addition to their own obligations. Thus, conflict contributes to the feminization of poverty (McFerson, 2010).

Conflict damages community life in many ways. As observed in the Darfur region, it depletes assets because livestock are killed, crops are damaged, houses are burned and goods

are stolen (Buchanan-Smith and Jaspars, 2007; Justino, 2011). The majority of the world's food-insecure people live in countries currently involved in conflict (Brinkman and Hendrix, 2011: p.18). Thus, conflict aggravates food insecurity and returning back to normal life may take several years. As it has been observed in Rwanda (Verwimp and Verpoorten, 2004) and Uganda (Deininger, 2003), conflict results in the destruction of social and physical infrastructure, the discouragement of investment and trade, the destruction of human capital, and therefore, negatively affects social institutions and practice. It also destroys local and national economies.

After analysing the environmental condition in Kosovo from the early 1970s until the war in the late 1990s, Kaufmann (1999) concluded that countries experiencing chronic intra-state conflict (because of scarcity or disparity in resource use), may fragment into smaller nations and experience large outward migration. Conflict over resources mainly shortage of water (Starr, 1991; Shiva, 2002), and land scarcity and degradation (Homer-Dixon, 1999) could change existing power relations, and may worsen the problem of national insurgencies, ethnic clashes, urban unrest and lead to war. It is agreed that what happened in Kosovo before the war in the late 1990s (Ohlsson, 2000), and in Rwanda before the genocide in early 1990s (Baechler, 1999; Gasana, 2002; Cramer, 2003) was unresolved environmental conflict.

2.7.4. Causes and Consequences of Conflict in Modern Ethiopia:

The modern history of Ethiopia started in 1855 with the coronation of Emperor Tewodros II, leading to the first efforts to form a unified Ethiopian state (Bahru Zewde, 2001: p.27). The idea of unification brought Tewodros into conflict with many regional rulers who came into power and controlled the different parts of the country during *Zemene Mesafint*[6] (ibid, p.27). Since then Ethiopia had undergone a number of conflicts with both internal and external powers.

[6] Zemene Mesafint is an era of princes in the nineteenth and twentieth century's (1769 -1855) marked by war and political instability in attempting to acquire dominant positions. Bahru Zewde. (2001) *A history of Modern Ethiopia, 1855-1991,* Oxford England: James Curry. p.11

Today Ethiopia is well known in the world for periods of civil conflict, recurrent drought and famine. Of these, conflict has been cited as a major factor for today's impoverishment of many people in Ethiopia (Haile, 2007; Fujimoto, 2009; Alemayehu, 2011). The causes of conflict are many, complex and country specific. However, scholars have identified three major causes of internal conflict in modern Ethiopia:

2.7.4.1. Struggles for positions of power:

War and internal struggles for power are important aspects of Ethiopian history. Ethiopia was attacked by foreign aggressors several times, for example Egypt in 1875, Italy in 1882, and again in 1935 (Ofcansky and Berry, 2002). However, the main driving force of most conflicts seen in Ethiopia in the last 150 years was to seize power in its absolute form. The internal actors involved were the regional governors who fought to hold or remain in power and retain dominant position. This has been the case for much of the twentieth century (Bahru Zewde, 2001: pp.27-47). The peaceful transition of power from one leader to another was unknown until 2012 when the late Prime Minister, Meles Zenawi, was replaced by an elected prime minister.

2.7.4.2. Popular Revolt against the Ruling Party:

There was popular rebellion against the ruling class during the past three regimes (the Imperial Haile-Sellasse from 1930-1974, Military from 1974-1991 and the current FDRE Administration since 1991). The peasant movement against the imperial regime in Gojjam region in 1968 (Bahru Zewde, 2001: p.194), and the birth of the Tigrian People Liberation Front in 1943 was partly due to the increased burden on peasants who were expected to give up as much as 75 percent of their produce (Tareke, 1984; Berhe, 2004). The 100,000 deaths in the Tigray region in 1958 (Bahru Zewde, 2001: p.196), and the 200,000 deaths during the 1974 famine in Wollo and Tigray were partly attributed to this burden (Cliffe, 1974; Tareke, 1984). In the southern part of the country peasants revolted against the imperial regime because they were driven off their land by rulers appointed by the Emperor, Haile-Sellase (Cliffe, 1974).

After the 1974 revolution, the educated elite and their associates strongly opposed the military rule. Although they consistently opposed and launched a coordinated offensive attack against the regime, an estimated 500,000 people, (Markakis and Ayele, 1977) believed to be members of the main opposition party, EPRP, (Ethiopian People Revolutionary Party) were indiscriminately exterminated by the military rulers in the mid 1970s (Bahru Zewde, 2001: p.247). Furthermore, there were many armed forces resisting the military rule (both from inside and outside). From inside, the Eritrean People's Liberation Front (EPLF), the Tigrean People's Liberation Front (TPLF), the Oromo Liberation Front (OLF), the Ogaden National Liberation Front (ONLF); and from outside the Western Somalia Liberation Front (WSLF) in 1977, were the major challenges to the "Derg" military rulers ((Bahru Zewde, 2001: pp.56-62).

Since 1991, the main actors of conflict in Ethiopia are the FDRE administration (currently in power) and several small parties organized on ethnic basis, and a few non-ethnic parties formed by the educated elites to oppose the ethnocentric federalist policy of the current FDRE administration (Young, 1996; Wondwosen, 2009). Indeed, there are still armed force resistance movements, like OLF and ONLF, against the present regime (Human Right Watch, 2012). Over all, during the past three regimes, the major cause of conflict was, or is, violation of basic economic, or political rights, of the people.

2.7.4.3. Conflict among the ordinary people over resources

The conflicting parties in this category are ordinary people organized on region, ethnic group or religion and conflicts are usually driven by economic interests, rather than the struggle for political power (Abbink, 2007). According to environmental security scholars, such conflicts are driven by "environmental degradation", as seen in the eastern part of Ethiopia over range lands used by Somali pastoralists (Kassahun et al., 2008). The conflict among Karrayu herders, large scale commercial farms and conservationists was caused by scarcity and uneven distribution of resources (Ayalew, 2009) and has been ongoing for the last fifty years.

Scarcity of water, pasture and forests in the upper and middle Awash Valley has been cited as the major cause of an on-going conflict among Afar, Argoba, Ittu and Issa pastoralists since the 1960s (Markakis, 1994a; Markakis, 1994b; Alemayehu and Hagmann, 2008). Ethnic conflict between Somali and Borena pastoralists in southern Ethiopia is a persistent problem

(Tache and Oba, 2009). This conflict is partly attributed to Borena tribe pastoralists who assume that Somali pastoralists have no right to use the grazing land and water sources in their region (ibid).

Conflict between relocated and native people has been reported in various parts of Ethiopia. For example, Fujimoto (2009) has reported the conflict between settlers and local communities in the Omo Vally region of South-West Ethiopia. Reuveny (2007) reported the conflict between settlers from the central and northern parts of Ethiopia (who were moved to the western part of the Ethiopia during the 1984-85 contested settlement programmes) and the existing local communities. Bekele (2010) recently reported conflict between Afar pastoralist and Issa ethnic groups. The latter were expanding westward and occupying territory that had been used by Afar pastoralists.

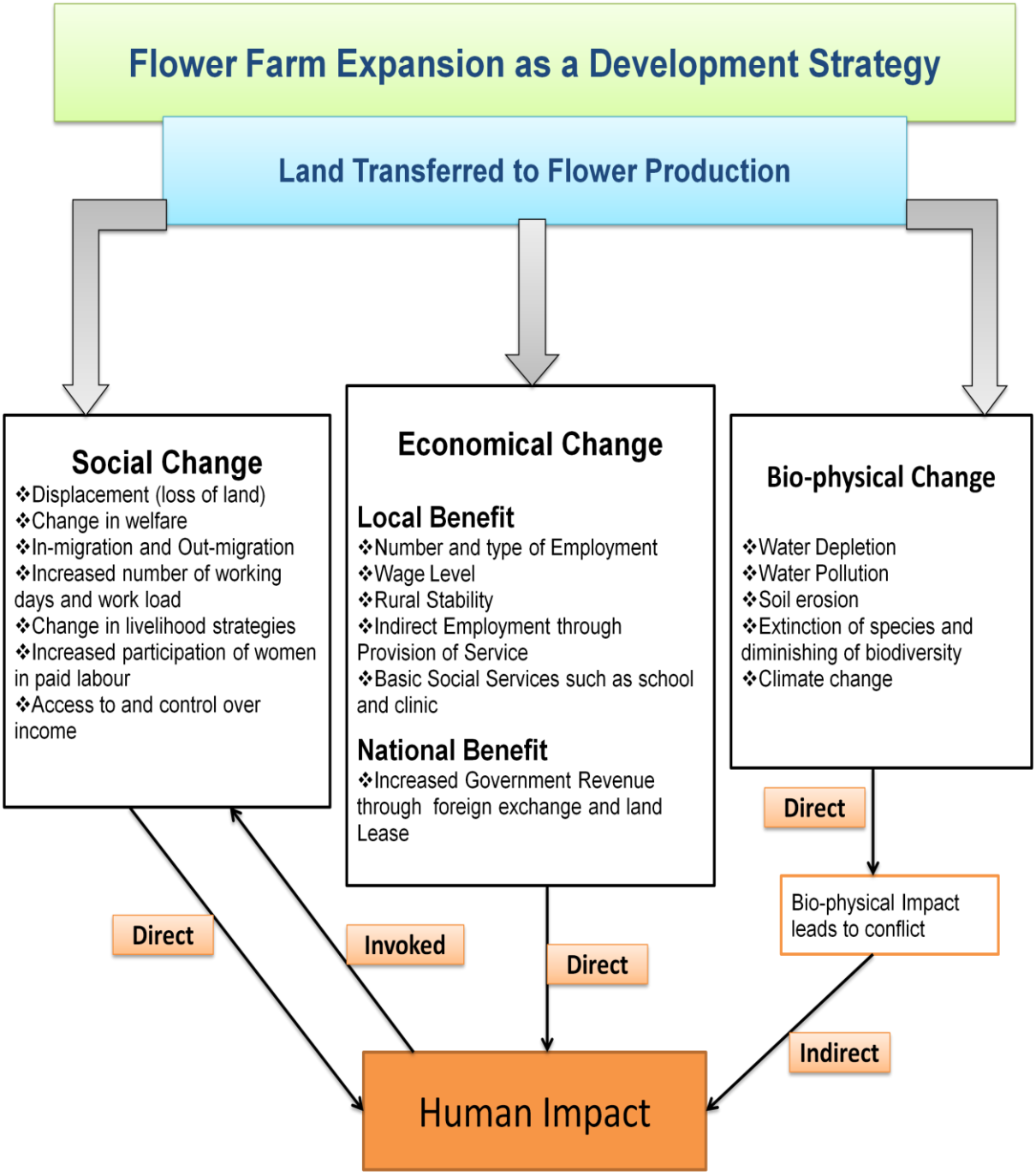
As outlined in the previous paragraphs, the history of Ethiopia was/is, dominated by a history of wars/conflict among different groups with different ideologies, languages, cultures, regions, nationalities or combinations of these, aspiring to seize power and control resources . Evidently, this has impacted on the economic performance and development of the country and is considered as one of the main explanatory factors for the poverty and under development of Ethiopia (Alemayehu, 2004; Bates, 2010).

2.8. Conceptual Framework for Evaluating the Impact of Flower Farm Development

To address multidimensional development issues and identify the key links between flower farm development and its human impacts, a conceptual framework shown in Figure 2.3 is developed. The framework is drawing on key concepts of rural livelihoods (Ellis, 2000; Reardon et al., 2007), decent work (ILO, 1999), impacts of displacement (Cernea, 1997; Cernea and Mathur, 2008), conflict, environment and development (Brauch et al., 2009; Homer-Dixon, 2010), environmental impact assessment (Glasson et al., 2005) and social impact assessment (Becker and Vanclay, 2003).

The framework presented in Figure 2.3 show the linkages between flower farm development projects and their impacts on human's society. It also identifies real and perceived impacts experienced by people as a result of the introduction of flower farms to the Ethiopian Rift Valley Region. The main components of this framework are i) transforming structures; ii) social change caused by the interventions that invoked changes in livelihood strategies and assets; iii), economic change; and iv) biophysical change.

Figure 2.4: Conceptual Framework for Evaluating Impacts of Flower Farm Development



The starting point of this framework, as indicated by the box at the top in Figure 2.4, is the transforming structures. Therefore, in this study, the main transforming structures are the introduction of flower farms following the Ethiopian government's development strategies.

Before the flower farms were introduced, the local community was dependent on and had access to, environmental resources such as land and water. However, this development intervention triggered a cascade of changes through direct or indirect pathways. Impacts originating from the introduction of flower farms that directly affect people or their animals are called direct impacts. They could be either positive or negative. The indirect impacts are the impact on humans as a result of the effects of the flower industry on the bio-physical, social and economic environments.

The box in the left labelled as social change (Figure 2.4), includes a number of social changes that directly originate from the introduction of flower farms to the Ethiopia Rift Valley region. Since the majority of displaced people depend on land for living, the study assumes displaced farmers directly experience impacts during or shortly after, the introduction of flower farms. A major impact may be a change in welfare following displacement.

Under such circumstances, households are expected to adopt other livelihood strategies as coping mechanisms. Individual households may shift from dependence on natural capital to human capital, may increase the number of working days, or migrate to other areas to cope with the change. Each outcome can be measured objectively. Therefore, to assess the impact of flower farms on the livelihood of land dispossessed people, concepts of rural livelihoods in developing countries are employed.

Initially, introduction of flower farms into the Rift Valley region was perceived (by the Ethiopian government and the general public) to have a positive and direct human impact. The box in the middle labelled as economical change (Figure 2.4), indicates the perceived economic impacts of flower farms. Flower farms are expected to create employment opportunities, rural stability through the provision of permanent employment, improvements in living standards through better wages, provision of basic social services to the local community. To assess the contribution of flower farms in these regards, the concepts of decent work is employed.

The bio-physical impact refers to changes that directly resulted from the flower farms effects on the biophysical environment. As indicated by the box at the right which is labelled as Bio-physical change (Figure 2.4), shows the biophysical changes caused by introduction of flower farms. This includes water depletion, water pollution, soil erosion, and diminishing of biodiversity. Changes in the bio-physical environment, such as diminished water levels or

pollution of water sources, will eventually have negative impacts on society. They may cause critical water shortages for livestock and human consumption and, thus, women and livestock would have to travel long distances every day to get water. In addition, pollution of water sources also has human and livestock health impacts.

Although the study of environmental pollution is important in a holistic assessment, it was not possible to carry out a direct environmental sample measurement in this study. Nevertheless, since poor handling of farm waste leads to the degradation of the environment, this study mainly focused on the handling and management of wastes that have public health impacts, and on conflicts caused by pollution, and scarcity or use of vital environmental resources (land and water) among different economic groups.

Flower farm development may offer the potential for complementary gains in raising agricultural productivity and alleviating poverty through the provision of jobs. On the other hand as shown in the conceptual framework, it could negatively affect income, food security, cause pollution and scarcity of resources, and may induce social instability and conflict.

Since the Rift Valley of Ethiopia is ecologically fragile and is a home to hundreds of thousands of smallholder farmers and is a sanctuary for birds, such rapid expansion of large scale commercial farms can present many unintended social, economic and environmental challenges. Therefore, the impacts of the expansion of flower farms in this region need to be thoroughly studied.

The framework presented above is used as a basis for data collection and analysis to provide a comprehensive understanding of the impacts of flower farms in the Ethiopian Rift Valley region. Based on the framework, the researcher surveyed and analysed data collected from flower growers (investors), flower farm employees, people displaced by flower farms, local farmers who reside close to the flower farms, but were not displaced, and also conducted an environmental risk assessment. The next two chapters describe the study area and the research methodology used.

CHAPTER 3: Description of the Study Area

3.1. Introduction

Data used for evaluation of the decent work deficits and livelihood analysis of flower farm workers were collected from Zeway region, whereas, data for analysis of the livelihood of displaced households were gathered from Debre Zeit region. Growers and exporters' survey data were obtained from the 30 flower farms located in the central part of Ethiopia. This chapter provides an overview of the livelihoods system of these areas: this includes the geography of the natural environment; the production systems; markets (trade) and consumption (food security situations) of the Zeway and Debre Zeit Regions (East Shewa zone of the Oromia regional state). The description provided is based on the rural livelihoods zoning[7] profile developed by the Livelihood Integration Unit of the Food Economy Group (FEG, 2008b).

3.2. Natural and Social environment of Zeway region

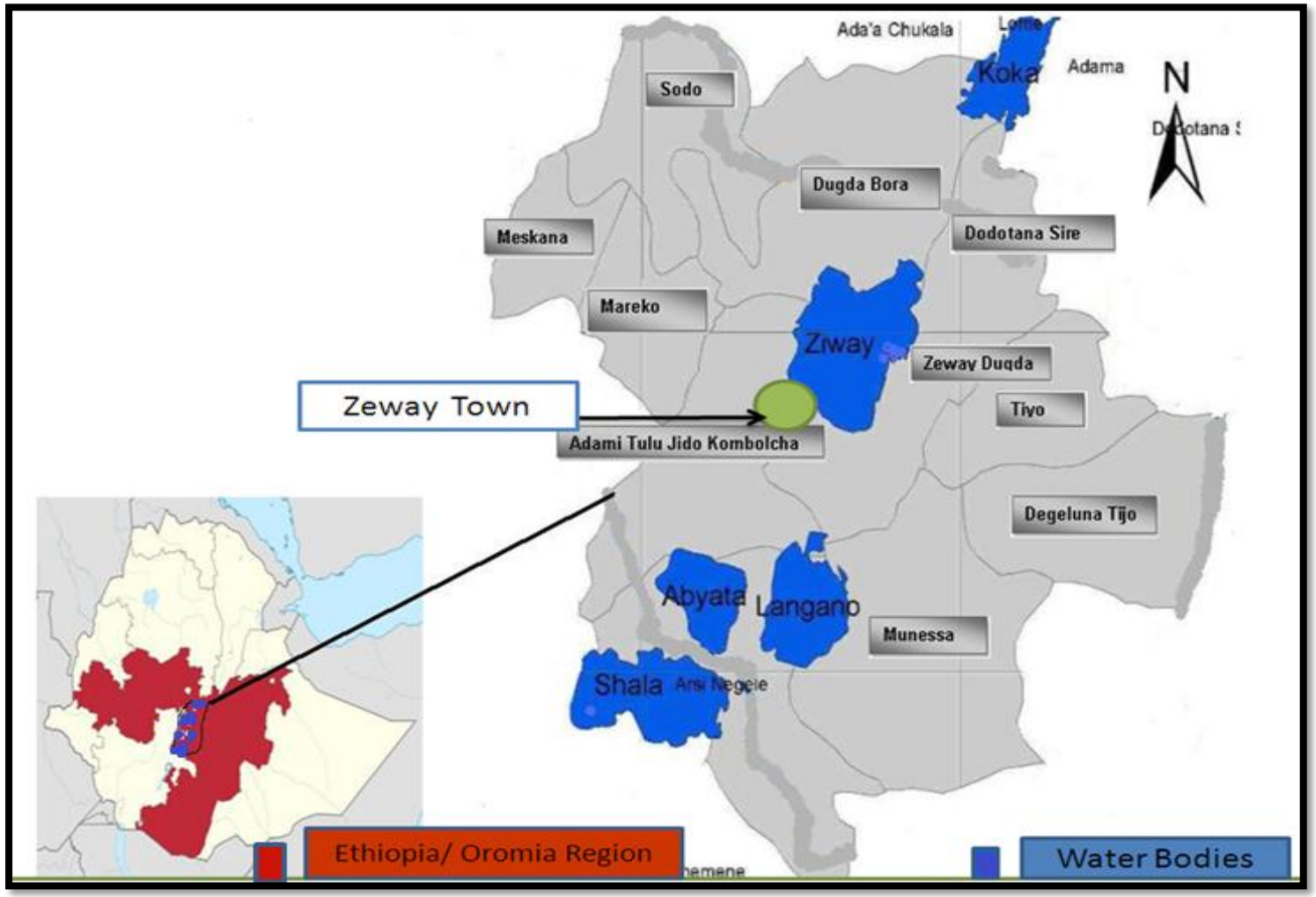
3.2.1. Geography

Zeway, the major town in the Adamituulu JidoKombolcha woreda[8] is situated in the Great Rift Valley region of Ethiopia. Adamituulu JidoKombolcha is one of the fifteen woredas found within the Maize Haricot-bean livelihood zone (RVM)(FEG, 2008b). The Central Rift Valley is 35 – 80 kilometer wide and 1,000 meters below the eastern and western high land that reaches 3000 to 4000 meter above sea level (Smith, 1984). The average altitude of the Zeway region is 1,600 meters above sea level; therefore, it is characterized as semi arid dry land (ibid).

[7] A livelihood zone is an area within which people share broadly the same means of production and broadly the same pattern of trade or exchange. FEG. (2008b) Household Economy Approach: Livelihood Zone Profile - Rift Valley Maize and Haricot Beans Livelihood Zone (RVM)

[8] Woreda are an administrative division of Ethiopia government, which is equivalent to a district. Each woreda is composed of a number of kebeles, which are the smallest division, governed by the local people.

Figure 3.1: Location of Adamitulu Jidokombolcha Woreda (Zeway region)



Source (Wikipedia, 2012; Jansen et al., 2007)

The soils of the Central Rift Valley regions of Ethiopia are diverse. For the most part, the soil is derived from volcanic origin and is fertile (Smith, 1984; Itanna, 2005; Fritzsche et al., 2007). The area receives between 730mm - 780mm of rain annually (Girma, 2005). However, the rainfall is erratic and has a bimodal pattern. The short rainy season runs between March, April and May and the long rainy season lasts from June to September (ibid).

The maximum average annual temperature ranges from 25.4 to 27 degrees celsius, whereas the minimum annual temperature fluctuates between 12.5 and 14.5 degrees Celsius (Smith, 1984; Girma, 2005). A complete vegetation survey is lacking for the Rift Valley region. However, a few studies have shown that the region is characterized by dry land acacias with some broad-leaved trees and shrubs (Smith, 1984; Feoli and Zerihun, 2000; Bedru, 2006).

3.2.2. Population

Adamituulu JidoKombolcha woreda consists of 38 Kebeles. It has a population of 142,861 (71,883 males and 70,978 females) with a density of 138 people per hectare (CSA, 2008). The average family size for the rural area is 4.9, and for the urban area is 4.2 (ibid).

3.2.3. Production System

The average land holding per household is 1.53 hectares (CSA, 2008). However, there is significant variation in land holding among different wealth groups (FEG, 2008b). Farmers in this livelihood zone usually grow maize, sorghum, wheat, and teff as the main food crops and a small number of farmers produce haricot bean as a cash crop during the main rainy season (ibid). Farmers who have access to irrigation also produce vegetables during the offseason and, thus, have multiple harvests (Ayenew, 2004; Girma, 2005).

There is a considerable population of livestock in the area. According to the ONRS report, there were about 200,905 cattle, 70,808 goats, 11,646 sheep, 10,217 equines and 44,644 chickens in the Woreda (ONRS, 2012a). There is also a very significant difference in the type and ownership of livestock among different wealth groups (FEG, 2008b). The area is also known to host migratory pastoralists (nomads) who move from place to place in search of water and grass for their animals (OESPO, 2003). Thus, Zeway area is characterized by

mixed crop-livestock farming systems. Land and livestock ownership are considered to be the main determinants of wealth in the region (FEG, 2008b).

3.2.4. Trade

Zeway is one of the three major business towns in this livelihood zone. The town is 165 kilometres from Addis Ababa, and on the major trade route that goes to Kenya through Awasa. Farm produce such as maize, haricot bean and teff and livestock are traded in Zeway or the nearby towns (Shashemene, Meki and Adama that are located within the same livelihood zone) or in the capital Addis Ababa (FEG, 2008b). There are also markets at kebele level (in walking distance) every three to four days where farmers can sell their produce (Katungi et al., 2010). Thus, revenue generated by the selling of crops, livestock, and livestock products are the major sources of income for the household (Legese et al., 2010). Although farm inputs like fertilizers, herbicides and pesticides are available in the market, not many farmers use these inputs because of ever increasing prices of agro-chemicals and diminishing yields return because of recurring drought (ibid).

3.2.5. Food security situation

Agriculture is a vital source of food in this region. The main food crop in this livelihood zone is maize followed by wheat, the majority of which comes from own production. Poor households produce up to 60 percent of their annual dietary requirements while the better-off produce up to 90 percent of their own food (FEG, 2008b). Next to crops, livestock plays an important role in people's livelihoods. On average, a local cow yields 1.7 litres of milk per day, and is mainly used for home consumption (Negash, 2012). Although the consumption varies depending on the number of lactating cows owned by households, milk obtained from cows and goats has a significant contribution to household food security (ibid). However, this source is lacking in poor households because they lack these assets (FEG, 2008b).

Most poor households consume and sell their produce during the first and second quarter of the year and run out of food long before the next harvest. As a result, deficient households suffer food shortages during the last two quarters of the year (Legese et al., 2010). Since there is no aid programme (from government or NGO source) in this livelihood zone (FEG, 2008b), food-deficient households depend on the market or other sources such as wage

employment to meet their household demands (Legese et al., 2010). However, Governmental and nongovernmental organizations like World Vision and the Catholic Relief Service provide assistance aimed at improving productivity. The major support provided includes extension services, training, supply of fertilizer and improved seed varieties (ibid)

A number of scholars have reported drought as a major shock in this livelihood zone, the major threat to household food security (FEG, 2008b; Katungi et al., 2010; Legese et al., 2010). It is caused by failure, delay, or the erratic nature of rain. Crop and pasture failure is usually accompanied by loss of livestock (FEG, 2008b). Next to drought, health problems and increased family size (Legese et al., 2010), pests and flooding (FEG, 2008b) were reported as major shocks that negatively affect livelihoods.

3.3 Natural and Social environment of Adaa-Liben Region

3.3.1. Geography

Adaa woreda is one of the 15 woredas located within the Becho-Adaa Teff and Chickpea livelihood zone (FEG, 2008a). It is part of the Oromia regional state and is located 50 km south-east of Addis Ababa, on the highway to Awassa. It covers an area of 1,750 square km, and is characterized by three agro-ecological zones (Campbell, 2005; ILRI, 2005):

1. The Rift Valley zone which has an altitude that ranges from 1,500-1,800 meter above sea level (asl). It covers about 600 square km area of land and represents 34 percent of the Ada woreda.
2. The highland zone has an elevation of 1,800–2,000 m asl. It covers about 1000 square km of land and represents 57 percent of the study area.
3. The mountain zone is located over 2,000 m asl and covers 150 square km of land and accounts for 9 percent of the Ada woreda.

Such variation in agro-ecological zonation makes the Adaa woreda suited for production of a wide range of crops and diverse agricultural practices. Furthermore, there are seven crater lakes and nine rivers in the area that are being used for irrigation purposes (IWMI, 2006).

Debre Zeit is the major city of the Adaa woreda and is one of the study sites where the displaced household survey data were collected. It is characterized by a bimodal rainfall pattern. The short rainy season runs from March to April and the long rainy season occurs from June to September (ILRI, 2005). The average annual rainfall is 866 mm, with 74 percent falling between June and September (IWMI, 2006).

The average annual minimum and maximum temperature is 7.9 and 28 degrees Celsius, respectively, while the mean annual temperature is 18.9 Celsius (ILRI, 2005; IWMI, 2006). The soils in Adaa region area are predominantly black clay soil, commonly known as vertisol (ILRI, 2005) and locally referred to as Koticha.

3.3.2. Population

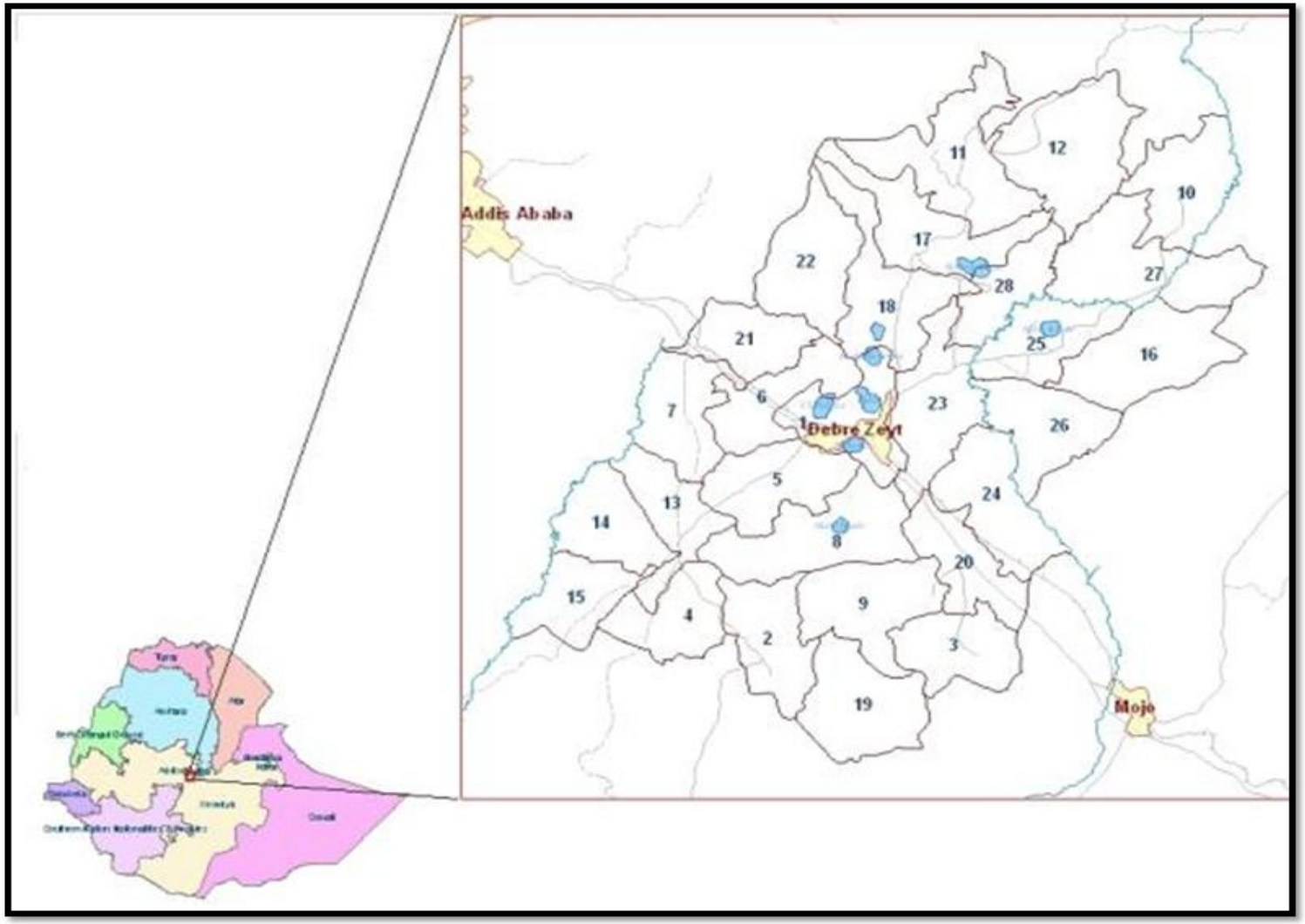
Adaa wereda is moderately populated (FEG, 2008a). It has 27 kebeles with a population of 310,059 people, of which 51.7 percent are male and 48.3 percent are female (CSA, 2008). The population of the two study sites is 9,792. Qalittii Kebele (No. 20 on the map Fig.3.2) has 5,442 households of which 52.9 percent are male and 47.1 percent are female. Ude kebele (No. 23: Fig 23) has 4,350 households of which 51.7 percent are male and 48.3 percent are female (ibid). The average household size for the woreda is 5.6 (ibid), and size is positively correlated to wealth (FEG, 2008a).

3.3.2. Production System

The livelihood zone in Adaa woreda is referred to as a Teff-Chickpea livelihood zone (FEG, 2008a), where the production system comprises of both crops and livestock. This area is nationally known for its best quality teff (*Eragrotis tef*) production, and hence, teff production dominates the production system (FEG, 2008a). The yield of teff ranges from 1.2 tonnes/ha for the local variety to 2 tonnes/ha for improved varieties (Fufa, 2011). Short season crops like chickpeas (*Cicer arietinum*) are grown in the low land on residual moisture, and farmers also grow wheat (*Triticum aestivum*) and lentils (*Lens culinaris*) in sizeable quantities (ILRI, 2005; FEG, 2008a).

The average farm size per household is around 1.6 hectares (CSA, 2006), but ranges from 0 to 4 hectares (FEG, 2008a) showing significant variation among different wealth groups. Many farmers have access to irrigation water (IWMI, 2006), produce vegetables and have multiple harvests within a year (Alemayehu et al., 2010). Farmers in this woreda spend relatively more time in the field, because teff, which is the dominant crop, is labour intensive, as land preparation requires repeated cultivation and pulverization of soil before sowing and demands thorough removal of weeds (Tiruneh et al., 2001)

Figure 3. 2: Location of Adaa Woreda (Debre Zeit)



Source: (ILRI, 2005)

Livestock play an important role in the crop-livestock production system in Adaa woreda. According to the 2008 CSA estimate, there were 191,380 livestock (including cattle, sheep, goat, equines and poultry) in the region (CSA, 2008). Oxen are the most important species in this livelihood zone. They are the main draft animals used for ploughing land and threshing (Duncan, 2010). However, not all wealth groups have oxen for traction. Poor households that do not have oxen exchange labour for ox ploughing (FEG, 2008a).

Ownership of milking cows by the wealthy farmers is common. Cows are kept for milk (mainly for home consumption) and calf production for replacement of oxen (Duncan, 2010). Almost all wealth groups own sheeps, goats, hens and equines (FEG, 2008a). In the past, the majority of livestock grazed on communal pastoral lands. However, these lands are now reduced because of urban expansion, large scale flower and vegetable farms, and are also heavily stocked and overgrazed (Duncan, 2010). For these reasons, the better-off farmers in the area keep their cattle in simply-built circular sheds within their compounds and rely heavily on crop residue and concentrate from the market for feeding their livestock (ibid).
The farmers in this region have several challenges. Shortages of farm land (ILRI, 2005), labour unavailability during the peak farming season (Asfaw et al., 2010), lack of input supply for livestock (Tegegne et al., 2010), unavailability and high price of inputs used in crop production (Fufa, 2011), and limited access to credit markets (Admasu and Paul, 2010) have been reported as determinants of this crop-livestock production system. Thus, the number of livestock and the size of arable land owned are the major determinants of wealth (FEG, 2008a).

3.3.3. Trade

Debre Zeit is the major business town in Adaa liben woreda situated just 50 km south east of Addis Ababa. It is located on the major trade route and well linked to markets in Adama and Addis Ababa. Thus, farmers have good opportunities to sell their produce. In addition to the main market in Debre Zeit town, there are about nine major open market places in the woreda (Shiferaw and Hailemariam, 2007). Farmers have the opportunity to sell their produce (teff, wheat, chickpeas, maize and livestock) directly to customers or wholesalers within two hours' walking distance (Gebremedhin and Hoekstra, 2008).

However, the market for vegetable crops such as onions and tomatoes is still a challenge (Alemayehu et al., 2010). For the most part, farmers rely on brokers to sell these products. Sale of the crop starts right after the harvest. Harvest season for teff and wheat is October and November, for chickpeas it is December and sales of livestock reach a peak level from July to September (FEG, 2008a). Many farmers use improved seeds, fertilizers and agro-chemicals; these inputs are supplied mostly on a cash basis from the market or through cooperatives (Fufa, 2011).

3.3.4. Food security situation

Teff, wheat, maize and chickpea are the main food crops in the study area. The better-off and middle class consume mainly teff and wheat, of which more than 80 percent of their food comes from own production (FEG, 2008a). The poor rely on wheat, maize and chickpea. The latter group does not have the luxury of eating teff, and obtain about 60 percent of their annual food requirements from own production (ibid). The consumption of livestock products such as meat, milk, and egg increases with wealth, thus the poor are prone to malnutrition and undernourishment (Melesse and Beyene, 2009). To meet their annual food requirement, all groups depend on the market (FEG, 2008a).

About 85 percent of households' annual cash income is generated through the sale of cereal crops, mainly Teff and wheat (ibid). Therefore, teff and wheat are not only important food crops, but are also major sources of cash income. About 42-80 percent of Teff produced is sold and the proportion sold increases with the decrease in the size of land covered with Teff (Gebremedhin and Hoekstra, 2008). On the other hand, 47 percent of wheat produced is sold to generate cash income (ibid).

The contribution of livestock products, mainly milk, butter, eggs and cheese, to household income is very small; they are mostly used for home consumption (FEG, 2008a). However, Melesse and Beyene (2009) reported that farmers living close to town sell most of their animal products because of their higher demand for cash, and thus, proximity to the cities affects animal protein consumption patterns.

3.4. Description of Growers and Exporters' Survey Data Collection Sites

3.4.1. Introduction

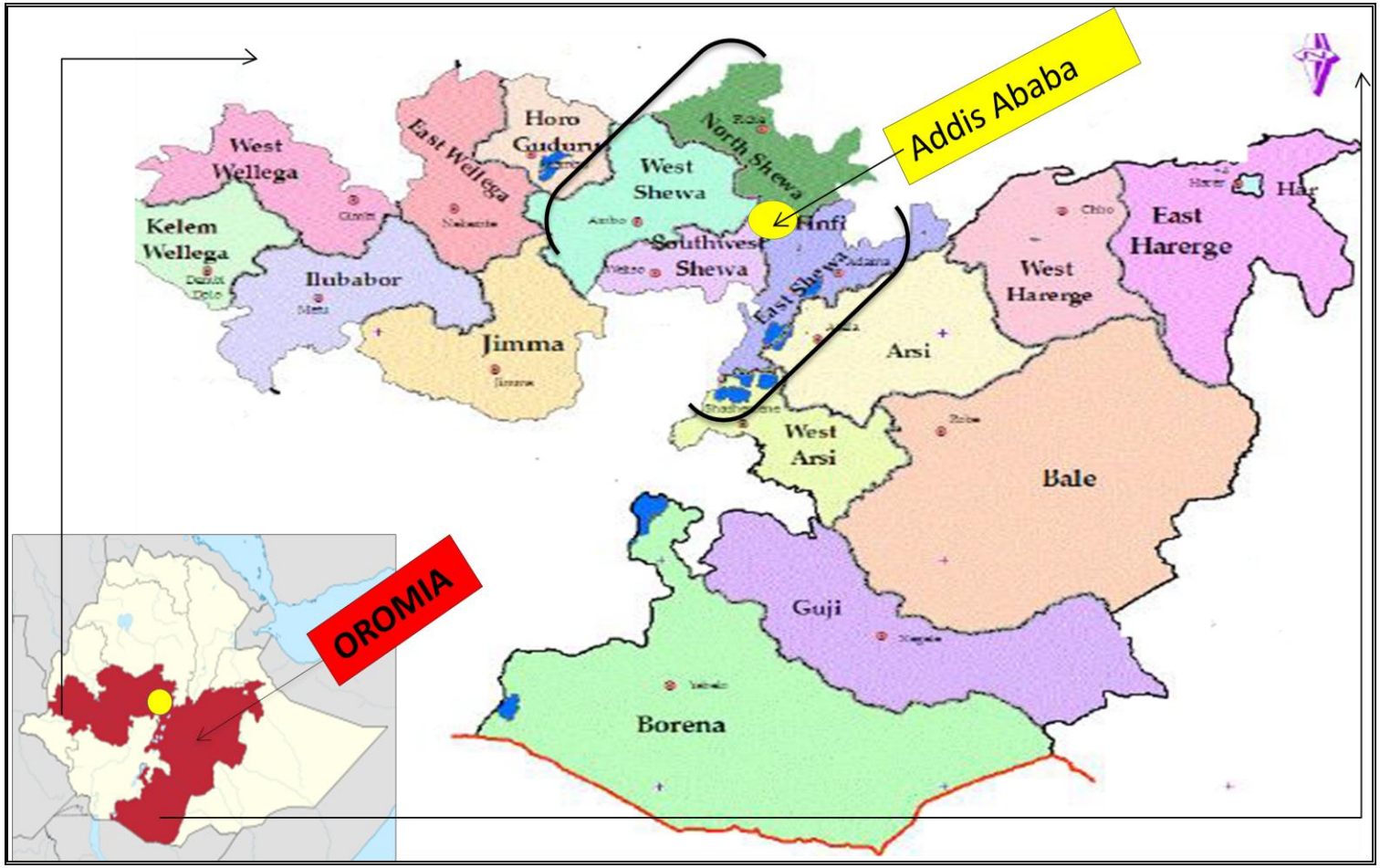
In Ethiopia, flowers are mainly produced in the Oromia region. Farm level information on the socio-economic and environmental impacts of the flower industry was collected from the following six major flower producing areas of this region: Debre Zeit, Koka, Zeway, Holleta, Sebeta and Sululta. In each site on average five farms were sampled and in each farm four to six higher officials were interviewed to get the views from flower growers' perspectives. The main focus of this section is not to describe all regions covered in this study, but to provide an overview of growers' and exporters' survey data collection sites.

3.4.2. General Profile of Oromia Region

Oromia is the largest of the new Ethiopian federal states (Figure 3.3). The total area of the region is 363,314.9 square km which accounts for almost 32 percent of the total land area of the country (ONRS, 2012b). Oromia region borders with Afar, Amhara and Benshangul regional states in the north, Sudan and Benshangul regional state in the west, Somalia regional state in the east and in the south the region borders with Gambella and Southern Nation, Nationalities and People's regional state (Figure 3.3).

The Oromia regional state comprises 18 administrative zones and 304 woredas (ibid). According to the 2008 CSA report, the region has a population of 27,158,471 people (36.7 percent of the total Ethiopian population) (CSA, 2008). The majority of the people (close to 87.8 percent) live in rural areas (ibid). The total number of agricultural households is 4,168, 441 of which 18.8 percent, 3.2 percent and 78 percent are engaged in crop, livestock, and crop and livestock production systems respectively (CSA, 2006)

Figure 3.3: Map of Oromia Regional Sate: Location of Surveyed Flower Farms



Source: (ONRS, 2012b)

Debre Zeit, Koka, and Zeway regions are located in East Shewa zone, Holleta is located in West Shewa zone, Sebeta region is located in South West Shewa and Sululta region is located in North Shewa zone (Figure 3.3). Most of the surveyed farms are located within a 50 km radius of Addis Ababa. The furthest farms are located in Koka and Zeway regions within a radius of 100 km and 160km, respectively, of Addis Ababa.

Almost all these regions are well known for the production of teff. Teff is grown as the main food and cash crop in this region and it is one of the staple foods of Ethiopia (FEG, 2008a; Gebremedhin and Hoekstra, 2008). Thus, the expansion of flower farms could be expected to impact on the food security situation of the region. Details of the survey design and analysis methods are provided in the next chapter.

3.4.3. General Characteristics of the Studied Flower Farms

3.4.3.1. Ownership-Style and Distance from Addis Ababa

About 73.3 percent of the flower farms are exclusively owned by foreign nationals, the majority of these (50 percent) are private firms and some 23 percent operate as joint enterprises. The proportion of flower farms solely owned by the Ethiopian investors is low, accounts only 26.7 percent (Table 3.1).

Table 3.1: Type of Flower Farm Ownership

Farm Ownership	Land holdings
Joint Venture	23 %
Ethiopian Nationals	26.7%
Private Foreign company	50.3%

(Source: Own Survey)

The majority of flower farms are located within a 50 km radius of the capital, Addis Ababa, except Koka and Zeway which are located within a 100 and 160km radius, respectively (Table 3.2). All of the flower farms surveyed are well connected to the capital Addis Ababa and Bole International Airport by road, except one farm in Sebeta location. This farm was inaccessible to heavy trucks during the rainy season, and flowers were transported from the farm site to the main roads by tractors (Researcher observation).

Ethiopian Airlines has many destinations and many other Airlines fly to Ethiopia. The presence of such a good transportation network makes the production and export of cut flowers a viable development and has a significant contribution to the growth of the sector. Nonetheless, 53 percent of flower growers are not happy with the current air freight service and blame the Ethiopian Airline cargo department for poor consignments, exposure of flowers to uncontrolled temperature and delay in delivery to target destination.

Table 3.2: Numbers of Farms Surveyed

Farm Location	Number of Farms surveyed	Distance from Addis Ababa in Km
Koka	6	100
Debre zeit	6	45
Holleta	5	40
Sebeta	6	30
Sululta	2	25
Zeway	5	160

(Source: Own Survey)

3.4.3.2. Types of Flowers Produced

Sixty-three percent of Ethiopian flower growers were involved in the production of a wide variety of Rose (usually classified as short, medium or large) with different colours (Table 3.3). The remaining were producing summer flowers, like hypercium and gypsophilia and cuttings like lily, geranium and chrysanthemum. The price margins of summer flowers are relatively higher than roses. Furthermore, about 13 percent of the surveyed flower farms were

also involved production as a strategy to cope with fluctuations of the world flower market and to maximize the utilization of land under their possession (Table 3.3).

Table 3.3: Product Type and Proportion of Farm Involved

Produce	Proportion of farms involved
Roses	63%
Summer Flower	23%
Roses + Vegetables	13%

(Source: Own Survey)

3.4.3.3. Flower Export and Marketing

Flowers are mainly produced for export. The way flowers are marketed varies from grower to grower. Half of the flower growers export their product directly to the auction market in Holland (Table 3.4). About 23 percent of the growers have direct buyers, whereas 12 percent of the growers supply their products to a mother company in Europe. About 15 percent of the flower growers participate both in auction and direct sales.

Table 3.4: Market for Flower

Product Destination	Sales share
Auction Market	50%
Direct Market	23%
Mother Company	12%
Both Auction and Direct market	15%

(Source: Own Survey)

About 77 percent of flower growers who participated in the auction market appreciated the absence of a cap on the amount of flowers exported and immunity from quota requirements to participate in the auction market.

Although selling flowers on the direct market fetches more money than auction, the flexibility and freedom to sell their produce throughout the year is what has attracted many exporters to the auction market. Besides, 25 percent of those who were involved in direct market reported that direct buyers have high standards which are difficult to achieve under

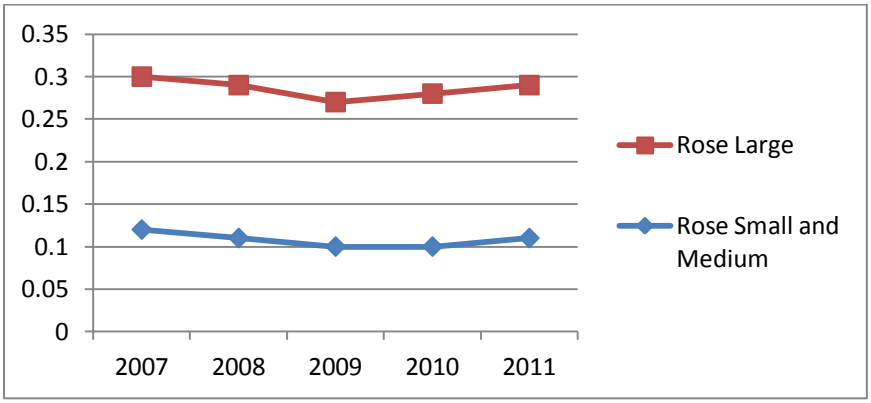
their current conditions. For that matter, five flower farms have already lost direct buyers because of quality issues.

The main reason why some of flower exporters stick to the direct markets is not because of the high premium, but they cannot afford the basic requirements of the auction market, that is continuous cut flowers supply throughout the year.

3.4.3.4. Price of Flowers

The average price of exported flower per stem at the Auction Market in Holland during the survey period was €0.10 for small and medium size roses and €0.25 for large size roses (Figure 3.4). According to the survey data, Ethiopian flower growers were selling a stem of short and medium size rose for €0.085 and large stems for €0.23. Only 20 percent of flower growers reported that this is a good price, because it is close to the average on the international market. The majority of flower growers complained that this price margin is very low, and some expressed frustration and their ability to pay back their loans on time.

Figure 3. 4. Average Price of Imported Flowers at the Auction Market in Holland



(Own Drawing: Data Source ITC: 1 Jan, to 31 Dec, for all Years accessed 23 July, 2012)

CHAPTER 4: Research Methodology

4.1. Introduction

To evaluate the socio-economic and environmental impacts of the flower industry, this study examined pay and working condition among wage workers in Zeway and the dynamics of land expropriation/transfer and their implication for welfare in Debre Zeit area. The objectives of the study are i) to study the working conditions in flower farms and to assess the relationships between wage incomes and livelihoods of the flower farm workers; ii) to study the impact of flower farm expansion on the livelihoods of the local community; iii) to examine the incidence of environmental conflicts among flower growers and local farmers.

An exclusive quantitative or qualitative design alone cannot comprehensively capture data to answer some of these research objectives. Moreover, to make a strong evidence based claims about the consequences of flower farm expansion on the livelihoods of people on, following Creswell (2009: p.203), a mixed method, combining quantitative and qualitative design, was used to study the impact of flower farm expansion on the livelihoods of the community at stake. Consequently, both quantitative and qualitative data were collected simultaneously during the study period, and integrated during data analysis and interpretation.

The main source was a cross-sectional survey conducted between 2010 and 2012. Four quantitative data sets and a wide range of qualitative data were collected during the survey period. The quantitative data includes an employee labour practice survey, an employee income and expenditure survey, a displaced household survey, and a flower growers and exporters survey. The qualitative data range from observations to an in-depth focus group discussions. In addition, secondary data were obtained, mainly from the Ethiopia Revenue and Custom Authority (ERCA) and the Ethiopian Central Statistical Authority and some other sources, and are used to support the study findings.

The study dealt with a number of issues, therefore, the unit of analysis depends on the subject under discussion; it could be at farm, household or community level. For example, the decent work deficit was evaluated at farm level, livelihood analysis of farm workers and displaced

households was assessed at household level, and prevalence of conflict was examined at community level.

Following Deaton (1997), in this study, a household is defined as a group of two or more persons who lives together and make common provision for food and other essentials of living. Local units of measurement are used to report analytical data in most cases. Area is measured in kert (which is equivalent to 0.25 hectare), Birr (Ethiopian currency) is used as a unit of currency throughout this report, but, converted into USD in some instances. On average 1 USD was equivalent to 17.5 Ethiopian Birr during the survey period.

4.2. Description of Quantitative Data Collection Methods

This section describes the data collection methods employed in labour practice, income and expenditure, displaced households', and growers' and exporters' surveys.

4.2.1. Employee labour practice survey

4.2.1.1. Objective

The general objective of Employee Income and Expenditure Survey was to collect basic quantitative information on labour practices in the flower industry to assess whether there is a decent work deficit in the flower sector.

4.2.1.2. Scope and Coverage

The range of data items that the labour practice survey dealt with includes personal information, previous employment history, job description, wages and expenditure, employment benefits, occupational safety, treatment based on gender difference, and service provisions (see Appendix 2). Five flower farms were surveyed. Each farm was divided into eight sections and samples of employee were drawn randomly from each section. A total of 195 employees were selected for interview. Table 5.3 provides a summary of employees involved in this study, by occupational role, gender and other relevant characteristics.

4.2.1.3. Sampling Frame

Since most flower farms are not open to the general public and have strict security policies, it was difficult to get access to the farms and employees to conduct the surveys. For this reason, perhaps, it was necessary to go through the Ethiopian Horticulture Producer and Exporters Association (EHPEA). A draft proposal was submitted, and several meetings were held with EHPEA officials to discuss the scope and objectives of the study, in order to get approval to access farms and conduct the study.

After a thorough evaluation of the draft proposal by EHPEA experts and, being convinced of the significance of this project and the value of information to be generated, official permission was granted to access EHPEA member flower farms and interview farm employees such as farm workers, supervisors, managers, and health professionals (Letter attached, see Appendix 8: A). Because of this, all flower farms that are under the auspices of EHPEA were used as a sample frame to select farms. Among the surveyed flower farms, only was not member of the association.

4.2.1.4. Sample Design and Selection

In order to select the sample of workers, a stratified two- stage cluster sample design was implemented. Each flower farm was considered as a primary sampling unit. The secondary sampling units were sections (departments) within the flower farms. A list of workers was obtained from each section. Employees were randomly chosen from each section for interview in relative proportion to the workers in each department. The number of employees selected for the labour practice survey was determined by the amount of resources allocated for the survey.

4.2.1.5. Organization of Field work and Data Collection

Five enumerators were hired to assist with the survey process, data collection, handling, and management. The enumerators were graduates from agricultural colleges who were looking for jobs. Thorough training was provided before deployment and tools and materials required for conducting the survey were provided. The survey was successfully conducted and completed on time as planned.

4.2.1.6. Data Processing

The raw data were edited, coded, and verified in preparation for further statistical analyses. Coding and editing were carried out in the field by the enumerators. The completed questionnaire data were double checked and verified by the researcher before they were passed to the data entry phase. The edited and verified data were then entered into a Microsoft Excel spreadsheet. The data in spreadsheet were further reviewed for accuracy, data inconsistency, and missing values. Eventually, the data were transferred into the data management software package Stata 9.2 for statistical analysis.

4.2.1.7. Limitation of Employee labour practice survey

The employee labour practice survey conducted in Zeway region; 'cover' only 2.24 per cent of the total 8700 work force. The sample size was determined by the amount of resources allocated to the survey. As this sample size is small and statistically is not representative of the working population it was drawn from, results need to be carefully interpreted. To overcome this limitation, qualitative findings are provided. The very rich qualitative findings presented throughout this thesis along with interpretation of the quantitative survey data generate valid and substantive results to elicit a valid conclusion.

4.2.2. Employee Income and Expenditure Survey.

4.2.2.1. Objective

The general objective of Employee Income and Expenditure Survey was to collect basic quantitative information on flower farm workers' income and expenditure, and to assess the effect of wage income on household livelihoods.

4.2.2.2. Scope

The range of data items that the employee income and expenditure survey dealt with includes basic household data; income sources (remittances, crops, livestock, self-employment, wage-employment and off-farm income); asset holdings; items bought within a "one month" period for consumption (food, house rent, school fees, transportation costs, and so on); savings and larger items bought in the past year (see Appendix 4).

4.2.2.3 Sample Design, Selection and Coverage

The survey of employees was conducted in two phases. The second survey was started three months after the first survey. During the second phase, a questionnaire-based survey was administered to the same employees who participated in the employee labour practice survey during the first phase. Workers were interviewed on their day of at their own home. Since the flower farm runs from Monday to Sunday, farm workers' day off schedule changes on a weekly basis, and employees either work for extended hours or are involved in part-time jobs somewhere else; coordination of interviews was, therefore not easy. Contact details collected during the first phase survey were very useful for the survey. Hence, employees were contacted by phone and through their friends to schedule appointments for interview before the field visit. Out of the 195 employees involved in the first phase survey, 151 employees were interviewed (on their day off) during the second phase survey. After data cleaning, 139 observations were obtained.

4.2.3. Displaced Household Survey

4.2.3.1 Objective

The general objective of Displaced Household Survey is to collect basic qualitative and quantitative information on shocks experienced by displaced households and their coping strategies. The data are vital to evaluate the impact of the flower farm development projects on the livelihoods of local people.

4.2.3.2. Scope and Coverage

All people who participated in the displaced household survey were interviewed about shocks that affect their livelihood, which they have experienced in the last ten years and their coping strategies. In addition, information on basic household data, income sources (remittances, agriculture, self- employment, wage-employment, and off-farm income), asset holding, items bought in a "month" time for consumption; savings and larger items bought in the past one-year were collected. A total of 168 households who were residing in Adaa district of Oromia regional state were involved in this survey. Eighty-six of these households were dispossessed their land for the sake of the development and expansion of flower farms, whereas the remaining 82 were a control group (still live in the vicinity of flower farms on their own farm land).

4.2.3.3. Sampling Frame

To assess the livelihoods of displaced people, a comparative household level approach was used in this study. For the purpose of this study, households displaced by the flower farm are termed as Displaced Households and the control groups are termed as Non-Displaced Households. The selection of villages was based on the following criteria. The initial plan was to gather all information from Zeway region. However, during discussion with EHPEA, it was realized that most of the flower farms in the Zeway region were established on land that was not owned by local people, which belong to the state. That is to say, not many local people were displaced in Zeway region. In contrast, most of the flower farms in Debre Zeit region were established on land that was previously held and used by the local people.

Hence, flower farm development in Debre Zeit region took place at the expense of the evacuation of many small land holding rural farmers and their families. Therefore,

considering the availability of resources and easy accessibility of the region, the focus switched to Debre Zeit to gather information that can be used for evaluation of the impact of flower farm development on the displaced households.

4.2.3.4. Ethical Considerations

It was not easy to locate the displaced people and conduct interviews. To get access to the local people, first the researcher went to Debre Zeit and explained the objectives of the study to the district Bureau of Agriculture and Rural Development. After thorough discussions with the Bureau of Agriculture, permission was granted to conduct this study in Adaa Woreda (Letter attached, Appendix 8: B; C). With the assistance of the District Agricultural and Rural Development Office, two kebeles (villages): Qalittii number 23 and Udee number 20 (see Figure 3.2, p.73) were identified as a target location where the majority of displaced people were settled. Accordingly, these two kebeles were used as the primary sampling unit.

4.2.3.5. Sample Design and Selection

A stratified cluster sampling design was used to select samples. Villages where the displaced households resided were treated as the primary sampling units. With approval of the local kebele officials, the lists of displaced people were identified and gathered. Names of 76 participants were randomly picked from this list. In addition, another 10 main informants were handpicked from the displaced people list. The latter have lived in the area for long period and were the main activist during the 2010 farmers uprising. A total of 86 displaced people (of which 58 were from Qalittii and 28 were from Udee kebele in the Adaa district of Oromia regional state) participated in this study.

Due to the lack of baseline information to which the outcome variables of the displaced communities could be compared, following Creswell (2009: p.160) a quasi experimental design (non-equivalent Pre-Test and Post-Test Design) was employed in this study to select a control group. Asking proxy variables to estimate where the displaced groups would have been before displacement, is not encouraged for estimating actual pre- and post-displacement changes, because, people may forget where they were at some prior time or may distort the pre-test estimate to make themselves look better. Based on a quasi experimental design, a control group that consists of 82 non-displaced households were carefully selected.

In order to minimize unobserved selection biases that may be present other than displacement, only households that are very close to the displaced households and within close proximity to the flower farms were selected. Selection of non-displaced households was based on interviews conducted with each kebele development agents wherever a household was identified as non-displaced.

The main difference between the test and control group is that the displaced households have lost their land, whereas the control group were not displaced and still own and live on their farm land. The study assumes displacement changed the status of the two groups. Other than that, all other factors affecting livelihoods, such as the natural and socio-economic conditions described in Chapter Three, access to a pool of common resources, distance to the market, access to credit services, social services, soil type, and exposure to natural hazards, remained the same for both groups.

4.2.3.6. Limitation of Displaced Household Survey

As outlined earlier, due to the lack of baseline information to which the outcome variables of the displaced communities could be compared- in Debre Zeit region the research adopted some of the elements of a quasi-experimental research design. Although precautions were taken in selection of the control group, a quasi-experimental design cannot match an individual participant response from pre- to post-displacement. Therefore, there is a risk of bias because of the presence of a non-equivalence situation between and within displaced and none-displaced households.

Moreover, it is hard to satisfy strictly all conditions of experimental design. Therefore, the study cannot guarantee nor claim that the ‘treatment’ and ‘control’ groups were really identical in all respects except for the vivid difference in land loss. Rather than proxy pre-displacement variables from displaced households to estimate changes, it is advisable to look at the changes in the average livelihoods outcome variable between the two groups. The size for displaced household survey was determined by the amount of resources allocated to the survey.

4.2.4. Flower Growers and Exporters Survey

4.2.4.1. Objective

The general objective of Flower growers and Exporters Survey was to collect basic qualitative and quantitative information regarding social, economic and environmental issues associated with flower production. The information was used throughout the study.

4.2.4.2. Scope and Coverage

The range of data items that the growers and exporters survey dealt with include, employment opportunities created, working conditions, information on farm economic indicators, safety measures and compliance to regulations regarding safe usage and disposal of toxic chemicals and environmental protection, challenges encountered, opportunities, and the future status of flower growers and the flower industry in Ethiopia from flower growers' and exporters' points of view. Officials such as general managers, production managers, administration managers, human resource managers, safety officers, and agronomists were interviewed. A total of 30 flowers farms located in the central part of Ethiopia were included in this survey.

4.2.4.3. Sampling Frame

As explained earlier, farms that are members of EHPEA were used as a sample frame to select flower farms except one. The list of flower farms was obtained from EHPEA.

4.2.4.4. Sample Design and Selection

In order to select flower farms from the sample frame, a stratified cluster sampling design was implemented, because farms are clustered geographically. Purposive farm site selection was made, based on geographical location, to get a representative sample. On average, five farms from each cluster and a total of 30 flower farms, were selected and surveyed. The flower growers and exporters survey data were collected by the researcher himself from the 30 sampled farms which are located in the central part of Ethiopia. Data processing is the same as for previous data sets.

4.3. Description of Qualitative Data

4.3.1. Introduction

To study the impact of flower farm expansion on the livelihoods of the community at stake, a wealth of qualitative information, ranging from small individual case studies to in-depth focus group discussion, were collected and used in this study. The types of qualitative data collected and used are described in this section.

4.3.2. Observation

During the survey, the researcher visited more than 30 flower farms in the central part of Ethiopia. He observed the working environment and had conversations with several employees who were not included in the interview schedule. He also visited many rural displaced households, had discussions with the people, and observed their living conditions. Following Yin (2003), Gillham (2008), and Marshall and Rossman (2011) during every encounter, information relevant to the study were captured in a diary, photographs, and video tape, without intermediate instrument. A wealth of information gathered through direct observation during the survey period is used in this study to supplement the quantitative findings.

4.3.3. Case Study

One of the government's major justifications for introducing flower farms to Ethiopia was the employment opportunities it creates for many people. To portray the impact of wage intervention in real life contexts, such as how workers perceive wage employment, and how do they feel about it, following Marshall and Rossman (2011), cases studies of individual workers randomly selected from the study group were carried out and information was gathered through interviews. The information was gathered by the researcher himself during the second round workers survey at their own home. The cases are presented as a part of the main findings and used to supplement the quantitative findings.

4.3.4. Focus Group Discussion

The displaced households clearly articulated the direct socio-economic impacts of displacement on their livelihoods. This is presented in the subsequent chapter using

quantitative data collected from displaced households. However, emotions, resentments, and situations like ongoing friction and unresolved conflict between the local people and the flower farms are difficult to statistically explain.

Therefore, focus group discussions were organized in order to get insights and explore the nature and situations of the conflicts. The participants were recruited from the list of displaced households. Following Stewart et al. (2007), who argues that people who know each other very well and share similar values tend to communicate and express their views and thoughts freely and will be free to talk, the researcher in collaboration with local development agents who had close relationships with the community, grouped the participants by village into 16 groups and finally, meeting times and places were arranged.

Following the guidelines suggested by Stewart et al. (2007), the focus groups were assembled in small groups of four to eight people and discussion was facilitated by a moderator (the researcher's major role was taking notes, and, sometimes assisting the moderator). The amount of time allotted to each focus group discussion was 45 minutes to one hour. A set of carefully predetermined open ended questions was administered (see Appendix Six: for security reasons a list of focus group participants and key informants is not included in the appendix). These predefined questions helped the group to actively participate in discussion and generated valuable data that could be used in conflict assessment.

Following Stewart et al. (2007), the unit of data analysis was a sequence of sentences and complete dialogue about the issue under discussion. Responses to each question was entered into a separate Excel data-base, coded, collapsed, and re-categorized. The researcher then organized the comments, and used recursive abstraction of selected material, narrated and generated case studies based on major themes, thematically identified in line with research questions, and reported the views of the participants. The main findings from focus group discussions are presented in Chapter nine.

4.4. Description of Data Analysis Methods

The study examined the full range of social, economic and environmental impacts that flower farms had on the environment, the economy and society. Therefore, a wide range of data analysis methods are used, depending on the type of impact being analysed and the type of data available for the study. Methods employed for data analysis and justification of the variables that are included in the model are discussed in this section.

4.4.1. Descriptive Statistics

Descriptive statistics are used throughout the study to describe the data sets and provide preliminary analysis. Means are used to measure central tendencies, while standard deviation, minimum and maximum value were used to measure variability; percentages are used to measure change and difference, and Likert scales are used to describe the sum of responses. All statistical analysis in this thesis are conducted using the data management software package Stata 9.2 (StataCorp, 2007).

4.4.2. Determinants of Wage Levels

To identify the determinants of wage levels, following Wooldridge (2009) the study employed robust regression as an alternative to Ordinary Least Square regression (OLS) because of data contamination with outliers. The dependant variable in the model is nominal monthly wage. Socio-demographic and some exogenous variables are used as independant variables. The wage equation has the standard Mincerian schooling form (Mincer, 1974), which measures rate of return to schooling, experience and other human capital factors that may affect earnings. In the regression model age, sex, education, experience, working hours and other exogenous variables like location of family home and organization (where employees prefer to work) were included.

$$\text{Therefore, Wage} = \beta_0 + \beta_1 \text{ age} + \beta_2 \text{ sex} + \beta_3 \text{ education} + \beta_4 \text{ prev service year} + \beta_5 \text{ Pres service year} + \beta_6 \text{ working hour per day} + \beta_7 \text{ family home} + \varepsilon$$

$$y = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \beta_4 x_4 + \beta_5 x_5 + \beta_6 x_6 + \beta_7 x_7 \ldots + \varepsilon$$

β_0 is the OLS intercept estimate and β_1 to β_7 are the OLS slope estimates that correspond to the independent variables x_1 to x_7 *and* ε *is the error term.*

There is a wide difference in wage levels around the world. The wage level is often influenced by the structure of economies, market forces mainly supply and demand, legislation and institution (Freeman and Oostendorp, 2000). The variables included in the model were selected based on the study assumptions and previous literature mainly from Ethiopia and other developing countries. Some of the studies are briefly discussed below.

Education and experience are considered as investments that increase wage earning potential (Mincer, 1974). Using panel data collected from seven major cities in Ethiopia, Girma and Kedir (2005) has reported evidence of wage returns for schooling of 13 percent and for experience of 8 percent, at the lower income quartiles in the private sector. Similarly, using data from the manufacturing sector, Temesgen (2005) reported 6 to 7.8 percent wage raise for each year of experience.

Gender is believed to have an impact on wage earning, since the earning function favours men rather than women. Using data from the 1990 Survey of Adolescent Fertility, Reproductive Behaviour and Employment Status of Youth Population in Urban Ethiopia, Appleton et al. (1999) reported that male wages exceed female wages by approximately one quarter. This wage difference between male and female employees follows a global trend and is largely attributed to gender inequality (discrimination) and other factors which were not observed in this study.

However, Temesgen (2005) also observed only 5 percent wage premiums for men over women after controlling for firm level characteristics (decomposing employment by sector). Using the 2005 Labour Force Survey and a Quantile Model Regression analysis, Kolev and Robles (2010) reported less returns for women's experience than for men in private sector employment at the first quartile (among the low income group) and the hourly wage was only about 66 percent of the males' wages.

4.4.3. Determinants of livelihood Diversification Strategies

To investigate the influence of socio-demographic factors in the livelihood diversification strategies of flower farm workers the study employed Multinomial Logistic regression (MNL).

A multinomial logit model (MNL) is a widely used technique to analyse polytomous response categories in different areas of socio-economic studies (Schmidt and Srneuss, 1975; Dercon, 1996a; Dercon, 2002; Nhemachena and Hassan, 2007). In this study, it is used to explain factors that determine the probabilities of household participation in alternative activities to generate income.

4.4.3.1. Specification of the Model

To describe MNL Let Y_{ji} be the livelihood activity of individual i when he or she chooses alternative j (j = 0,1……j). Choice 1 would be made if $Y_1 \geq Y_0$ (Gujarati, 2011). However, if there are a number of alternatives, it is assumed the household will choose the best option(s) of livelihood strategies that maximize individual household benefits. Y_i can take value $0,1,2,,\ldots.J$ to indicate the different alternatives and consequently there are $J + 1$ alternatives (Gujarati, 2011: p.158-160).

Under such circumstances, one alternative is selected as the base alternative, and then each other possible choice is compared to this base alternative. The dependent variable is the log of the odds of the j^{th} alternative being chosen compared to the base alternative.

$$1n\left(\frac{P_{1i}}{P_{bi}}\right)$$

Where: P_{1i} = the probability of the ith person choosing the 1st alternative

P_{bi} = the probability of the ith person choosing the base alternative

Therefore, for j alternatives the probability of individual *i* making any choice can be computed as

$$\Pr(Y_i = j) = \frac{exp(\beta_j X_i)}{1 + \sum_n^j = 1\ exp(\beta_j X_i)},$$

Where,

Y = denotes the choice of livelihood strategy taking the value a random variable (0, 1, and 2…J) for J is a category

β_j *= the vector coefficient for the category J*

X_i *= denotes a set of explanatory variables for observation i*

n=the number of treated observations in category J

For the reference category

$$\Pr(Y_i = j) = \frac{1}{1\ +\ \sum_n^j =\ 1\ exp(\beta_j X_i)}$$

4.4.3.2. Dependent and Explanatory variables

Following the classification of activities by Reardon et al (2007), as discussed in section 2.4.3 (above), employees were grouped into three major categories, based on their strategies to generate household income. The dependent variable is livelihood strategy which takes the value "0", "1" and "2". Group "0" represents those whose income solely comes from wages; group "1" earns income from wage and agriculture, and group "2" generates incomes from petty self-employment in addition to wages. These activities are believed to be the function of individual characteristics and household assets (Ellis, 2000).

A set of explanatory variables as outlined below that includes household, demographic and employment characteristics, were taken as independent variables. Choice of these explanatory variables is based on the available survey data and the respective theoretical assumptions provided below. After performing a correlation test it was observed that land, livestock ownership and access to credit were correlated, and therefore, dropped from the model. However, the mechanisms by which these explanatory variables affect livelihood will be discussed later in this chapter.

Definitions of key explanatory variables that determine participation in Rural Non-Farm Employment (RNFE) is provided in this section. The hypothesis on each explanatory variable on how it affects participation in agriculture and other rural nonfarm activities is also presented.

a) Age

Age of the head of household can be used to capture wealth and experience. Thus, the probability of a household being poor decrease with age (Odhiambo and Kulundu, 2003; Beyene, 2010). Numerous studies have also shown an inverse relationship between the age of an individual and participation in labour employment. At first, participation in wage labour increases with age, but for the elderly the effect declines in importance due to health problems (Ruben and Van den Berg, 2001), and individuals acquire enough knowledge over time to deal with income fluctuations and risk without involving in diversification strategies (Teweldemedhin and Kapimbi, 2012). This study also hypothesizes that participation in waged employment decreases with age.

b) Gender

The gender of individuals has a substantial impact on participation in diverse livelihoods. Female-headed households are less likely to participate in labour markets than male-headed households. This is because of the social and cultural constraints and requirements for females to stay at home to manage household activities and raise children (Davis et al., 2009). Nevertheless, the majority of flower farm workers are female. Female employees tend to work longer hours in flower farms than their male counterparts. Since women have additional household responsibilities after work, the study hypothesises that male employees participate more in diverse livelihoods than female employees.

c) Total Number of Adult Individuals

The focus of this analysis is on individuals of working age, defined here as those between the ages of 10 and 60. The influence of the number of adult individuals per household on participation in diverse livelihoods can be seen from two viewpoints. The first assumption is that households with large families may be forced to divert part of the labour force to off-farm activities in an attempt to earn more income to alleviate the consumption pressure

imposed by a large family (Dercon, 1996a; Dercon and Krishnan, 2000; Dercon, 2002). The second assumption is that large family size is usually associated with a higher labour endowment, which would allow a household to carry out various livelihood activities (Dercon, 2002; Tefera, 2011). Therefore, here it is expected that households with a larger pool of labour are more likely to participate in more diversified livelihoods.

d) Education Level

Higher levels of education are believed to be associated with more diversified livelihoods, higher productivity and better access to information (Reardon et al., 2007). Evidence from Nicaragua suggests that less educated households rely on low paying farm wage employment (Corral and Reardon, 2001), and low paying nonfarm or service sector jobs (Elbers and Lanjouw, 2001). There is a positive relationship between education level of a household head and the poverty status (Lanjouw, 2007). Therefore, this study hypothesized that employees with higher levels of education are more likely to diversify, by participating in agriculture and self employment rather than living only on low paying wage employment.

e) Travel Distance

Travel distance largely determines the participation of households or individuals in waged labour or self employment activities. This is because people must be able to sell their produce (Reardon et al., 2007) and, as distance decreases, people get access to waged labour employment in the town (Woldehanna, 2001). In this study, travel time to and from work to house is measured in hours. The study hypothesised that as employee travel time increases, participation in diverse livelihoods decreases.

Using the explanatory variables listed above, and the study assumptions described later in the chapter six, the study predicts employees to be in one of the three groups. That is, Group “0” whose income solely comes from wages; group “1” who earns income from wage and agriculture, and group “2” who generates incomes from petty self-employment in addition to wages.

4.4.4. Vulnerability Analysis

4.4.4.1. Sources of Vulnerability and Coping Strategies

The study assumes that involuntary dispossession will make the dispossessed households more vulnerable to poverty. Therefore, in Chapter Eight, following Hoddinott (2003a), a stepwise retrospective approach to vulnerability analysis was employed to answer the following two questions (1) what are the sources of vulnerability? And (2) How do households cope with vulnerability? The information was analyzed using descriptive statistics. The major types of shocks experienced by households and their coping strategies (how households coped with the problems) are identified.

4.4.4.2. Determinants of Livelihood Diversification Strategies

The premature dispossessed households needed to adopt a range of coping strategies to sustain livelihoods and adjust to a new reality. To investigate the influence of shocks, socio-economic and demographic factors in livelihood diversification and coping strategies, the study employed a Multinomial Logistic regression (MNL) model, which is similar to the model described under section 4.4.3.1.

The livelihood strategies of these households were disaggregated based on share of income. Thus, the dependent variable livelihood coping strategies (income source) which could be agriculture, farm wage employment, nonfarm wage employment, nonfarm self-employment, and transfer has more than two discrete alternatives. This model was selected because households were typically participating in more than two livelihood activities. It is employed in chapter eight to examine the association between explanatory variables and livelihood strategies (Hoddinott and Quisumbing, 2003b; Koop, 2008).

4.4.4.3. Model Specification

The Multinomial Logistic Regression (MNL) model has been widely used to analyse polytomous response categories in different areas of socio economic studies. Similar to the model described under the previous sub heading, in this section, it is used to explain factors that determine the probabilities of household participation in alternative activities as a coping strategy to generate income. The data set for this analysis contains 168 observations, 86 households from the displaced group and 82 from the control group.

The dependent variable is choice of livelihood strategy. Exposure to shocks, household demographic characteristics and asset holding were taken as explanatory variables. One coping strategy is selected as the 'base' alternative, and then each other possible choice is compared to this base alternative with a logit equation to examine the association between explanatory variables and coping strategies (Hoddinott and Quisumbing, 2003b; Gujarati, 2011).

$$\ln\left(\frac{P_{1i}}{P_{bi}}\right)$$

Where

P_{1i} = the probability of the ith person choosing the first coping strategy and

P_{bi} = the probability of the ith person choosing the base alternative.

4.4.4.4. Description of Dependent Variables

The study examines changes in households' livelihood activities as a coping mechanism in response to the introduction of the flower farms to the Ethiopian Rift Valley region in the last decade. Therefore, following Reardon et al. (2007), the livelihood activities were aggregated into three major activities: self employment, wage employment and agriculture. Depending on exposure to shocks, household demographic characteristics and asset holding, the dependent variable, livelihood activity, can be one of three general categories: Pure Agriculture (1), Agriculture and Self employment (2), and Agriculture and Wage employment (3).

Wage employment in the rural areas is considered as a temporary employment contract and it does not require as much capital as self employment; the main requirement may be only one's own labour (Reardon et al., 2007). On the other hand, off-farm self employment involves ownership of an enterprise that produces goods and services, and consumers (ibid). Because of shocks that they encounter, the study assumes the displaced households participate more in these livelihood activities as a coping mechanism rather than staying in pure agriculture. Therefore, "1" is assigned to individual households if they participate only in pure agriculture (crop and livestock production), "2" is assigned to individual households if they participate in self employment and agriculture, and '3" is assigned to individual households if they participate in wage employment and agriculture.

4.4.4.5. Description of Explanatory Variables

The mechanism by which some of the explanatory variables affect livelihood activities is provided in the previous section (see 4.4.3.2). For those explanatory variables only the hypothesis on how it affects participation in agriculture and other rural nonfarm activities is given, to avoid redundancy. Definition of additional key explanatory variables that determine participation in alternative livelihood activities as a coping mechanism is presented in this section.

Age refers to age of household, and it is measured in years. Here it is hypothesized that participation in wage employment decreases with age. *Total number of adult individuals* refers to individuals of working age, defined here as those between the ages of 10 and 65. The study expected that households with a larger pool of labour are more likely to participate in alternative livelihood activities as a coping mechanism. *Education level* is a discrete variable: 0 for no education and 5 for high school. Higher level of education is believed to be associated with more diversified livelihood, therefore, this study hypothesized that farmers with higher levels of education are more likely to diversify by participating in self and wage employment.

a) Gender

As already stated, because of the social constraints and requirements for females to stay at home to manage the household activities, it is argued that female-headed households are less likely to participate in labour markets than male-headed households (Davis et al., 2009). Although the majority of females stay at home, it is also argued that they are engaged in a wide range of self employment activities (Beyene, 2010). Therefore, the study hypothesized that to cope with shocks, male headed households participate in wage employment and female headed households participate in self employment activities.

b) Land Holding

There is mixed feeling about the effect of land holding on participation in and earning income from rural nonfarm activities. On the one hand, land holding as compared to landlessness may allow individuals to access group membership, working capital and or social capital, thus land can be a determinant of a diverse livelihood strategy (Reardon et al., 2007). On the other hand, land has historically been viewed as a key asset for rural households because of the link between land and agriculture. Accordingly, a negative relationship between land holding and participation in labour markets is reported (Davis et al., 2010). This study hypothesized that displaced households, due to loss of farm land or reduced farm size, participate more in rural non-farm income generating activities.

c) Livestock Ownership

Livestock represent wealth. They play a very important role by serving as a store of assets. Oxen provide traction and manure required for soil fertility maintenance and fuel (Berhanu, 2007). Thus, it is frequently reported that there is a negative relationship between size of livestock owned by the household and participation in other rural non-farm income generating activities (Berhanu, 2007; Tefera, 2011). Thus, for this study, participation in rural non-farm activity is hypothesized to increase with a decrease in livestock ownership.

d) Shocks

Households hit by shocks are more often poor than families that are not. Diversification into the labour market or low paying self employment, to minimize risks and make ends meet, has been reported as a survival strategy for vulnerable households and individuals who are pushed out of their traditional occupations (Dercon and Krishnan, 2000; Satterthwaite and Tacoli, 2003; Reardon et al., 2007). As the study mainly focuses on the impact of displacement, here it is hypothesized that loss of farm land leads to a decline in income from agriculture, which makes non-farm employment even more important. The information on shocks experienced by the household is from the household survey. The shock variables are included as dummies which take the value one if the household experienced a particular shock. The major shocks that the study includes are an increased price of land rent, a reduced number of livestock, high prices of commodities in the market, loss of farm land and flooding.

e) Distance to the Town

This is distance of farm households to the town measured in kilometres. Distance to the town largely determines the participation of households or individuals in self employment activities. This is because people must be able to sell their produce (Barrett et al., 2001; Reardon et al., 2007) and as distance decreases, people get better access to labour employment in the town (Woldehanna, 2001). Thus, for this study, participation in self and wage employment is hypothesized to increase with decrease in distance to the town.

f) Access to credit

The availability of a credit service allows households to participate in self employment activities (Woldehanna and Oskam, 2001; Barrett et al., 2001). This study therefore hypothesized a positive correlation between the availability of a credit service and participation in self employment.

4.4.5. Conflict Analysis.

As explained earlier in the literature review section, disregard of the rights of local people, abuse of natural resources, pollution of the environment, change in water use, and unfair distribution of land often lead to conflict. The data generated during the focus group discussions was analyzed using the conflict tree of Fisher et al. to identify: (1) the core problem(s), (2) the root causes and (3) the effects of conflict (Fisher et al., 2005). This was done by drawing a picture of a tree on a flip chart including tree roots, trunk, and branches. The core problem is symbolized by the trunk; the underlying causes by the roots and the effects are symbolized by the branches. Further description and analysis are presented in Chapter Nine.

4.5. Determination of base line year for the study

Assessments of socio-economic and environmental impacts require the establishment of a baseline year. Therefore, for the following reasons, the study used the year 2002 as a baseline year.

i. Although commercial flower production in Ethiopia was started in the early 1990s, the number of farms and the production was limited until 2002.

ii. The Ethiopian Horticulture Producers and Exporters Association (EHPEA) that served as a source of most of the quantitative data used in this study was established in 2002.

iii. Since data were collected in 2010/11, it can be expected that significant changes of an observable nature would have happened since the baseline, that is, the phenomenon under investigation were not simply transitional impacts from introduction of a new sector.

CHAPTER 5: Decent Work Deficit in the Flower Sector

5.1: Introduction

A Decent Work Programme was recently integrated into the Ethiopian Government economic and social development strategies, environmental policies and investment plans, known as PASDEP (Plan for Accelerated Sustainable Development to End Poverty), to ensure sustainable poverty reduction. The main priorities of this programme are poverty reduction through creating decent work opportunities for all, social protection in the work place, improving social dialogue and compliance with international standards (DWCP, 2009).

The objective of this chapter is, therefore, to analyse labour practice in the flower farms and examine the relevant national and international labour standards, so as to identify major decent work deficits in the Ethiopian flower sector. The chapter examines the labour practice in the flower sector based on the ILO framework reviewed earlier under section 2.5. It also presents employees' perceptions of working conditions. Aspects of employment covered in this section are employment opportunities, employees' rights and protection (security) and social dialogue.

To evaluate the decent work deficit in the flower sector, this chapter used employee labour practice survey data collected from 195 flower farm workers, and growers and exporters' survey data. A detailed description of the study area is given in Chapter Three while the survey design and sampling techniques are provided in Chapter Four. Analysis of the data in this chapter uses descriptive statistical methods.

5.2. General Characteristics of flower farm workers

The sets of tables below provide an overview of the general characteristics of flower farm workers surveyed for this study. Table 5.1 presents demographic characteristics; Table 5.2 indicates educational levels of flower farm workers and Table 5.3 shows employment characteristics of the working population.

Table 5. 1. Household Characteristics of Sampled Workers

Descriptions	**Mean**	**Std. Dev**	**Min**	**Max**
Age of workers (year)	23.12	4.62	18	47
Family size	3.01	1.78	1	8
Marital Status	**Single**	**Married**		**Divorced**
% of Workers	56.9	42.5		0.015

(Source Own Survey)

The majority of flower farm workers were young, ranging between 18 to 47 years, and the mean age of the workers was 23.12. About 57 percent of the employees were single and 43 percent were married (Table 5.1).The mean household size of the workers is 3.01, which is much lower than the regional and national averages of 4.9 and 4.8, respectively reported by Central Statistical Authority (CSA, 2008).

Table 5. 2. Proportion of Workforce by Education Level

Education Level (grade)	**Female**	**Male**	**Percent**
Uneducated	0	2	1.03
1 to 4	14	4	9.23
5 to 7	26	26	26.60
8 to 10 complete	43	47	46.15
10 +1 or 2	12	9	10.77
College Diploma	6	6	6.15
Total	101	94	100

(Source: Own Survey)

Of the workers sampled, 1 percent have no education, 35.9 attended elementary school, 46.2 percent completed high school, 10.8 percent attended vocational school, and 6.2 percent have a college diploma. Cross tabulation of sex and education level shows there was no difference in education level between men and women working on the farms, except among those who attended elementary school, where the ratio of educated females to males is 4:3 (Table 5.2).

Table 5.3. Employment Characteristics

Sampled Workers by Section and Gender			
Type of Job/Section	**Female**	**Male**	**Total**
Green House	52	9	61
Pack House	22	6	28
Sprayers	0	50	50
Irrigation	0	12	12
Cleaning	8	5	13
Supervisors	8	6	14
General Services	2	9	11
Nurses	5	0	5
Total	**98**	**97**	**195**
Employment Characteristics			
Descriptions		**Mean**	**Std. Dev**
Experience before current Tenure (year)		1.02	2.39
Present tenure since employment (year)		2.3	1.26
Working hours per day		8.5	2.37
Travel time/day (home to work)		1hr and 14 minutes	0.577
Origin of workers			
Origin of workers		**Percentage**	
Zeway and surrounding kebele (villages)		38.9	
Migrant from other part of the country		61.1	

(Source: Own Survey)

Most flower farm workers did not have prior work experience, but 32 percent of the sampled workers had worked in another sector before being employed by the flower farm. The current employment tenure length ranges from one month to five years (
Table **5.3**). Flower farms in Zeway did not provide transportation service to its employees nor was there public transportation from town to the farms. Employees walk from home to work and vice versa. The average round trip walking distance from flower farm to home is 1hr and 14 minutes (
Table **5.3**).

5.3. Labour Conditions in the Flower Sector

The four key components of decent working conditions, namely employment opportunities, employment rights, employment protection and social dialogue, are examined under this section.

5.3.1. Employment Opportunities

Employment opportunity encompasses not only the existence of access to employment by all, but also the ability of the work to provide an adequate income for living, job security, and benefits available to employees. Therefore, access to jobs for men and women, job security, wage levels and benefits available to flower farm employees are examined under this section.

5.3.1.1. Employment Access

There is no doubt that the flower sector makes a positive contribution in terms of creating employment opportunities. In 2010/11, the thirty farms covered in this study had 21,017 employees. However, there is big difference in terms of access to employment to men and women. The gender distribution of employment shows women are the overwhelming majority and constitute 77% of the total work force of flower farms (Table 5.4).

Table 5. 4. Farms Visited and Employment

Farm Location	Number of Farms	Managerial Men	Managerial Women	Non Managerial Men	Non Managerial Women	Number of Permanent Workers	Proportion of Female Workers
Koka	6	88	38	831	2886	3790	0.77
Debre zeit	6	71	55	390	1994	2510	0.82
Holleta	5	112	74	940	2869	3990	0.74
Sebeta	6	76	59	354	1241	1730	0.75
Sululta	2	16	5	29	210	260	0.91
Zeway	5	94	87	1805	6751	**8737**	0.78
Total	30	457	318	4349	15951	21017	0.77

(Source: Own Survey)

Although all flower farms created employment opportunities, 41.6 percent of the jobs were created in the Zeway area. Interestingly, only about 39 percent of the employees were from Zeway town and the neighbouring villages. The majority (61percent) of the workers were migrants who came from other parts of the country in search of employment (

Table **5.3**). The study found that the number of people looking for jobs by far exceeds flower farm demands for field workers. Every morning a large crowd of people (male and female) gather by farm sites hoping that to hired (Fig 5.1). In line with the study observations, Mberu (2006) also reported an influx of large numbers of people from rural to urban areas in search of jobs and better income.

Figure 5. 1: People Looking for Jobs in Zeway



(Source: Own Survey)

5.3.1.2. Job Description

As shown in Table 5.3, there is a considerable difference between males and females in job assignment and deployment. Eighty-three percent of women are working in green houses under very hot and muddy conditions and in the pack house where seating is not allowed. They have to bend or stand for extended hours to do the bending flowers, harvesting, cleaning, scouting, and packing of flowers. Spraying and irrigation and transportation of flowers from green house to the pack house is mostly done by male employees, see Table 5.3.

Almost all farm workers reported that they were not given a specific job description or informed of their rights when they were recruited. Most employees believe that such a practice creates a flexible and obedient workforce so that they would take any assignment without demanding adequate training on the use of farm tools, safety equipment, and handling pesticides or toxic chemicals, or question when their rights are violated.

About 11 percent reported that they have requested to be transferred to another location because of hard working conditions and health situations. All of the transfer requests were made by green house workers and sprayers, although none of them were accepted. Transfer from one assignment to another or from department to department at an employee's request is uncommon, unless, otherwise there is tangible medical reason. On the other hand, supervisors can reshuffle employees to maximize the skill that workers acquire during their stay within the farm and to effectively utilize labour time.

5.3.1.3. Job Security:

Length of employment varies widely, during the survey ranging from one month to five years (Table 5.5). More than 66 percent of the employees have worked for more than 18 months. Although 75 percent of the workforce considering themselves permanent employees, except health professionals and those in leadership positions, none of the farm workers have signed any kind of contractual agreement or have been given a job-offer letter. Strangely, 25 percent of the working population is confused about their working status[9] and cannot tell if they are permanent or temporary staff.

Table 5.5: Classification of Workers by Length of Service Years

Service years	Percent
< 1	7.2
1.0 ─ 1.5	26.7
1.6 ─ 2.5	25.0
2.6 ─ 3.9	22.6
4.0 ─ 4.5	12.8
≥ 4.6	5.60

(Source: Own Survey)

[9] The Labour Proclamation, Part Two article 4 states "A contract of employment shall be stipulated clearly and in such manner as that the parties are left with no uncertainty as to their respective rights and obligations under the terms thereof." FDRE. (2004) Labour Proclamation No. 377/2003. Addis Ababa, Ethiopia.

Although over 92 percent of farm workers have been working more than a year, they were not offered on-job training or encouraged to develop themselves to advance their career within the company. Indeed, those who are attending school complained of a lack of any kind of support from their employers. Many employees feel uncertain about their future and feel insecure because flower industry have no talent recruiting, training, retention, development program or tuition reimbursement plan. The following qualitative data shows a real story and depicts the life experience of many flower farm workers that the researcher encountered during the survey.

Figure 5.2: Impacts of Long Working Hours

How lack of contractual agreement and working long hours interferes with individual prospects for career development: Debre Temesgen (not her real name) is an 18 year old female working in one of the flower farms in Zeway. She was asked whether she is happy in having a job and a constant income.
"I was born and grew up here in Zeway, Since I live in my family home I do not pay rent, but I pay school fee for my brother and financially support my mother. I started working in the flower farm a year ago after my father passed away. However the decision to start working was not easy. To support my family, I dropped out from regular school (grade 9) and started attending evening class. A few months later, I got this job. A couple of weeks following my employment, I was again forced to drop out from evening class because of mandatory extended working hours. When I first accepted this job, I was told and agreed to work until 5:00 pm, though there was no written contractual agreement. But most of the time I am forced to work until 6:30 or 7:00 pm. I explained my situation to my immediate boss and requested exemption to leave at 5:00pm for school. He said. "No bother, you can leave the job. Many people are waiting outside". Later, I went to the human resource office and asked permission to go to school after regular working hours. They did not help; they did not care at all. They rather sent me back to my boss to try to get permission first from him. All of my effort to complete my school was in vain and now I do not have a bright future. I sold myself for income which is not worth enough. All the bosses here in the flower farm are not good, and how can I be happy!"

5.3.1.4. Wage levels

Table 5.6 below depicts the daily wage level of flower farm workers and the percentage of staff getting that wage[10]. The wage level shown is not the starting salary but it is the current salary that includes merit increases or promotion that accrued over a period of the employee's service years. In most cases, employees receive augmentation at least once a year. Thus, the starting wage is much lower than what is indicated in the table.

Table 5. 6: Wage Level per Day (8 hours)

USD/day	Et. Birr/day	Staff (%)
≤ 1	≤ 17	38.5
1.001 – 1.30	17.01 – 22.50	36.4
1.301 – 1.60	22.51 – 28.01	13.8
≥ 1.601	≥ 28.02	11.3

(Source: Own Survey) *1 USD=17. 5 Ethiopian Birr

The flower farms are paying $0.84 to $2.1 per day (i.e., for 8 working hours). Close to 75 percent of the flower farm workers are making a dollar or less a day (Table 5.6). Only people in leadership positions, such as frontline supervisors and managers are making between $1.5 and $2.0 a day. The result shows that the majority (75 per cent) of flower farm workers are getting wage which is 41 percent lower than the national average[11]. Hence, the wage in the flower sector is very low and is insufficient to cover the basic needs of an average family of three.

[10] "Wage" is defined as regular payment to which the worker is entitled in return for the performance of the work that he/she performs under a contract of employment"(FDRE, 2004:pp.2468). This Labour Proclamation does not set a process for minimum wage fixing

[11] The Federal Civil Service Agency has set a minimum wage, but only for civil service employees. Wages and salaries for the private sector and unskilled labour are left to be determined by a collective agreement or contract of employment. Thus wages for unskilled labour varies from enterprise to enterprise depending on the size of the enterprise and geographic location. During this study, the national average daily wage of unskilled labour in Ethiopia varied from $1.429 to $2.857. EIA. (2012) Factor Costs, Ethiopian Investment Agency: Addis Ababa, Ethiopia. (Accessed 9 September 2012) Available at: www.ethioinvest.org.

5.3.1.5. Employee Benefits

All farms in Zeway provide some kind of benefits to farm workers, namely leave of absence (sick, maternity, annual, and bereavement leave), health benefits, and free use of amenities. Accordingly, every employee is entitled to take eight days of paid time off in the first year. The amount of paid leave increases with each service year. During this study about 83 percent of the staff was eligible for 14 days paid time off, while 11 percent of them were eligible for 18 days. Nonetheless, only 53 percent of the farm workers part or full annual leave during the last one year of the study period and the remaining 47 percent did not utilize their annual leave because they were not informed or were afraid of losing their job if they asked.

Flower farms in the Zeway region have their own clinic and nurses. Patients with health issues beyond a nurse's scope are referred to hospital at the expense of the farm. Except for emergency cases, employees should first get permission from their supervisors to see a nurse. When sick leave is issued by a nurse or a doctor, employees are entitled to get full pay for the whole length of the approved sick leave. Sixty-six percent of the employees who visited a doctor reported using 2 to 5 days sick leave.

As stated in the labour law[12], every pregnant woman is entitled to three months of paid maternity leave. According to Human Resources, the flower farms abide by this law, even though 42 percent of the women in the study group were unaware of this support. Those who are aware of this support reported that pregnant women do not take the full pre-maternity leave (the study group reported a case of child birth inside the green house). Even those who do take maternity leave often return to work early, before using all of the birth leave for fear of losing their job.

Workers are entitled to paid bereavement leave for arranging funerals and mourning. All of those who experienced loss of family members agreed that if the deceased is a family member (parents, spouse, and children), they can take up to seven bereavement days per year. If a death involves close relatives, the bereavement leave drops to a maximum of three days per year.

[12] The Labour Law, Section Six, Article 88, entitles every woman one month of pre birth and two months of post birth leave. FDRE. (2004) Labour Proclamation No. 377/2003. Addis Ababa, Ethiopia.

Employees at Zeway also have free access to the amenities such as nursery and primary schools, and free medical services in the hospital. Nonetheless, there is no employee break room. Most employees take breaks and eat lunch in the fields under trees shade. They have access to quality drinking water and latrines, though these facilities are not adequate, and located far from some of the green houses.

5.3.2. Employment Rights

An employment right is the second aspect of decent working conditions. Working hours, payments for overtime work and child participation in wage labour are examined in this sub-section as important features of employment rights.

5.3.2.1. Working Hours:

Most flower farms operate from 6:30 am to 10:00 pm. Although the labour proclamation limits the maximum working hours[13], the survey data shows that about 56 percent of farm employees work 8 hours a day during the normal season whereas 18 percent regularly work between 10 to 14 hours per day. However, it is normal for 60 percent of employees to stay late and do mandatory paid overtime during peak agricultural activities and production seasons. Those who irrigate flowers and spray chemicals normally start to work late in the afternoon around 3:00 pm and leave late in the night. This latter group does not get shift differentials for working at night. However, they earn a full salary when they work a minimum of 4.5 hours a day.

Even though flower farm Human Resource personnel claim that most flower farms strictly abide by the labour laws, women, especially those working in the pack houses, were working 10 to 14 hours per day. In addition to health risks caused by working in a standing position for long hours, lack of transportation or escort services in the evening shift is what concerned many women. Some women disclosed the prevalence of sexual harassment and abuse that younger women encounter when going home at night, and expressed their grief over a higher rate of unwanted pregnancies and abortions among women working in flower farms.

[13] The Labour Proclamation No. 377/2003 Part Four Article 61 limits field workers to work only 48 hours per week. Article 68 entitles workers to additional payment for overtime work. Ibid.

5.3.2.2. Overtime Wages

There is displeasure among employees about overtime pay. The survey data show only 58 percent of the workers acknowledged and received overtime pay for the extra hours they worked. About 25 percent did not know whether they were paid overtime or not. A large number of workers feel that they were cheated, because their hours are not properly recorded and overtime pay rates are not clearly defined.

In some instances, the hourly wage is blended with piece rates and it is difficult to determine and calculate overtime hours and pay. Those who are packing flowers reported that they should produce a given number of boxes per day before their overtime pay kicks in, regardless of how late they stay after the normal eight working hours. Furthermore, even if they meet their daily quota before the normal working day is over, overtime pay will not start until they work a full eight hours.

Table 5. 7: Overtime Wages

Birr/hour	USD/hr	Frequency	Percent
< 2.00	< 0.100	47	41.2
2.00 – 2.99	0.110 to 0.170	11	9.6
3.00 – 4.99	0.171 to 0.280	14	12.3
5.00 –12.00	0.281 to 0.650	13	11.4
they don't know		29	25.4

(Source: Own Survey)**The percentage was calculated based on the 58 percent of the flower farm employees who acknowledged payment for overtime work.*

Although the labour law entitles employees to get better payment for overtime work and to compensate for the foregone benefit (see footnote 12, previous page), the study shows there is no difference between regular wages and overtime wages for the majority of workers. The daily wages presented in Table 5.6 is the exact multiple of overtime wages per hour, shown in Table 5.7. The following is comment of a women working in a pack house.

> *"It is disheartening to be denied overtime pay after contributing to the productivity of the farm by staying late and working extra hours. Lack of clear overtime policies and transparency has exposed us to abuse, exploitation and health risks".*

5.3.2.3. Child labour

The labour proclamation of Ethiopia Article 89 No.2 does not allow children who are below 14 years to work (FDRE, 2004). The survey data shows the youngest farm worker was 18 years old, and the study did not find any underage children working for a wage in any of the flower farms, except in the Sebeta region.

A very small number of under-age children were observed in Sebeta working in one of the flower farms. Later on I learned that they were not labourers, but were allowed to work with special requests and petitions signed by their single mothers who worried about leaving teenage children at home unsupervised. Although this arrangement may sound good, it may increase teenagers' dropout rates from school, creates a culture of acceptance and sympathy for child labour, and leniency toward child labour law.

5.3.3. Protection

Although employment protection addresses a broad range of issues from hiring to firing, under this section the study examined equality of opportunities in employment, protection against sexual harassment in the work place and farm occupational safety measures.

5.3.3.1 Equality of Treatment for Women and Men

The study assessed how the women and men were treated at the work place. Half of the employees feel there is no difference in the way males and females are treated. The remaining 50 percent cite lack of affirmative action and equal employment opportunities in the flower industry. Frequently, discrimination of males and alleged existence of favouritism for females during hiring, due to their assumed submissive nature, was cited by the 50 percent of the study group. In line with this allegation, the survey data shows disproportional representation or gender based assignment of jobs at various levels (see Table 5.4).

Conversely, there was no difference in education levels between male and female employees (Table 5.2), and the latter accounts for more than ¾ of the workforce (Table 5.4). However, the number of females in leadership positions was fewer than males. This shows there is bias toward men in getting supervisory jobs.

In-depth analysis shows that 83 percent of the women are engaged in low paying jobs and work in the pack house or green house where the climate is not regulated and the job is hard. Conversely, high paying jobs like chemical spray and irrigation are 100 percent reserved for males, apparently because there are serious health hazards associated with these jobs. This evidence supports the claim of discrimination against males and favouritism for females due to their assumed submissive nature, lower turnover rates and willingness to work under difficult conditions.

5.3.3.2. Sexual Harassment

There were 21 workplace sexual harassment complaints filed in this study by female workers over a one year period. All of them were harassed by co-workers and/or their own supervisors. As many of the women were single, came from the countryside, lacked experience, and looked for better opportunities, they could be easily manipulated by sex predators and are vulnerable to sexual exploitation and abuse.

The study group emphasized that although the flower farms have “zero tolerance” policies for harassment, sexual harassment is a widespread phenomenon. It seems that many such instances were left unreported due to the victim’s guilty feeling and shame, social taboos and stigmas attached to rape, and fear of losing their job or being attacksed by offenders.

According to information gathered from health care providers, abortion was one of the top health issues. Considering the presence of free condom distribution and provision of regular training on sexually transmitted diseases (including HIV) to farm workers (by an NGO scheme), the higher abortion rate may partly show the severity of sexual assaults and unprotected sex among farm workers. Given that the harassers were co-workers and supervisors, it would seem that acceptance of it (i.e not formally complaining) prevails in general, for the very real fear of losing their jobs

5.3.3.3. Farm Occupational Safety Measures

This section deals with the general safety conditions[14] of flower farms, type of chemicals used, knowledge of workers about occupational safety measures, precautions taken to protect workers from chemical exposure and associated health problems.

a) General Safety Measures

Almost all farms have an occupational hazard and safety expert. Only a few employees were given first aid training and certified by the Ethiopian Red Cross Society. First aid kits are also available in many places in all farms. Kulich, a local nongovernmental organization, also regularly provides HIV prevention training and freely distributes condoms. Farm workers have access to safe drinking water, latrines, and sanitation supplies although there were adequacy and accessibility issues as previously highlighted.

All farms often organize training for high-risk employees. Occupational hazard and safety experts were invited from EHPEA to address a broad range of safety issues and measures. Those who have close contact with chemicals and are at high risk (namely chemical sprayers and store keepers) attended sessions that dealt with safe usage, handling, and storage of chemicals. During the survey period, there was a motion to establish a "Safety Committee" for each farm by the EHPEA to assist the safety expert in tackling broader safety issues the flower farms face. All of these efforts show that the risk of dealing with chemicals is acknowledged.

[14] The Ethiopian government has recently enacted a general workplace safety policy. The labour proclamation on the Federal Negarit Gazetta 2004, Article 92 Number 2 and 3 states that the obligations of the employers as follows

Article no 2: Take appropriate steps to ensure that workers are properly instructed and notified concerning the hazards of their respective occupations and the precautions necessary to avoid accident and injury to health; ensure that directives are given and also assign a safety officer; establish an occupational safety and health committee.

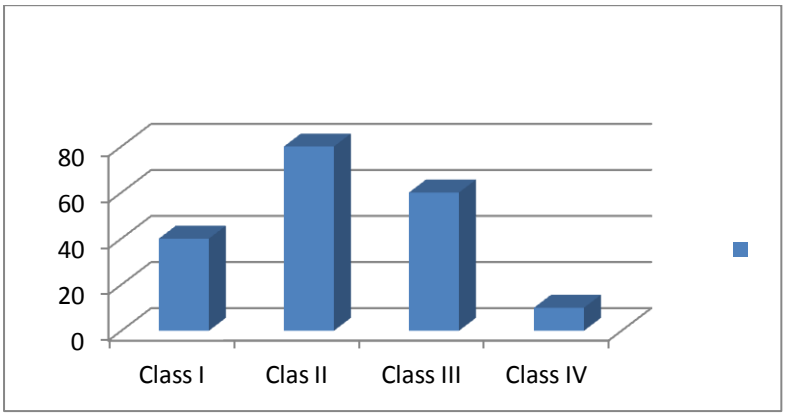
Article no 3: "Provide workers with protective equipment, clothing and other materials and instruct them of its use" "….Employees are by law required to strictly follow all safety precautionary steps and accident prevention measures, and have the right to ask for proper training and protective clothing. Likewise, Employers have a duty and responsibility to provide work place safety training and protective clothing, keep posters and safety guidelines in visible and high traffic areas, ensure everybody understands and follows safety instructions, regularly check proper functioning of equipment and installations, enforce chemicals are properly labelled; sorted; and stored; used; and disposed in accordance with manufacturers' guidelines".

Despite these efforts that the researchers observed during the survey, about 52 percent of the employees have reported that their safety is in danger as they have direct contact with materials treated with chemicals and/or are working in an environment where toxic chemicals are sprayed. Only 19 percent of farm workers believe the overall safety conditions were improving with time.

b) Chemical Use

The study also looked at the type of chemicals[15] used by 30 flower farms surveyed in this study and precautionary measures instituted to protect workers, the local community, animals, and the environment[16] from toxic and hazardous chemicals. The results show that about 30 percent of the farms were using Class I chemicals. All farms use Class II and Class III chemicals, while only 10 percent of the surveyed farms were using class IV chemicals (Figure 5.3).

Figure 5.3: Proportion of Flower Farms Using each Class of Chemicals



(Source: Own Survey)

About 74 percent of the flower farm employees in Zeway region reported that they have either direct or indirect contact with chemicals. About 48 percent reported they do not wear any protective clothing at all times. Those who are not using Personal Protective Equipment

[15]The WHO classification shows that class IV chemicals are not hazardous, class III are slightly hazardous and Class II are moderately hazardous for humans under normal usage. However, class I chemicals are extremely hazardous or highly hazardous to humans and are known to cause cancer, suppress body enzyme activity, and inflict miscarriage and infertility WHO. (2009) The WHO Recommended Classification of Pesticides by Hazard and Guidline to Classification 2009. World Health Organization, Geneva, Switzerland

[16] Safety Measures taken by the flower farms to protect the local environment are presented in Chapter Nine

(PPE) reported that they were told not to, by their supervisors as they do not have contact with chemicals and would be working in chemical free conditions. Some of those who are using PPE reported the difficulty of getting replacements for worn-out or defective PPE and using substandard protective clothing, of poor quality that easily retain heat. Some employees (sprayers) reported as the PPE easily retain heat and cause heat stress, they prefer working with their own clothes or half naked.

> "They don't provide us with gloves and other protective clothing because they believe we don't have contact with chemicals. However, during peak production season, we continue to harvest flowers until 8:00pm or 9:00pm. The truth is, chemical spraying of flowers starts at 3:00pm while we are harvesting. Thus, we are exposed to chemicals through direct contact and inhalation"
>
> (Source: Comments of a Woman Working inside a Green House - 15th December 2010)

During the survey, the researcher also observed employees either not wearing, or wearing defective protective gear, made from poor quality local fabrics which absorb chemicals, or from plastic and synthetic materials which retain heat and are very uncomfortable to use in tropical warm environments. Certainly many farm workers, including chemical sprayers, are unwillingly exposed to chemicals because they often work without wearing, or use defective protective clothing and masks.

Figure 5.4: Worn-out and Half Covered Protective



c) Knowledge of Occupational Safety:

Over 80 percent of the farm workers have no knowledge about occupational hazards and safety measures or health risks and complications associated with exposure to hazardous chemicals commonly used in flower farms. About 90 percent of the employees do not understand the meaning of posters and warning signs, whereas 86 percent do not distinguish between hazardous and safe areas. Furthermore, 91 percent of field workers do not wash their hands after using the latrine or handling chemicals, and 97 percent do not know how to provide first aid (Table 5.8).

Table 5.8: Knowledge of Occupational Safety

Knowledge about	**Employees %**	**Knowledge Source**	**Employees %**
Hazardous areas	13.9	Formal training	29.2
Risk of pesticides	19.5	Friends	28.7
Warning signs	10.3	Supervisors	3.6
Personal hygiene	8.7	Nurse	3.1
First Aid	2.6	Senior staff	2.6

(Source: Own Survey)

Even among those who have some knowledge about occupational safety, the source and depth of their knowledge varies greatly from one to the other. Only 29 percent of employees (who have direct contact with chemicals) acquired safety information through formal training conducted by EHPEA. Others acquired this information informally by chatting with friends and co-workers, or from rare encounters with nurses or supervisors talking about work-place safety.

Both employees and farm officials reported that every day a few flower farm workers abandon their jobs in search of better pay and more favourable working conditions. Although this study cannot verify the reason, employee turnover rate is high. New labourers are often, deployed immediately without getting proper training and orientation. It is not surprising then that 29 percent of employees reported informal communications as the best way of circulating information in flower farms and educating new employees about occupational safety.

d) Health Impact

Working in such a hazardous environment, without proper PPE and lack of basic safety knowledge, could cause serious health impacts. All employees who participated in this study were asked if there was any change in their health situations since employment. About 56 percent of the employees reported some kind of work-related health issues. Although this study could not verify the real causes, 19 percent of workers, especially those who have direct contact with chemicals, reported various kinds of skin and respiratory problems.

Chemical store keepers, mixers, and sprayers undergo medical check-ups every three months to measure levels of exposure and monitor changes in concentrations of toxic and hazardous chemicals inside their bodies. Nonetheless, none of them were given their examination results, although some of them were transferred to another less risky position, due to the manifestation of symptoms typical of chemical toxicity and a rapid deterioration in their health.

5.3.4. Social Dialogue:

Social dialogue is an open discussion between workers, and workers and employers to influence and improve work-related issues. The following section reviews this issue.

5.3.4.1. Trade Union

All interviews with the trade union chairpersons were conducted by the researcher himself during the survey period. The interview revealed that a trade union was formed with assistance from Ethiopia Workers Confederation Trade Union (EWCTU). However, the union is at an early stage of development. It is just nominal and operationally not functional at all. About 98 percent of employees do not know about the existence of a trade union and its role at all. There is no communication between union leaders and workers or between union and management, and vice versa. Further discussion with the union chair persons revealed that most flower farm workers are scared of retaliation from employers and refrain from joining and rallying behind the union to form a strong labour union. Even the

chairpersons are not pushing harder to recruit more members to create a strong labour union for fear of retribution and losing their jobs.

The situation of trade unions on most flower farms is worse and this observation coincides with the 2009 MOLSA report that shows labour unions at a national level are very weak[17] (MoLSA, 2009). It is also in line with the EWCTU report that showed most private enterprise employers are unenthusiastic in allowing their workers to organize themselves in trade unions (EWCTU, 2010).

5.4. Employee Perceptions of Working Conditions

Among the work force that had prior work experience in another industry, the biggest response (40.4 percent) said their previous working conditions were better than their current one (Table 5.9 First Row). The major concerns that make working in the flower farms difficult are similar to those addressed under the previous sub-headings such as lack of protective cloth, very hard working conditions in the green house, workloads and an absence of respect for workers' rights.

Table 5. 9: Perception of Working Conditions

Perception of Working Conditions	Better (%)	Worse (%)	No change (%)
Previous working conditions	40.4	34.6	25
Current working conditions	37	38	25
Employee present position	66	19	15
Income since employment	81	---	19

(Source: Own Survey)

Only 1/3 of the employees appreciated the working conditions in flower farms as compared to their previous working environment, whereas 25 percent of employees who worked on other flower farm(s) expressed a striking similarity in the working conditions on all flower farms.

[17] The Ethiopia labour law Part Eight chapter one entitles workers to form and join organizations of their own. It states that: Workers and employers shall have the right to establish and form trade union and participate therein, without previous permit, FDRE. (2004) Labour Proclamation No. 377/2003. Addis Ababa, Ethiopia.

Employees were asked about their current working conditions as compared to the conditions when they were first employed (Table 5.9 Second Row). Only 37 percent of the farm workers are content with their current working conditions. These groups acknowledge some positive changes, for example changes in the chemical spray schedule from morning (9:00 am to 12:00 am) to late afternoon, entitlement of sprayers to full eight hours payment upon working 4 to 5 hours, paid time off, paid sick leave and health benefits.

However, 25 percent of flower farm employees stated that there was no change in working conditions while 38 percent believed the working conditions had deteriorated over time. Lack of personal protective clothing and use of chemicals by flower farms that have no brand name (no sign for level of toxicity); workload, hard working conditions and tense relationships with the management; and inappropriate workplace behaviours, sexual harassment were reported as main causes of concerns for women.

Among those who got a transfer opportunity to another department or changed their positions, 66 percent appeared to like the change and were happy with their current position and work environment (Table 5.9 Third Row). But 19 percent of them were displeased with their present working conditions, while the remaining 15 percent were ambivalent. Amidst opposing views held by employees on working conditions, 81 percent of the workers acknowledged improvements in household income following employment on flower farms (Table 5. 9 Fourth Row).

5.6. Chapter Summary

This study uses cross-sectional data to provide analysis of the general working conditions on flower farms in Ethiopia at the micro level. Four important characteristics of decent work, namely employment opportunities, employment rights, employment protection and social dialogue were analysed, based on the ILO framework. Although a lot was accomplished by the Ethiopian government in attracting and creating conducive environment for flower growers, the results show not much was done in regulating the flower industry, standardizing the work conditions on the farms, and monitoring flower farms for compliance with policies and guidelines.

The major contributing factors for absence of decent work practices are

(1) Reluctance of flower farms to implement labour laws and frequent violations of national labour laws and ratified international labour conventions by the flower industry

(2) Lack of regular inspection and control over the flower industry by the state due to poor and rudimentary organizational structure and shortage of trained and skilled manpower at national and regional level,

(3) Lack of confidence amongst workers to organize themselves and form stronger trade unions, and

(4) Hesitance of the international community, especially consumers in the North to enforce socially acceptable and environmentally sustainable flower production practice. Because of the intricacies of all these factors, flower farm employees are left in a precarious situation.

CHAPTER 6: Effects of Wage Income on Flower Farm Workers' Livelihoods

6.1. Introduction

Over the past decade, several studies have indicated positive impacts of wage employment on rural households in Sub-Saharan Africa. Several scholars have argue that increasing wage labour in the local economy is not only an effective mechanism of reducing poverty but is also considered as an important driver of growth in Sub-Saharan Africa countries (World Bank, 2008b: pp.72-75; Cramer et al., 2008; Davis et al., 2010).

Many people in developing countries such as Ethiopia are poor. This is attributed not only to lack of job opportunities, but the majority are also employed in the informal sector of the economy where income is insufficient and not secure (ILO, 1999). Therefore, eradicating poverty in Ethiopia, like for many countries in the Global South is not only a question of creating employment opportunities, but also making sure that the wages obtained from available jobs can alleviate poverty (FAO, 2010: p.80).

The objective of this chapter is, therefore, to assess the contribution of wage income from employment in the flower industry to household livelihoods and to identify the major determinants of wage levels. The chapter mainly used the employee labour practice survey data and the workers' income and expenditure survey data. The study area is Zeway region; a detailed description of the study area is provided in Chapter Three and details of the survey design and sampling methods are provided in Chapter Four. To identify the determinants of wage levels, data were analyzed using Robust Linear Least Square Regression.

6.2. Wage Income

Results of wages paid to labourers in the flower sector were presented in Chapter Five (Table 5.6). The wages vary from farm to farm, ranging from $0.84 to $3.01 per eight working hours a day. The study found that the majority of flower farm employees (75 percent) earn a dollar or less a day (Table 5.6). This is far below the national average (which is $1.429 to $2.857/day 8hrs.) for unskilled labour[18]. Therefore, an analysis of the perceptions of wage incomes (earning) verses make a living was conducted.

6.3. Perceptions on Income Level

Analysis of perceptions of income levels in relation to costs of living was performed for all employees participating in this study during the employee labour practice survey. Even though 81 percent of flower farm workers reported making more money after taking up employment (see Chapter 5, Table 5.9), an overwhelming majority (86 percent) of flower farm workers described their wages as either low or very low. Only 14 percent of top earners attested their income was good or very good (Table 6.1). The number of female employees who rated their wages as very low was twice the number of male employees (Table 6.1).

Table 6.1: Perceptions of Income Levels

Perceptions of Income Level	Male	Female	Percent
Very good	3	6	4.6
Good	12	6	9.2
Low	48	10	29.7
Very low	34	76	56.4

(Source: Own Survey)

[18] During this study, the national average daily wage of unskilled labour in Ethiopia varied from $1.429 to $2.857EIA. (2012) Factor Costs, Ethiopian Investment Agency: Addis Ababa, Ethiopia. (Accessed 9 September 2012) Available at: www.ethioinvest.org.

The following case studies are representative of the living conditions of the majority of men and women working in flower farms. Those who depend entirely on wage income with no other subsidiary income source are the most disadvantaged members of the working community, and they live in hand-to-mouth lifestyle and in a vicious poverty cycle.

Figure 6.1: Case Studies: Living Conditions of Flower Farm Workers

Genet Tamire (not her real name) is 23 years old. She came from Hosaena and is now working for one of the flower farms in Zeway region. She narrated her story and feelings as follows



"I work 12 hours a day and earn 450 Birr (25.5 USD) per month. The money has no value, living here in the town is very expensive. I came here with the hope to earn more money, to support my family, and buy some cattle for myself. On pay day, 60 Birr (7.4 USD) goes to rent and another 130 Birr (6.9 USD) is spent to pay my credit. Depending on the amount left, which varies from month to month, I will buy food and other items that are necessary for living. By the middle of the month, I have no money left in my hand. I couldn't fulfill my dreams and now I decided to quit my job and go back to my family. It is better to live in the rural area with my family. At least food is plenty and I would be comforted by my parents."

(Source: Own Survey, 10 February 2011)



My name is Chala Birru, born in Southern Ethiopia in a small village called Durame. I left my birth place and moved to Zeway for a better life in 2008. Now I am working in one of the flower farms in Zeway. My job is pushing a trolley back and forth and transport flowers from green house to pack house. Life as a flower farm worker is very tough. The job is physically demanding, but the income barely covers my expenses. This has forced me to marry earlier than I thought, to a girl from my village who was working in another farm. Relatively life was better until the birth of our baby girl, for we were earning income and sharing expenses. However, with the birth of the baby, we faced a challenge. We did not have any relative with us who would help us in caring our baby. We had no other choice, except for my wife to quit her job to raise our child. With only me working, our household income dropped by half. I just earn 500 Birr/month ($28.6), of which 150 ($8.6) goes to rent, which is relatively higher because we share a kitchen with the land-lord, and about 130 Birr ($7.4) to credit for items that we took from the nearby shop. The remaining is used to cover other expenses.

My income is very low to support a family of three people. Things went bad to worse when my daughter got sick. The nurse advised my wife to start supplemental food for our child. Since we do not have any subsidiary income, first we sold a bed we bought for 750 Birr for 450 Birr. Later on we sold a travelling bag bought for 450 for 170, and then we sold my wife's necklace which I bought when we got married, for little money. Unfortunately, my cell phone was stolen from my jacket at my work place. It would have fetched me 400 Birr. My wife started working as a maid servant by moving from house to house, but not many people like a servant with a baby. Now we are sleeping on the floor. I and my wife consume maize, so that we can save a little money to pay for milk for our daughter. "I do not want to lose my baby" said the father. *We love her; we don't want her to die of malnutrition. My wife rarely packs lunch for me, I have lost weight, over 8 kg, and I have no stamina to push a cart which is a tough job. Besides, I have been warned several times. I might lose this job one day soon. Nobody cares for the workers; we are just like fertilizers and other inputs to grow flowers. I regret coming from Durame and working for a flower farm. Anyway, I will continue pushing a cart as long as I can, and do everything in my power to support my family.*

Neither the pictures nor the name is the real of the person telling the story. (Source: Own Survey, 19 February 2011)

6.4. Share of Wage Income

Data on all sources of income were collected during the employee income and expenditure survey in order to identify the contribution of different livelihood activities to the total household income (see the questionnaire in Appendix 4: Forms A to G). Following Koop (2008), the total household income was disaggregated into different categories depending on their strategies to generate income. The share of a given source of income over a given group of households was calculated. The share of means reflects the importance of a given income source in the total income of the study group in general (Davis et al., 2010).

$$\text{Share of Mean } (SHi) = \frac{\sum_{h=1}^{n} y_{ih}}{\sum_{h=1}^{n} y_h}$$

Given: Income source i,
Total income y,
Household h, and
The number of households' n

Table 6.2: Household Income Source: Mean and Share

Household Income Sources	**Mean annual income per household** In Birr	In USD	**Share of Income (%)**
Wage Income	9835	*562.4	85.8
Other Sources	1680	96.0	**14.2**

*Mean wage income for the household is $562, which is larger than the mean wage income for a worker which is $456. This is because in some households both spouses earn money from employment.

The result shows wages remain a major source of revenue and accounts for 85.8 percent of the flower farm workers' household income and, thus, plays an important role in the livelihoods of most of the study group (Table 6.2). However, about 45.3 percent of flower farm employees reported that they drew additional income from other sources (Table 6.3). The other sources in general contribute about 14.2 percent to the total household income.

6.5. Per capita Consumption Expenditure

Table 6.3: Description of Employees' Income and Expenditure

	Mean	St.dv
Mean household expenditure/year in Birr	11,688	524.2
Mean wage income in Birr/month for all Workers	665	321.2
Men Mean wage income in Birr/month	702	323.5
Women Mean wage income in Birr/month	628	317.6
Mean wage income in USD/Month	38	18.07
Mean household size	3.56	2.479
Household size per adult equivalent (For Consumption)	3.0	1.837
	Percentage	
Proportion of workers dependent on Wage income	**54.7**	
Proportion of workers generating additional income from other sources	**45.3**	
Share of food expenditure	**65.3**	
Share of accommodation expenditure	**17.0**	
Other spending (fuel, cosmetics, savings, relative support, child schooling)	**17.7**	
Proportion of Workers living in rented house	**89.2**	
Proportion of workers living in shared accommodation	**18.9**	
Proportion of workers unable to afford a bed and bedding materials	**39.6**	
Proportion of workers able to save some amount of money	**21.5**	
Proportion of workers able to purchase larger items in the past year	**17.9**	

(Source: Own Survey)

Table 6.3 shows that the mean monthly wage of flower farm workers is 665 Birr which is equivalent to 38 USD (ranges from 25.7 to 142 USD). However, the mean monthly wage for female workers is 74 Birr less than male wage. The majority (54.7 percent) of farm workers are entirely dependent on income from flower farms. Most of the income earned by the household (65 percent) goes to food and drink (mainly cereals, vegetables, oils, coffee, sugar, salt, and tea). Of the non-food items, accommodation takes the larger share as 17 percent of the earning is used to pay rent. The remaining 18 percent is allocated for fuel (fire wood and charcoal), cosmetics, savings, relative support, children's schooling expense, and so on.

The wealth level of the flower farm workers is very low. Only 8 percent of employees own a house. Three percent of employees live in their parents' house. The overwhelming majority of them (89 percent) are living in a rented house, of which 19 percent are living in a shared accommodation. Because of their low income levels, about 40 percent of flower farm workers are unable to afford a bed and bedding materials and often sleep on the floor.

Most farm employees do not have savings, even those who do (21.5 percent) usually obtain cash through what is locally known as "Ekub"- rotating saving (each member of the group contributes the same amount at each month, and one member takes the whole sum once). Employees practicing rotating saving were able to send over 500 Birr per year to their families as a remittance, though they had barely enough money for emergencies (Table 6.3). About 11 percent of the employees reported sending remittance between 200 to 500 Birr per annum and another 8 percent were able to send ≤ 200 Birr/ year to their families. However, about 58 percent of the employees reported that they could not afford sending money back home to support their extended families because of low income.

To measure the poverty status of flower farm workers, the study used the consumption poverty head count index proposed by Foster et al. (1984). The poverty headcount index is the share of the sample of households whose consumption expenditure per capita puts them below the poverty line (ibid). The poverty line is defined as the amount of money required to purchase 2,200 kilocalories per adult and other essential non-food items. Thus, the share of employees that cannot afford to buy basic food and essential non-food items are considered poor.

Table 6.4: Poverty Line for Ethiopia in Comparison with the Study Group

Consumption Expenditure (Food and Non Food) Birr/year for 2010/11				**Percentage of People Living Above and Below Poverty Line**				
	Ethiopia	**Oromia Region**	**Study Group**		**Ethiopia**	**Urban**	**Rural**	**Study Group**
Per capita	4,626	4,570	3,283	Above	70.4	74.3	69.6	29
Per Adult equivalent	5,659	5,625	3,896	Below	29.6	25.7	30.4	71

(Source: Own Survey; MoFED (2012)

N.B. This national statistics of the consumption expenditure and percentage of people living above and below poverty line for Ethiopia was calculated the based on Household Income and Consumption Expenditure Survey data conducted independently from the National Income Accounts by taking $ 0.6 per day as a poverty line (MoFED, 2012: p.6). These figures would be very different if it were recalculated based on the common international poverty line.

According to the Ministry of Finance and Economic Development (MoFED, 2012) the poverty line for Ethiopia for 2010/11, per adult equivalent was 5,659 Birr/year, and, the poverty line based on per capita consumption was 4,626 Birr/year (Table 6.4). The total per capita consumption expenditure for the study group is 3,283 Birr/year (which is equivalent to

$15.6/month). This is calculated by dividing the household total annual expenditure by the mean household size (Table 6.3). Consumption expenditure per adult equivalent for the study group is 3,896 Birr/year (equivalent to $18.6/month). This is calculated by dividing the household total annual expenditure by the mean adult equivalent in the household[19].

This consumption rate for the study group is much lower than the average per capita total consumption expenditure of Ethiopia for 2010/11 presented in Table 6.4. In both measurements, the study shows wages from the flower sector are very low and insufficient to cover the basic needs of most households whose average family size is three (Table 6.3). Unfortunately, most farm workers live below the poverty line and struggle to make ends meet and use different strategies to offset their expenses.

6.6. Determinants of Wage Levels

As indicated earlier under wage levels, the Ethiopian Labour Proclamation does not set a process for minimum wage fixing (see Footnote 9 and 10: p.110). Wages for the private sector are left to be determined by the contracts of employment. Because of this, wage levels vary from one flower farm to another, and as shown in the preceding paragraphs, income from wage employment was very low. This section presents an analysis of determinants of the wage levels in flower farms in order to understand which factors are more important in determining wage earnings.

[19] There are no generally accepted methods for calculating equivalence scales for consumption and labour. The study used the Arbitrary approach equivalence scale proposed by the World Bank: Deaton A and Zaidi S. (2002) Guidelines for Constructing Consumption Aggregates for Welfare Analysis: Living Standards Measurement Study Working Paper 135, Washington, D.C.: World Bank Publication: .(pp.50,51). For this study the conversion factors were adapted from Storck et.al (1991), which is commonly in use in Ethiopia (see Appendix7 for conversion factors).

6.6.1. Data Description

Seven independent variables used as potential determinants of wage levels are presented in Table 6.5. These variables were Selected based on: a review of other studies that estimates wages for Ethiopia and some countries in Africa (see Chapter Four: section 4.4.2), and the study assumptions (which will be discussed in the next paragraph). *Age* is in years and is a continuous variable. *Sex* is a categorical variable, where 1 refers to male and 0 to female. *Family home* is a dummy variable, where 1 refers to an employee whose families are residents of Zeway and the surrounding Kebeles and 0 otherwise. *Education* is a discrete variable with 0 standing for employees with no education, 1 refers to elementary education grade 1 to 4, and so on, and 5 refer to college diploma. *Present Service Year* refers to present tenure since employment and is a continuous variable in years. *Previous Service Year* is work experience in years before current employment; it is also a continuous variable.

Table 6.5: Description of Data Used as Predictors of Wage Levels

Variables	**Mean**	**Std. Dev.**	**Definition of variables**
Age	23.118	4.624	Continuous
Sex	0.497	0.501	Dummy 1 if male
Family home	0.518	0.501	Dummy 1 if Zeway
Education	2.749	1.012	0 no education 5 college diploma
previous Service Years	1.015	2.393	Continuous
present Service Year	2.302	1.264	Continuous
Working Hr/Day	7.644	2.368	Continuous
Number of observations = 195			

Working Hours Per Day is a continuous variable and measured in hours. In the analysis, family home is included as a dummy variable because of the grievances of employees. Many employees assumed that those who are related to or are from the hometown of people in leadership positions (Zeway) were hired at higher rates than others. Cross tabulation of job description and family home (origin) shows 79 percent of the supervisors were from Zeway region. On the other hand, Table 5.3 also shows 61 percent of employees are immigrants who came from other regions in search of employment opportunities. This has created a perception that employees from Zeway region would be favoured over employees from other regions.

6.6.2. Model Specification

Wage in the model is a nominal monthly salary; as shown earlier in the methodology (section 4.4.2), it is a function of a number of factors. To identify the determinants of wage levels, following Wooldridge (2009), the study employed robust regression as an alternative to OLS. Therefore, Wage =

$$\beta_0 + \beta_1 \text{age} + \beta_2 \text{sex} + \beta_3 \text{education} + \beta_4 \text{prev service year} +$$
$$\beta_5 \text{Pres service year} + \beta_6 \text{working hour per day} + \text{family home} + \varepsilon$$

Or it can be written as

$$y = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \beta_4 x_4 + \beta_5 x_5 + \beta_6 x_6 + \beta_7 x_7 + +\varepsilon$$

β_0 is the OLS intercept estimate and β_1 to β_8 are the OLS slope estimates that correspond to the independent variables x_1 to x_8 and ε is the error term

6.6.3. Empirical Analysis

Following Wooldridge (2009) the study explored robust regression as an alternative to least squares regression, and results are presented in Table 6.6. Robust regression was employed because Table A1.1 (see Appendix 1) shows the data were contaminated with outliers and there was a problem of heteroskedasticity. Variances of the residuals were tested for collinearity (Table A1.1), and A1.2 (see Appendix 1) shows the mean variance inflation factor was 1.34, suggesting the data has no problem of multicollinearity

Table 6.6: Robust Least Square Regression Estimates of Determinants of Wage Levels

Real Nominal Wage	Coef.	Std. Err.	t	P>t	[95% Conf. Interval]	
Sex	49.26	15.09	3.26	0.001	19.492	79.022
Family Home	-7.83	13.33	-0.59	0.557	-34.132	18.459
Education	14.95	6.22	2.39	0.018	2.577	27.132
Previous Service Year	27.72	2.71	10.24	0.000	22.379	33.055
Present Service Year	17.32	5.13	3.38	0.001	7.199	27.445
Working hr/day	-17.05	3.23	-5.28	0.000	-23.429	-10.678
_cons	590.95	38.61	15.31	0.000	514.786	667.111
Number of observation	= 195					
F(6, 188)	= 40.59					
P	= 0.000					

*, **,*** are levels of significance at 10%, 5% and 1%, respectively

Holding all other variables constant in the model, male employees are getting a 49.26 birr higher wage per month than their female counterparts (Table 6.6). This is 7.4 percent of the mean wage mentioned in Table 6.3. The finding substantiates the perception of most female workers who decried inequality of pay and an extremely low wage level for the same service year (see Table 6.1). Since gender roles at the workplace are defined by companies, it also implies that women are assigned relatively in less paid jobs than their male counterparts. For every unit increase in education level, a 14.95 Birr increase in wages is also predicted (Table 6.6). This implies that those with higher education earn far more than those who did not complete elementary or high school.

For every one year increase in previous job experience (work experience before joining the flower farm), a 27.72 Birr increase is predicted and for every one year increase in present service year (tenure since employment), a 17.32 Birr increase in monthly wage is predicted (Table 6.6). Therefore, as service year's increase, so does work experience which, in turn, improves the earning power of the workers. Such complementarities between service years and wages are clearly observed in the salary analysis of farm workers.

The coefficient for working hours per day is negative. It implies working long hours is not associated with higher wage incomes. For every unit increase in working hours, a 17.05 Birr decrease in wage is predicted, holding all other variables constant. This validates employees' complaints mentioned in Chapter Five - farm workers who worked for extended hours are not paid at overtime rates until they meet the daily production quota (see chapter five: sub heading 5.3.2.2). On the other hand, those who irrigate flowers and spray chemicals normally earn higher wages, but work a minimum of 4.5 hours a day. That is why working hours are not associated with higher wages.

Even though many workers complained about a lack of transparency in promotion and wage levels, interestingly, the data did not validate the perception held by many employees regarding wage discrimination based on origin of employees and the existence of favouritism towards employees from Zeway region.

6.7. Chapter Summary

The contribution of wage income from employment in the flower industry to household livelihoods and the major determinants of wage levels were assessed. The result shows 54 percent of flower farm employees were entirely dependent on wage incomes, and income derived from wage employment plays a significant role for participating households. However, low wages earned from flower farms *per se* was not enough to cover the basic needs of most employees and most of those who solely depend on wages were living below the poverty line.

Analysis of the determinants of wage level indicates that wages paid to flower farm workers are influenced by a combination of factors. Sex, education levels, and previous and present service years are identified as the main determinants of wage levels. Working hours per day is not associated with increased income levels, similarly ethnicity or origin of employees has no effect on the wage rate.

CHAPTER 7: Flower Farm Workers' Livelihood Coping Strategies with Low Wage Income

7.1. Introduction

The introduction of the flower industry to Ethiopia has some positive attributes. It has created employment opportunities for some people and generated a sizeable amount of foreign exchange earnings for the Ethiopian government (Figure 2.1: p15). However, analysis of the impact of wages earned from flower farms on the household livelihoods of flower farm workers is very limited. Most flower farm workers earn less than a dollar a day and live below the poverty line.

Rural households in Sub-Saharan Africa in general are commonly involved in diverse livelihood activities to generate income, manage risky events and to meet their livelihood objectives. Using some of the concepts of rural livelihood diversification strategies identified by Ellis (2000) and Reardon et al. (2007), this chapter assesses how poor employees cope with low wage income.

This study assumes poor employees are more likely to respond to low wage income by participating in other livelihood and risk coping strategies to meet their consumption needs, than employees with better wages. The study area is Zeway region. The Workers' Income and Expenditure Survey data are used in this chapter, though occasionally reference is made to the Employee Labour Practice Survey data to augment the results. Details of the survey design and sampling methods are provided in Chapter Four (section 4.2.1 and 4.2.2.) Means, frequencies and percentages were used for descriptive analysis and a multinomial logit model was employed to identify the determinants of livelihood diversification strategies.

7.2. Livelihood Diversification and Coping Strategies

In order to identify the livelihood diversification and coping strategies of flower farm workers, data on all sources of income were collected using the Employee Income and Expenditure Survey tools (see Appendix 4: Form A–G). The total household income was disaggregated into different categories depending on sources of income. Following Koop (2008), the share of a given source of income over a given group of households was calculated in order to identify the relative contribution of different livelihood activities to total household income.

Table 7.1: Household Income Source, Mean and Share of Income

Household Income Sources	**Mean annual income per household**		**Share of Income (%)**
	In Birr	**In USD**	
Remittances	219	12.5	1.8
Agriculture	791	45.2	6.7
Self -Employment	672	38.4	5.7
All above (1+2+3)	1680	96.0	14.2
Wage Income	9842	562.4	85.8

(Source: Own Survey)

Since income obtained from wage employment is not enough to make a living, about 45.3 percent of flower farm employees reported that they draw additional income from other sources or by participating in different type of livelihood activities. Incomes generated from sources other than wages from flower farm constitute about 14.2 percent of the total household income (Table 6.2).

About 6.7 percent of flower farm workers' household income is derived from agriculture (Table 7.1). Some employees have farm land and animals and, hence, generate some income by selling crops, animals, and animal products (milk, eggs, butter, cheese, etc.), or hiring out pack/draft animals. Employees from rural areas have an advantage over their co-workers from towns in that they have livestock (such as sheep, goats, cows, oxen, chickens, horses, donkeys) and arable land with their families and/or possess a small tract of land to grow food crops for their own consumption to augment the scanty income from wages.

Self-employment contributes about 5.7 percent to household income (Table 7.1). A few farm workers run small businesses such as shoe polishing, sewing, and weaving or knitting to generate meagre incomes. Those who have some kind of skills such as carpentry often make extra money by working for building contractors or driving wagons when they are off work. Others do jobs such as gardening, working in agriculture (tilling and harvesting mainly in a small scale irrigated vegetable plots and threshing) or carrying items in the market as porters (kulli) to make ends meet.

A few farm workers who solely work for flower farms often get food assistance from their families. Remittance, that comes mostly in kind and rarely in cash accounts for 1.6 percent of total household income (Table 7.1). This group admitted that life would be miserable without food/financial aid that they regularly obtain from their close relatives.

In addition to the aforementioned income diversification strategies, employees also adopted various risk management strategies to cope with low incomes. Some employees increase household earning by working overtime and/or on their day off or both spouses work on flower farms or in other private sector employment. Several single men and women (18.9 percent) live in groups as roommates to share costs and minimize living expenses, while 3 percent of farm workers live with their families and pay no rent (Table 6.3).

Most employees adapted to a lifestyle that suits their income level by avoiding living beyond their means. For instance, 39.6 percent sleep on the floor because they cannot afford the luxury of having a bed and bedding materials (Table 6.3). Some walk barefoot and others resort to buying inexpensive used clothes and household utensils and materials. Many employees cut their needs and refrain from spending money on recreation or gambling.

Some share utensils with immediate neighbours rather than buying them, while others cut down on food by skipping either breakfast or lunch or living on a cheap (e .g. maize) but nutritionally poor diet throughout the month. Nonetheless, a few lead reckless lifestyles by taking food and other items in the form of credit or loans at higher interest rates from local business men or usurers, to meet their immediate needs- a risky venture that might eventually lead to abject poverty.

There are other coping strategies widely practiced by young women and pregnant women in order to ensure survival on low incomes. Young women marry older men to maximize their security and increase their financial stability. Unlike in big cities, no one reported prostitution as a means of earning additional money. A very small number have reported abortions because they cannot afford to raise a child under their present conditions. Almost all farm workers acknowledged that without adopting those coping and risk mitigation strategies and making necessary adjustments, it would be more difficult for them to survive solely on wages from flower farms.

Since many flower farm employees work for extended hours, they do not get enough rest to rejuvenate themselves, and/or lack quality time to spend with their family members (children, and friends), and miss important cultural and social events. It is possible that the lifestyles and choices these employees are making today to cope with low wages from flower farms may have considerable negative impacts (harm their health, self esteem, mental status, and longevity) on them and their children in the long run.

7.3. Determinants of Livelihood Diversification strategies

To further examine the determinants of farm workers livelihood diversification strategies a multinomial logit model was employed (Gujarati, 2011).

7.3.1. Dependent variables

The dependent variable is livelihood strategy. Reasons that flower farm employees participate in other livelihood strategies, such as self-employment and agriculture, may be different. Therefore, following the classification of activities by Reardon et al (2007), (see literature review section 2.4.3), employees were grouped into three major categories based on their strategies of generating household income (Table 7.2).

Accordingly, the dependent variable, that is livelihood strategy, takes the value "0", "1" and "2". Group "0" represents those whose income solely comes from wages; group "1" earn income from wages and agriculture, and group "2" generates incomes from petty self-employment in addition to wages. These activities are believed to be the function of individual characteristics and household assets (Ellis, 2000). For a few employees that participate in diverse activities (wage employment + agriculture + self employment) the highest share of income from Agriculture and self employment activity was used as a base to categorize them into one of the groups.

Table 7.2: Mean Expenditure by Income Category

	Category by income source		
Income & Expenditure (USD)	**Group 0 (Wages Only) 54.7%**	**Group 1 (Wages +Agri.) 23.0%**	**Group 2 Wages + Self emp. 22.3%**
Income/year	562.4	902.8	716.2
Expenditure/month/hh	47.2	74.1	57.7
Expenditure/adult equivalent/month	15.7	24.7	19.0

Table 7.2 clearly shows that mean expenditure varies across these groups. Group 1 are relatively better off than group 0 and group 2. About 23 percent of employees generate income from agriculture and the other 22 percent participate in different self income-generating activities, whereas 54.7 percent of employees were dependent on wage income.

7.3.2. Explanatory variables

A set of explanatory variables listed in Table 7.3 that includes household, demographic and employment were taken as independent variables. Choice of these explanatory variables is based on the available survey data and the respective literature and theoretical assumptions provided in the methodology section. Definition of key explanatory variables that determine participation in Rural Non-Farm Employment (RNFE) and the hypothesis on each explanatory variable on how it affects participation in agriculture and rural non-farm activities is provided in the methodology section (see Methodology: Section 4..4.2.2).

Table 7.3: List of Dependent and Explanatory Variables

Dependent Variable		**Value**
Participant in wage employment		1 = Yes, 0 = No
Participant in Agriculture		1 = Yes, 0 = No
Participant in Self Employment		1 = Yes, 0 = No
Explanatory variables	**Definition**	**Value**
Gender of Employee	Gender of employee	1 = Male, 0 = Female
Age of Employee	Age of Employee	Years in Number
Age squared	Age	Years in Square
Marital Status	Individual is Married	1 = Yes, 0 = No
Head of household	Individual is household head	1 = Yes, 0 = No
Numbers of adult	Adult over 10 in the household	Continuous Number
Service years	Years of service as wage employee	Continuous Number
Education Level	Years of education completed	Continuous Number
Travel Time/day	Travel time to and from work to house	Continuous Number
Total working hr/day	Number of working hours per day	Continuous Number

Age is a continuous variable measured in years. *Gender* is categorical where 1 refers to male and 0 female. *Education* is a categorical variable range from 0 to 5, where 0 stands for an employee with no education, 1 elementary school and so on and 5 refer to college education. *Married employees* are represented by 1 or 0 otherwise. If employees are *heads of the household* they are represented by 1 or 0 otherwise. The *Number of adult*s refers to the number of adult individuals in the household measured in adult equivalents for labour and is a continuous number (for conversion factors see Appendix 7).

Service year refer to number of years served as wage employee and is a continuous variable measured in years. Working hours per day and travel time per day are continuous variables measured in hour. The latter two variables were included with the assumption that individuals working long hours or travel long distances may not have time to participate in other income generating activities.

After performing a correlation test it was observed that land, livestock ownership and access to credit were correlated, and therefore, were dropped from the model. Using explanatory variables listed above, the analysis predicts employees to be in one of the three groups listed in Table 7.2.

7.3.4. Empirical Evidence

Table 7. 4: Parameter Estimates MNL Livelihood Diversification Strategies Model

Livelihood Strategy	Participation in Agriculture = 1			Participant in Self Employment = 2		
	Coef.	Std. Err	P>|z|	Coef.	Std. Err	P>|z|
Gender of Employee	-0.234	0.956	0.806	0.591	0.657	0.369
Age of Employee	2.500	0.750	***0.001	0.808	1.113	0.468
Age squared	-0.035	0.012	***0.002	-0.017	0.023	0.455
Marital Status	2.529	1.063	**0.017	0.327	0.642	0.610
Head of hh	1.830	1.358	0.178	-0.036	0.762	0.961
Number of adult equiv.	0.755	0.340	***0.026	-0.158	0.237	0.504
Service year	-0.343	0.159	**0.031	-0.296	0.146	**0.042
Education Level	0.212	0.393	0.589	-0.455	0.251	**0.070
Travel Time/day	0.507	0.702	0.470	-0.579	0.438	0.187
Total Working Hour/day	0.173	0.163	0.289	-0.081	0.110	0.462
Constant	-48.739	13.501	0.000	-6.436	12.840	0.616
Wage employment = 0 is the base outcome)						
Number of obs = **139**						
LR chi2(20) = **109.29**						
Prob > chi2 = 0.000						
Pseudo R2 = 0.3920						

***,**,* Significant at 1%, 5% and 10% probability level respectively

7.3.4.1. Fitness of the Model

The significant Chi-square value (109.3 with a P value <0.001) indicates the fit of the model in explaining the relationship between independent and dependent variables (Table 7.4). The Pseudo R^2 indicates that about 40.0% of the total variance in livelihood diversification was explained by the independent variables (Table 7.4). The parameter estimates of the MNL model provide only the direction of the effect of the independent variables on the dependent variable relative to the reference group; the coefficients do not represent either the actual magnitude of change nor probabilities as OLS regression does (Gujarati, 2011: p.160).

MNL was run and tested for the assumption of the Independence of Irrelevant Alternatives (IIA). There was no evidence that this assumption was violated when the Wld test and Small-Hsiao test of IIA assumption were run, justifying the applicability of the MNL specification to the data. Table A1.4 (see Appendix 1) contains results of the Wald test that all coefficients associated with an independent variable equal zero. Moreover, there are no multicolliniarty problems in the fitted model.

7.3.4.2. Participation in Agriculture relative to Wage Employment

In line with the study expectation, age of the worker, which represents experience and family responsibility and wealth, positively and significantly affected participation in agriculture (Table 7.4). A unit increase in the age of the employee will increase the probability of participation in agriculture rather than being in wage employment only. This finding is in agreement with the comparative literatures that show a positive relation between age and wealth level, where wealth could be invested in diverse livelihood activities. Beyene (2010), reported similar findings in Tigray, Amhara, Oromia and SNNP regions of Ethiopia.

The coefficient on the number of adult individuals has a positive sign and is significant at 5 per cent probability level, showing an increase in the number of adult individuals per household would significantly increase the probability of participation in agriculture, rather than relying only on wage employment. This could be due to high labour endowment which allows households to carry out diverse livelihood activities by allowing household members to participate on various activities. Tefera (2011), has observed similar situation in the Hararge highland regions of Ethiopia.

The coefficient of the married employees has a positive sign and is significant at 1 percent probability level. Although the coefficient is low, it may imply that married employees' are more likely to participate in agricultural activities as compared to being in wage employment only. Agriculture is usually men's job in the region and requires more labour. Therefore, being married and the presence of male in the household may encourage the household to participate in agricultural activities than relying on low paying wage employment in the flower farm.

Service year has a negative sign and is significant at 5 percent level. It implies that, the probability of participation in agriculture decreases with an increase in service year. This coincides with age square which has a negative coefficient and significant p-value, showing participation of employees in agriculture decreases after a certain age. This could be explained by better wage income for employees who have long years of experience, and may decide not to participate in agricultural activities to support their families.

7.3.4.3. Participation in Self Employment Relative to Wage Employment

Only two variables; education level and service years (tenure before and since employment) of flower farm employees significantly affect participation in self employment activities rather than being only in wage employment.

However, education and service years of flower farm workers are inversely associated with self employment activities as indicated by their negative coefficient. The negative coefficient for education level and service year suggests that a unit decrease in education level and service year of the employee will increase the likelihood of participation in self employment as compared to the probability of being in wage employment.

Normally, better education and work experience are considered as investments that would increase earning potentials and diversification of livelihood (Reardon et al., 2007). Contrary to the study expectation, those with low education level and service year were participating more in self employment activities rather than being only in wage employment. However, this result is consistent with the descriptive findings that show most of the low paying self-income generating activities were filled by uneducated and unskilled poor workers. In agreement with the study finding, positive association of lower education level and increased participation in low paying income generating activities was reported in Nicaragua by Corral and Reardon (2001).

7.4. Chapter Summary

This chapter analysed livelihood coping strategies of flower farm workers with low wage income. The results show that the majority of farm workers who were living below the poverty line, and adopted unpopular coping strategies and detrimental lifestyles such as skipping breakfast or lunch, and sleeping on the floor. In order to offset low wages, employees participated in different income generating activities. Those households participating in agriculture and self-employment earned relatively better incomes, although they work relatively longer hours.

Although households may have different motives in pursing different livelihood strategies, as argued by Ellis (2000) and Reardon et al. (2007), the mlogit estimates of the determinants of a employees households' participation in agricultural activities rather than being only in wage employment was influenced by Age of employee, the number of adult individuals in the employee household, and marital status of the employee. All these factors positively influence participation of employee household in agriculture. However, Service year of employees' negatively influence participation in to agriculture.

On the other hand, the mlogit estimates of the determinants of a households' participation in self income generating activities indicates that low levels of education and service year of employees significantly and negatively influenced the participation of employees in self employment activities rather than being only in wage employment. Most of the low paying self-income generating activities, such as shoe cleaning, carrying items in the market, working on farm fields (tilling, harvesting, etc.) are dominated by uneducated and unskilled poor workers who earn less than a dollar a day.

The finding shows that flower farm employees' pursue diversification to generate income more as a survival and coping strategy than as an asset accumulation venture. Therefore, contrary to the original assumption of the Ethiopian government, the flower industry has created neither decent job opportunities for local people nor has it lifted farm workers out of poverty.

CHAPTER 8: Impacts of Flower Farm Development on the Livelihoods of Local People

8.1. Introduction

Most of the flower farms in Ethiopia are located in the Great Rift Valley region where there are abundant water resources, climatic conditions are favourable, and which is comprised of a vast fertile plain that has been occupied and historically used by the local people. This region was designated for flower production without conducting any social and environmental impact assessment and lands were given to investors by evicting many poor farmers.

Local people evicted from their land were first enticed by subsequently unfulfilled promises given to them by the government and flower growers: fair monetary compensation, school for their children, establishment of clinics, clean water, sanitation, infrastructure, and better social amenities and services. Following the development of flower farms in the last decade in the region, this chapter examines the impacts of land dispossession on the livelihoods of local people. The chapter first identifies the major shocks experienced by the evicted people, then it analyses shock coping strategies of this community.

The study area is Adaa woreda (Debre Zeit region). A detailed description of the study area is provided in Chapter Three. The chapter uses the Displaced Household Survey data and Growers and Exporters Survey data. Details of the survey design and sampling methods are provided in Chapter Four, section 4.2.3 and section 4.2.4. A retrospective impact assessment approach was employed to identify the major types of shocks and shock-coping strategies adopted by displaced people. Descriptive statistics such as frequency, mean and percentage were used to measure the outcome variables such as asset holdings, aggregate income and expenditure, share of income source, shocks and shock-coping strategies. The data were statistically analysed using Multinomial Logistic Regression (MNL) analysis to identify the determinants of livelihood strategies and to explain household participation in different income generating activities.

8.2. General Characteristics of the Study Households

Major socio-economic characteristics of the displaced households in comparison with the non-displaced households are given in Table 8.1. The mean family size of the displaced households is 6.42, whereas that of the control group is 6.02. The majority of households in both groups are headed by males, but female headed households of the displaced people are 7 times higher than that of the control group. This is because a few males were reported deceased, and some others moved to the cities in search of wage employment.

The average land holding per household for the displaced households is 2.85 kert, while that of the non-displaced group is 6.03 kert. The mean Tropical Livestock Unit (TLU) owned by the displaced households is 1.31, which is 63 percent lower than the non-displaced households who own 3.52 TLU. The considerable difference in the major socio-economic characteristics may be attributed to the unplanned dispossession of land from the households.

Table 8.1: Household Characteristics of Displaced and Non-Displaced Groups

Household Characteristics	**Displaced Households (n= 86)**		**Non Displaced Households (n = 82)**	
	Mean	St.dv	Mean	St.dv
Age of household head	41	12.98	48	11.65
Household Size	6.42	2.33	6.02	3.05
Land holding in Kert	2.85	1.89	6.03	3.23
Total Livestock Unit	1.31	1.29	3.52	3.84
		Displaced Percentage	**Non-Displaced Percentage**	
Gender of household head	Male headed	72.1	96.3	
	Female headed	27.9	3.7	
Education Level	Illiterate	48.8	36.6	
	Read	41.9	35.4	
	Formal education	9.3	28.1	

(1 kert is equal to 0.25 hectare)

About 49 percent of the displaced households and 37 percent of the control groups are illiterate. Another 41.9 percent of the displaced households and 35.4 percent of the comparison group can read, but not write. Only 9.3 percent of the displaced group and 28 percent of the comparison group has formal education.

8.3. Shocks Experienced by the Study Group

To identify the major type of shocks experienced by the displaced households, data on shocks were collected during the survey period. Following Hoddinott (2003a), the following question was asked: "In the last 10 years has this household been affected by a shock, i.e an event that led to a significant reduction in asset holdings, caused your household income to fall or resulted in significant reduction in consumption?" In addition, respondents were asked to list three or four major type of shocks in order of their severity.

Table 8.2 shows the percentage of households reporting particular types of shocks in the last ten years. The shocks were grouped into three, based on timescale: current shock, shock in the past five years and shock in the past 10 years. Current shock refers to the major type of shocks experienced by the households at the time of the survey in 2011/12. Shocks in the past five years refer to the major type of shocks experienced by the households during the past 5 years. Shocks in the past 10 years refer to the major type of shocks experienced by the households between the last 5 and 10 years.

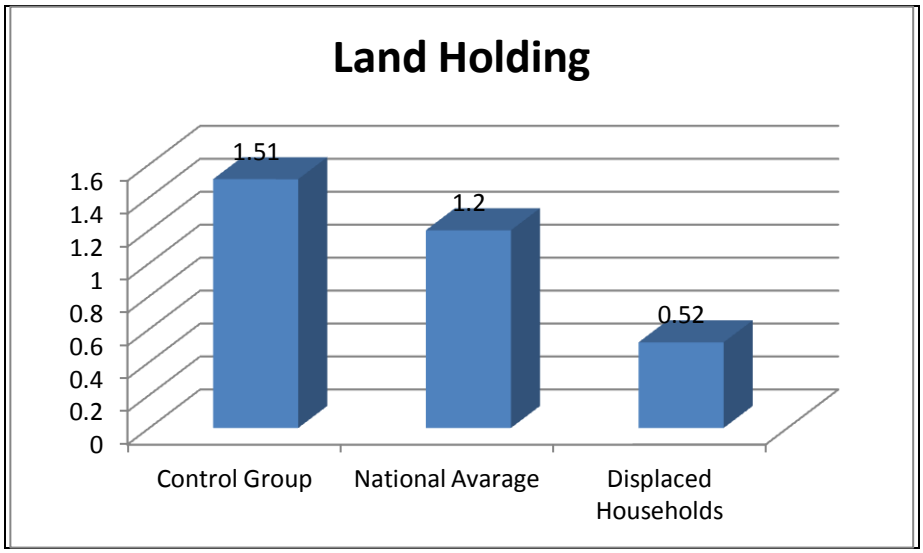
8.3.1. Past Shocks

The major shocks experienced by displaced households five years ago were loss of farm land, flooding, and lowered production. The study findings suggest that most of the current shocks experienced by the displaced households and presented above were an aftermath of these three shocks.

8.3.1.1. Loss of Farm Land

The survey data shows the 86 displaced farmers interviewed for this study have lost a total of 51 hectares of land. On average each farmer has lost 0.58 hectare. Consequently, the cultivable land of displaced farmers has dropped to 0.52 hectare per household (Figure 8.1). This cultivable land is extremely small in comparison to the control groups who have 1.51 hectares, with a regional average 1.2 hectares (CSA, 2006). The aggregated land holding of land dispossessed farmers (before and after dispossession) is 1.1 hectare per household. This land holding was much smaller than the control group. It shows that the evicted people were disadvantaged part of the community.

Figure 8.1: Current Land Holding of Displaced Households and Control Groups



(Source: Own Survey; CSA, 2006)

Close to 50 percent of the displaced households are landless. Of the average 0.52 hectare of cultivable land that the displaced people reported in section 8.3.2.1 above, all does not belong to the household. It is computed from the different types of cultivable land, owned and accessed by the displaced people as listed below.

Table 8.2: Type of Cultivable Land

Type of Cultivable Land	Percentage of Displaced hh	Percentage of Control Group
Owned	51.2	87.8
Rented	8.1	1.2
Shared agriculture	5.8	0.0
Rented + Shared	34.9	11.0

(Source: Own Survey)

To grow crops, landless households acquire land using different strategies. Among the displaced landless group, about 8 percent were leasing land, 6 percent were engaged in share cropping, and about 35 percent used both strategies (rent and share cropping). Such struggles for survival by renting land or equally dividing crops with land owners is not improving the lives of these severely impacted displaced people, rather they are falling into extreme poverty. In contrast, 88 percent of control group households have their own land and very few were participating in share cropping.

8.3.1.2. Flooding

For decades, many villages in the bottom plain area of Debre Zeit region experienced flooding during the rainy season[20]. In the traditional small scale farming, farmers deal with this problem by sowing short season crops, such as teff and chickpeas, right after the floods recede. Brokers also used this pervasive flooding problem to persuade farmers to lease their land to the flower industry. The flower farms then applied flood mitigation measures in developing land for flower production.

8.3.2. Current Shocks

The major type of shocks experienced by the households during the survey period were the high prices of inputs, reduced numbers of livestock, and increased price of rented land, in decreasing order of severity (Table 8.2)

8.3.2.1. High price of inputs

High price of inputs is ranked as first and is a major shock experienced by both groups (Table 8.2). These are agricultural inputs, mainly fertilizer, seeds, and pesticides, which farmers have to buy from the market. Since the introduction of the new agricultural policy, under the auspices of Agricultural Development Led Industrialization (ADLI) national economic strategy, the market for agricultural inputs was liberalized. Thus, the state has no control over the price of these inputs. Prices of these inputs are usually determined by the international market. Because of the very high prices of agricultural inputs, unlike the control group, most of the displaced farmers could not afford to buy agricultural inputs and often do not dare using these products.

[20] The flooding was associated not with high mm rainfall, but with the adjacent stony mountains and hydrological behaviour of the dominant black cotton soil (Vertisol) which is characterized by poor hydraulic conductivity and high soil moisture retention: Astatke A and Mohamed Saleem MA. (1998) Effect of Different Cropping Options on Plant-available Water of Surface-drained Vertisols in the Ethiopian Highlands. *Agricultural Water Management* 36: 111-120.

Table 8.3: Shocks Experienced by the Study Group

Time Line	*Major Type of Shock*	*Displaced Community*		*Control Group*	
		Percent	**Rank**	**Percent**	**Rank**
Current **During the survey 2010/11**	High price of inputs	**91**	**1**	**93**	**1**
	Reduced number of livestock	**81**	**2**	37	3
	Increase price of land rent	**80**	**3**	12	5
	High price of commodities	35	4	92	2
	Lack of composting material	16	5	12	5
	Travelling long distances to work	5	6	17	4
5 Years Before	Loss of farm land	100	**1**	0	--
	Flooding	52	**2**	35	1
	Lowered production	43	**3**	31	2
10 Years Before	Flooding	100	1	35	1

(Source: Own Survey)

8.3.2.2. Reduced numbers of livestock

Reduction in livestock-holding was reported as the second major shock experienced by the displaced group (Table 8.2). Following land transfers from farmers to flower growers, the numbers of livestock of the land dispossessed community were considerably reduced for two basic reasons. The first reason is reduced grazing land: traditionally animals were kept freely in the communal fields to graze. The communal pasture was an important source of feed for all types of livestock. At home, animals were supplemented with crop residue. Dispossession and leasing of land for flower growers and also urban expansion created a critical shortage of grazing land and farmers had no other option except sell most of their livestock.

Secondly, flower growers fenced all of their land with barbed wire. If any domestic animal is found inside the fence, the owner will be fined 50 Birr ($3) per livestock for trespassing. In addition, rivers in the vicinity of flower farms, that were the sole sources of water for residents and their livestock, were polluted by discharges from green houses. The study group reported that in the last two/three years alone, more than 300 cattle died from drinking the polluted water from Wodecha River. Because of scarcity of grazing areas, pollution problems and fine charges by the local council, the traditional way of raising livestock by allowing cattle to graze on communal land has been abandoned. Raising livestock has now become labour intensive, expensive, and a risky venture.

Since most displaced people lost their cattle for the reasons mentioned above, there is a pronounced difference in the possession of livestock between land dispossessed households and control groups. The average TLU per household of displaced people was 1.31 and is less than half the size possessed by the control group. A further break down of the TLU shows that the displaced people owned relatively less numbers of oxen. The number of oxen per household is one of the major determinants of the standard of living in the crop-livestock livelihood system (see Chapter Three: Section 3.3.2).

8.3.2.3. Increased price of rented land

The rent of farm land has drastically increased in the past few years due to the increasing demand for farm lands. The demand has increased as more and more households become landless due to dispossession and the increased number of wealthier farmers who are willing to pay higher prices to beat the competition. Higher prices of rented land and the encroachment by flower farms on to their lands are driving many rural households into landlessness and poverty.

8.4. Impact of Land Dispossession on Household Income

The mean annual income of land dispossessed households, 8225 Birr/year, is 44 percent less than the control group which is 14,682 Birr/year (Table 8.4). This large discrepancy in mean annual income between displaced and non-displaced households may indicate negative impacts of ill managed displacement and difficulties in reviving from economic and emotional shocks experienced by the displaced people during/after displacement.

Table 8.4: Composition of Household Income Sources

Livelihood Activities (Income Source)	**Share of Income Source Contribution to the Mean Annual Income in percent**	
	Displaced Group Mean Income 8,225 Birr (= $ 470)	**Control Group Mean Income 14,682 Birr (= $ 839)**
Agriculture	70.6	90.1
Self Employment	6.1	6
Farm Wage Employment	5.2	1.5
Wage Labor	15	2.2
Remittances	3.1	0.2

(Source: Own Survey)

The households were further grouped by income level into five categories from very low to very high to evaluate the ability of the households to generate one USD per day. Disaggregation of mean annual income of the displaced households and control groups over a one year period shows that 52 percent of the displaced households and 22 percent of none displaced household

live close to or less than a dollar a day. In contrast, 39 percent of non-displaced households and 3.5 percent of the displaced households fall in the very high income range (Table 8.5).

Table 8.5: Income Level by Group

Income level	Income Range USD/Day	% of Displaced People	% of Control Group
Very Low	≤ 1	34.9	12.2
Low	1.010 - 1.250	17.4	9.8
Medium	1.251 - 1.500	18.6	19.5
High	1.510 - 2.250	25.6	19.5
Very High	≥ 2.251	3.5	39.0

(Source: Own Survey)

Nearly 60 percent of farmers in the control group were making more than 1.5 USD a day while only 29 percent of the displaced group fall to in this category (Table 8.5). Thus, displacing farmers from their habitual residence without enough monetary compensation that could help them start a new life, and provision of subsequent assistance has resulted in the dwindling of household annual income. Evidently, displacement disrupts the customary intra- and inter-household safety nets, caused erosion of assets and severely undermined farmer's capacity to be resilient, and has driven most of them from self-sufficiency to abject poverty.

8.5. Shock Coping Strategies

Following Hoddinott (2003a), the study group were asked what the household does to compensate, resolve, or address the loss of assets; loss of income. They were also asked to list three or four most important coping strategies according to their priorities. As shown in Table 8.6, households in the study groups used a range of strategies to cope with poverty and small land holdings following dislocation

Table 8.6: Shock Coping Strategies

Shock Coping Strategies	Displaced (n=86)		Control Group (n=82)	All Study Group	
	Frequency	**Rank**	**Frequency**	**Total**	**Rank**
Purchased another plot	4		0	4	
Rent in land or share cropping	35	**Second**	9	44	**Third**
Oxen shared	31	**Third**	15	46	**Second**
Labour employment in the flower farms	19		11	30	
Farm wage employment usually wives and children	13		0	13	
Adult children working in the flower farm during summer	3		0	3	
Reduced food consumption	52	**First**	13	65	**First**
Shifting food items from teff to maize and wheat	27	**Fourth**	8	35	**Fifth**
Taking credit from better off and credit union	23		13	36	**Fourth**
Purchase food for the whole year when the price is low	21		5	26	
Moving cattle to the slaughter house and for market	8		0	8	
Brewing tella (local Drink)	10		3	13	
Retailing vegetable an cereals in Debre Zeit town	11		4	15	
Dung and fire wood collection and Selling	23		12	35	
Shift production from teff to chickpeas as it requires less fertilizer	13		10	23	

(Source: Own Survey)

The land dispossessed households exhibited a range of response to shock and hence adopted a wide variety of coping strategies. About 4.7 percent of the total land dispossessed households) purchased small plot of farm land. Another 40.7 percent leased agricultural land. Some of the dispossessed households 25.6 percent mainly women and their adult children took jobs on flower farms. Close to 15 percent of the land dispossessed households took jobs as daily labourers in relatively high paying vegetable farms in their vicinity. Quite a few household were engaged in petty self-income generating activities such as brewing tella (local alcoholic drink), moving cattle to the slaughter house and for open market, retailing vegetables and the collection and selling of dung and firewood as full or part-time jobs.

Among the different strategies reported, reduction in food consumption, sharing oxen and renting farm plots or share cropping were the major coping strategies identified that ranked from first to third respectively (Table 8.6). The majority of land dispossessed households (55 percent) also acknowledge that they spent the marginal compensation which they received during land transfer on food consumption.

8.6. Livelihood Diversification Strategies

Following Reardon et al. (2007) and Davis et al. (2010), the share of income from each livelihood activity has been used to characterize household livelihood strategies and coping mechanisms. During the survey period, data on the income of displaced people as well as the control group were gathered and analysed by sources (Appendix 4), and household expenditure was calculated. In addition, the productive assets owned by the household, mainly land and livestock and non productive assets such as houses and larger items bought in the past one year, were appraised.

Table 8. 7: Mean Household Income by Source in Birr/Year

Activities or (Income Source)	Displaced households (n=86)			Control Group (n = 82)		
	Mean	Number of Participant hh	%	Mean	Number of Participant hh	%
Agriculture	5,880	83	84	13,195	82	100
Self Employment	1,820	27	31.4	8,138	8	9.8
Farm Wage Employment	2,502	15	17.4	2,748	6	7
Wage Labour On Flower Farm	5,127	21	24.4	5,407	4	5
Remittances	2,257	9	10.4	1,505	2	3

(Source: Own survey)

The mean of different income generating activities was computed to determine the livelihood diversification strategies adopted by the displaced households (Table 8.7). The mean is computed only for the participating household in each livelihood strategy to show the magnitude of income from each strategy. The result shows that the majority of the study group were participating in different income generating activities. The major livelihood diversification strategies adopted are discussed in the following section

8.6.1. Agriculture

Agriculture includes both crop and livestock production. The majority of displaced people (84 percent) still depend on agriculture for a living. However, their mean annual income from agriculture (Birr 5880) was far less than the control group (Birr 13195). The significantly lower income of displaced people from agriculture may be explained by their small land holding as shown in Figure 8.1 and a reduced number of livestock per household as shown in Table 8.1. Besides, as aforementioned, almost half the displaced people have no land and were either renting land and/or engaged in sharecropping (Table 8.3). Hence, higher rental rates of land and share cropping with the land owner in share cropping system could significantly diminish the earning power of the displaced group.

8.6.2. Self Employment

About 31.4 percent of the displaced households participated in different self-income generating activities as compared to 10 percent in the control group (Table 8.7). The main activities were: brewing traditional alcoholic beverages such as Tella and Areke, collecting and selling dung and fire wood, petty trade such as cereal and vegetable retailing in the market. Some took beef and other animals from Debre Zeit to Modjo or to Addis Ababa.

8.6.3. Farm Wage Employment

As shown in Table 8.7, about 17.4 percent of the displaced households generate income from farm wage employment as compared to 7.4 percent in the control group. Member(s) of a household, especially women and grown children, may work on-farm during the planting, weeding, harvesting, and threshing seasons for landowners/other farmers. Land owners pay 20 to 30 Birr/day (equivalent to $ 1.1 to 1.7), and also provide lunch. This wage is relatively better and higher than that of the flower industry. In addition, as opposed to the flower industry, the working hours are flexible and workers are allowed to choose their own schedule. But this kind of job has a downside: it is seasonal, not guaranteed and the benefit is temporary. There is no specific location every day and one has to look for a job and move around land. Travel distances vary as job location often changes. However, in a few areas where vegetables are produced under irrigation, it is much easier to find farm work throughout the year.

8.6.4. Wage Labour

About 24.4 percent of the displaced people and 5 percent from the control group managed to get employment opportunities on the flower farms (Table 8.7). A few older people were employed as guards, whereas others were employed as field workers and earned 12-15 Birr/day (equivalent to $ 0.68 to 0.85). This payment is far less than the wages paid to labourers in the region (see 8.5.3) and also that of the national average for wage labour (see Footnote 10: page 116).

8.6.5. Remittances

A few displaced households (10.4 percent) reported receiving remittances from their family members who have migrated to the cities or to Middle Eastern countries in search of a stable and high paying job (Table 8.7). The mean annual income from remittances for displaced households is 2,257 Birr and plays an important role in recipients' livelihoods.

The findings from the study imply that, in contrast to the control group, most of the displaced households (84 percent) whose income came mainly from crops and livestock before dispossession now have to scramble to support their families and make ends meet by participating in different livelihood strategies.

8.7. Determinants of Livelihood Diversification Strategies

To investigate the influence of shocks, socio-economic and demographic factors in the livelihood diversification and coping strategies, the study employed a Multinomial Logistic regression (MNL) model, and factors that determine the probabilities of household participation in alternative activities to generate income are explained. The data set for this analysis contains 168 observations, 86 households from the land dispossessed group and 82 from the control group.

8.7.1. Description of Dependent Variables

Following Reardon et al (2007), the livelihood activities were aggregated into three major groups: Thus, as depicted in Table 8.8, the dependent variable, livelihood activity, can be one of three categories: Pure Agriculture (1), Agriculture + Self employment (2) and Agriculture + Wage employment (3). As outlined earlier in the methodology section, few households that diversified their activities by participating in agriculture, wage employment, and self employment were categorized in one of these groups based on the highest share of income.

Table 8. 8: Description of Livelihood Activity Dependent Variables

Activities or (Income Source)	Number of observations	Percentage of Total	Definition of Variables
Pure Agriculture (1)	96	57.1	Dummy 1 if Participate in pure agriculture and 0 otherwise
Agriculture + Self Employment (2)	32	19.1	Dummy 1 if Participate in agriculture + self employment and 0 otherwise
Agriculture + Wage Employment (3)	40	23.8	Dummy 1 if Participate in agriculture + wage employment and 0 otherwise

Pure agriculture is a categorical variable where 1 refers to households that participate only in pure agriculture and zero otherwise. About 57 percent of the total households fall into this group. *Agriculture + Self employment* refers to households that participate in self-income generating activities in addition to agriculture. It is also a dummy variable that takes the value 1 if a household participates in these activities and 0 otherwise. This second group constitutes about 19 percent of total households.

Agriculture + Wage employment refers to households that generate income from wage employment in addition to agriculture (On-farm wage employment and wage employment in the flower farm are collapsed together). It is a categorical variable where 1 refers to participation in Agriculture + wage employment and 0 otherwise. The latter group account for 23.8 percent of the total households.

For a few households that participate in diverse activities (agriculture + self employment + wage employment) the highest share of income from self and wage employment activity was used as a base to categorize them into one of the groups.

8.7.2. Description of Livelihood Activity Explanatory Variables

Definition of key explanatory variables that determine participation in alternative livelihood activities is provided in Table 8.9. The mechanism and hypothesis on each explanatory variable and how it affects participation in different rural farm and nonfarm activities is presented in the methodology chapter (see Chapter Four: Section 4.4.4.5).

Table 8.9: Description of Livelihood Activity Explanatory Variables

Variable	Mean	Std. Dev.	Definition of variables
Age of HH Head	45.18	12.74	Continuous
Sex of HH Head	0.839	0.638	Dummy 1 if male 0 otherwise
No of Children under 10 years	0.857	1.034	Continuous
No of Adults aged over 10 years	5.369	2.748	Continuous
Marital Status	0.976	0.308	Dummy 1 if married 0 otherwise
Education Level of Head	2.678	2.762	Discrete (0,5) 0 no education 5 High school
Total Area Owned	4.401	3.072	Continuous
Total Livestock Unit	2.385	3.065	Continuous
Access to Credit	0.256	0.438	Dummy 1 Yes, 0 otherwise
Distance to the Town	0.970	1.180	Discrete (0,3) 0 close to town, 3 distant
Shocks			Dummy 1 if household experience 0 otherwise

Number of observations = 168)

Age of the head of household measured in years is a continuous variable. *Sex* refers to the gender of the household head, and is categorical where 1 refers male and 0 is female. *Number of Children Under 10* refers to children below working age, and is continuous. *Number of Adult Aged Over 10* years refers to individuals of working age (defined here as between ages of 10 and 65), and is a continuous variable. *Marital Status* refers to marital status of the household head, 1 if married and 0 otherwise. *Education Level* is a discrete variable where 0 refers to no education and 5 for high school. *Total Area Owned* refers to the total area of land measured in Kert, owned and accessed by the household, and is a continuous variable.

Tropical Livestock Unit refers to the total number of livestock owned by the household. It is a continuous variable measured in TLU (Tropical Livestock Units). *Access to Credit* is a dummy

variable where 1 refers to access to credit and zero otherwise. *Distance to the Town* is the distance of farm households to the town measured in kilometres. However, in this case, it is a discrete categorical variable that takes the value 0 to 3. If households are living very close to the Debre Zeit town, such as in Qalittii Kebele, it takes the value "0". If households are living far from Debre Zeit town such as in Udee kebele, it takes the value "3".

The *Shock* variables are included as dummies which take the value "1" if the household experienced a particular shock and "0" otherwise. The major shocks that the study includes are increased price of land rent, reduced numbers of livestock, high price of commodities in the market, loss of farm land and flooding.

8.7.3. Empirical Evidence of Determinants of Livelihood Diversification Strategies

Table 8.10: Multinomial Logit Estimation of Determinants of Participation in Agriculture, Self and Wage Employment

Explanatory Variables	Participation in Self employment Relative to Stay in Pure Agriculture (2)			Participation in Wage employment Relative to Stay in Pure Agriculture (3)		
	Coef.	Std. Err.	P>z	Coef.	Std. Err.	P>z
Household Characteristics						
Sex of HH Head	-1.88	1.20	0.118	-2.07	1.24	*0.094
Age of HH Head	0.04	0.03	0.249	-0.06	0.04	*0.097
Marital Status	-3.67	1.99	*0.066	-1.20	1.11	0.280
No of Children under 10 Years	0.30	0.42	0.469	0.75	0.46	0.102
Asset Endowment						
No of Adults over 10 years	-0.02	0.19	0.912	0.36	0.19	*0.057
Education Level of Head	1.34	0.71	*0.058	1.12	0.72	0.118
Distance to the Town	-2.94	1.06	***0.005	-4.18	1.10	***0.000
Total Area Owned	-0.40	0.22	**0.065	-0.20	0.20	0.322
Access to Credit	1.17	0.91	0.198	-0.40	0.97	0.681
Tropical Livestock Unit	-0.50	0.33	0.13	-0.57	0.33	*0.083
Shock Experience						
Increased Price of Land Rent	2.28	1.45	0.116	4.59	1.58	***0.004
Reduced Number of Livestock	2.05	1.49	0.167	-0.44	1.36	0.748
High Price of Commodities in the Market	-1.48	1.31	0.258	-0.97	1.34	0.472
Loss of Farm Land	3.26	1.47	**0.026	4.54	1.45	***0.002
Flooding	-0.78	0.90	0.387	-1.77	0.94	**0.06
_cons	1.95	3.37	0.562	1.87	3.34	0.576
Base category (1)	**Stay in pure Agriculture**					
Number of observations	**= 168**					
LR chi2(30)	**= 203.72**					
Prob > chi2	**= 0.000**					
Log likelihood	**= -62.328757**					
Pseudo R2	**= 0.62**					

*, **, *** refer to significance at 10%, 5% and 1% respectively.

The significant Chi-square value (203.7 with a P value <0.001) indicates the fit of the model in explaining the relationship between independent and dependent variables (Table 8.10). The Pseudo R^2 indicates that about 62.0% of the total variance in livelihood diversification was explained by the independent variables (Table 8.10). MNL was run and tested for the assumption of the Independence of Irrelevant Alternatives (IIA). There was no evidence that this assumption was violated. Table A1.5 (see Appendix 1) contains results of the Wald test.

The study estimated the diversification status of households in pure agriculture, self employment and wage employment. In the model, household characteristics, asset endowments and shock variables were included. The results presented in Table 8.10 are generally consistent with the descriptive findings. In each case the estimated coefficient should be compared with the base category of staying in pure agriculture. As indicated in the previous chapter, the parameter estimate of the MNL provides only the direction of the effect of the independent variable on the dependent variable. Estimates do not provide the actual magnitude of change or the probability.

8.7.3.1. Participation in Self-employment relative to Staying in Pure-Agriculture

Households heads who are single (not married or widowed) are more likely to participate in self employment activities ($p < 0.1$), as indicated by the negative coefficient of sex and marital status of the household in Table 8.10. These are most likely to be female headed households. The possible justification is that the agricultural work in the region is considered mainly men's jobs. Even if female headed households owned crop land, due to limited labour supply, it is under a kind of contractual agreement, share cropping or rent. Therefore, to compensate the foregone benefit from land, the majority of females are engaged in a wide range of self employment activities, such as Areke and Tella[21] making, collection and selling of firewood, weaving, and so on. In his study of the determinant of off-farm work participation decisions in Ethiopia, using a bivariate probit model, Beyene (2010), also reported a pattern that is similar to the study findings.

[21] Areke and Tella are local alcoholic drinks made at the household level

An increase in the education level of the head of the household also increases the probability of participation in self employment, rather than staying in pure agriculture ($p < 0.1$). This is consistent with the skill required to participate in self employment. Distance to the town has a significant ($p<0.01$), and negative impact on the likelihood of participation in self employment. As the distance to the town increases, the likelihood of participating in self employment decreases. The possible justification could be that households that are closer to the town have fewer barriers to participate in self employment such as petty trade (retailing vegetables and cereals in Debre Zeit town market has been reported by the study group). This finding is in agreement with that of Woldehanna and Oskam (2001), who reported distance to the town as one of the determinant factor for farm household to participate off-farm livelihood activities in the Tigray regions of Ethiopia.

The total area of cultivated land owned by the household significantly ($p<0.1$) and negatively influences participation in self employment. Thus, households with larger plots of farm land choose to stay in pure agriculture rather than participating in self employment. Land and livestock are the major assets in the crop livestock agricultural system that characterizes the study area (see Chapter Three: Section 3.3.2), and they are associated with high returns to labour time. Thus, the negative relation may indicate competition for labour between agriculture and low return self employment. Although the p value for the Tropical Livestock Unit is not significant, it is also negatively associated with participation in self employment. Those households with greater land and livestock holdings may decide to devote more time and labour to high-return agricultural activities. This is to be expected, especially since the zone is known for teff production. Matsumoto et al. (2006) have reported similar findings for Ethiopia, Kenya and Uganda.

In line with the study expectations, shock in the loss of farm land significantly ($p < 0.05$) and positively influences participation in self employment relative to staying in pure agriculture. This finding is in agreement with that of Dercon and Krishnan (2000), Reardon et al. (2007) and Satterthwaite and Tacoli (2003) who reported participation in low paying self employment, to minimize risks and make ends meet as a survival strategy for vulnerable households and individuals who are pushed out of their traditional occupations.

8.7.3.2. Participation in Wage Employment Relative to Staying in Pure Agriculture

Results of the parameter estimates of the MNL livelihood strategies model presented in Table 8.10 show that, in addition to the major shocks such as loss of farm land and increases in the price of land rent, household characteristics such as age and gender, asset endowments such as numbers of adults, education levels, size of crop land and distance to the town are the major determinants of participation in wage employment, rather than staying in pure agriculture. Most of the explanatory variables that determine participation in self employment rather than staying in pure agriculture also explain why an individual household participates in wage employment. This section focuses on a discussion of variables that further explain participation in wage employment rather than staying in pure agriculture.

The empirical estimation shows that the age of the household head has the expected negative sign and it is statistically significant ($p<0.1$). It implies that the likelihood of participation in wage employment decreases with age. Previous studies have shown health problems (Ruben and Van den Berg, 2001) and knowledge and experience in dealing with risk (Teweldemedhin and Kapimbi, 2012) as the most probable causes of a decline in participation in wage employment. This study has found firms, especially flower farms, are not willing to employ elderly people. The study group has reported unwillingness on the flower farm side to employ older people aged 45 and above, as the job is labour demanding. A very small number of elderly land dispossessed people (seven) were employed as guards on the flower farms.

The gender of the household head significantly influences their ability to participate in wage employment and earn income. The likelihood of participation for female headed households is less than their male counterparts, the signs are as expected. Increase in the number of adult individuals in the household significantly ($p<0.05$), and positively influences participation in wage employment. The positive relation implies, households with a large number of adult individuals may release some labour to engage in wage employment. Agricultural wage and casual wage on flower farms were seen among the study group. Thus, unskilled labour is the main asset the study group depends on in order to cope with shocks.

However, the work on flower farms is physically demanding and pay is usually very low. Employment in agriculture is prone to significant seasonal variation and older people have few employment opportunities.

The study expected households with smaller land and livestock holdings would participate in wage employment and generate income to cope with the impacts of displacement. In line with the study expectations, livestock holdings negatively influenced participation in wage employment, and it is significant at ($p < 0.1$). Although land holding is not statistically significant, it is negatively associated with wage employment. Negative associations between livestock holding and participation in low return activities have been reported by Berhanu (2007). Furthermore, Béné et al. (2012) reported that shocks in livestock holdings influence households to acquire new skills as a coping strategy.

Shocks in loss of farm land and increased prices of land rent significantly ($p<0.01$) and positively influence participation in wage employment. This is in line with the study expectation that shocks in agriculture are expected to push households from traditional agriculture into rural nonfarm activities. Similar findings were reported by Dercon and Krishnan (2000) and Satterthwaite and Tacoli (2003).

Although households may have different motives in pursuing different livelihood strategies, the Multinomial logit estimates of the determinants of household participation in income generating activities (self-employment and wage-employment) indicate that households pursue diversification into low paying self employment and wage employment activities more as a survival strategy than as an asset accumulation strategy. This is consistent with the descriptive finding that show most of the low paying self-income generating activities are filled by female headed and poor households.

8.8. Chapter Summary

The analyses of cross-sectional data used in this study provide results on the impact of displacement on the community due to the expansion of flower farms in the Ethiopian Rift Valley region. The analysis was done at a micro level. The descriptive statistics and the regression analysis results show that displacing farmers from their habitual residence severely disrupted the socio-economic climate and grossly undermined the capacity of displaced people to be resilient. Reduction in food consumption, sharing ox, renting land, share cropping, shift in staple food from teff to maize and wheat and taking credit from wealthier business men or credit unions were the main coping strategies reported by the study group.

The displacement of farmers has significantly reduced household income from agriculture. As a result, the displaced households were forced to adopt a range of strategies to generate additional income in order to ensure survival. The MNL regression analysis shows that the different strategies adopted by the displaced community in order to increase household income were a result of push rather than pull factors. The major push factor that persuaded farm households to participate in self-employment and wage-employment activity was loss of farm land.

CHAPTER 9: Environmental Change and Conflict between Flower Growers and Local Farmers

9.1. Introduction

Displacing people from their habitual residence has a wide range of socio-economic, cultural and environmental consequences. In agreement with many scholars such as Abbink (2007), Kabra (2009), Korn (1986) and Cernea and Mathur (2008), who reported the impact of displacement and eviction the preceding chapter indicates that unplanned land dispossession usually causes landlessness, joblessness, marginalization, food insecurity and loss of livelihoods and, thus, leads to extreme poverty. The study also examined perceptions held by local people, grievances of displaced people and their reactions to the flower industry; on the basis that failure to restore livelihoods could lead to conflict.

The following four main issues are examined to gain an understanding of the ever-growing conflicts between flower growers and rural communities in Debre Zeit following the introduction of flower farms in the region: (1) How local farmers gave up their farm land, the benefits that they accrued and their initial reactions afterwards, (2) Direct effects of agricultural technologies and resources used by the flower industry on the environment and rural communities, (3) Conflicts between flower growers and local farmers- and how local people voice their views and concerns, (4) Root causes of conflict between local people and the flower industry.

To answer these questions, the analysis uses both qualitative and quantitative data. The quantitative data includes the Displaced Household Survey and Growers and Exporters Survey. Details of the survey designs and sampling methods are provided in Chapter Four, Section 4.2.3 and Section 4.2.4, respectively. The qualitative data comprises information obtained from 16 focus group discussions. Information was gathered using check list methods to evaluate the impact of flower farms on the biophysical environment, field observations, and videotape resources. The study area is Adaa woreda (Debre Zeit region). A detailed description of the study area is provided in Chapter Three Section 3.3.

Descriptive statistical methods such as means, frequencies, and percentages are used to analyse the data. Comments of focus group discussions were summarized and organized and a recursive abstraction technique was employed to generate this case study and to draw conclusions. Finally, following Fisher et al. (2005), using a "conflict tree analysis" approach, this chapter sheds light on a range of issues that have not been addressed adequately by the stakeholders, identifies the impacts of environmental conflict, and provides empirical evidence for policy makers to resolve conflicts of this nature.

9.2. General Characteristics of the Focus Group Participants

A total of 86 individuals of which 28 percent were female and 72 percent were male, participated in the focus group discussions (Table 9.1). The participants were organized in to 16 small groups, (4-7 individuals per group). Detailed information on how the groups were formed is provided in Chapter Four Section 4.3.3. Out of the 16 focus group discussions, eleven were conducted in Qalittii Kebele and five in Udee. The mean age for the participants was 48.4 years. The youngest participant was 25 and the eldest was 80 years old.

Table 9.1: Characteristics of Focus Group Participants

KEBELE and Group			Sex		Age	
KEBELE	**Group**	**Group size**	**Women**	**Men**	**Minimum**	**Maximum**
Qalittii	1	7	1	6	35	65
Qalittii	2	5	1	4	26	76
Qalittii	3	5	1	4	32	60
Qalittii	4	5	2	3	37	71
Qalittii	5	5	1	4	32	60
Qalittii	6	5	3	2	36	50
Qalittii	7	5	1	4	33	80
Qalittii	8	4	3	1	35	60
Qalittii	9	4	1	3	28	54
Qalittii	10	7	2	5	28	65
Qalittii	11	5	1	4	32	76
Udee	12	7	1	6	38	72
Udee	13	7	2	5	28	65
Udee	14	6	2	4	28	54
Udee	15	5	1	4	25	60
Udee	16	4	1	3	55	61
TOTAL		**86**	**24**	**62**		

The focus group discussions provided valuable information for conflict assessment. In each case the focus group discussion was opened by describing the benefits of flower farms to the local community and gradually moved to the major questions outlined above.

9.3. The Benefits of the Flower industry to the Local Community

Creating employment and income earning opportunities for the unemployed population was one of the reasons that Ethiopian government policy makers introduced commercial scale flower farms to Ethiopia (MoFED, 2006: p.53). Although hiring capacity varies from region to region and from farm to farm, increased involvement of foreign and national investors in flower production and marketing businesses has created considerable employment opportunities in rural areas (Table 9.2). The six farms covered in this study in Debre Zeit Region alone have created employment opportunities for 2,384 people.

Table 9.2: Number of Jobs Created by Farm Location up to 2011

Farm Location	No of flower Farms	Managerial staff	Farm workers
Koka	6	126	3,717
Debre zeit	6	115	**2,384**
Holleta	5	186	3,809
Sebeta	6	135	1,595
Sululta	2	21	239
Zeway	5	181	8,556
Total	**30**	775	**20,300**

(Source: Own Survey)

However, rural communities in Debre Zeit living in the vicinity of flower farms are not benefiting much from the flower industry. From the focus group discussions, it appears that the flower industry is reluctant to hire local people due to the strained relationships between both parties, and a lack of trust on the part of the flower industry in the local farmers. On the other hand, some rural farmers are unwilling to work for flower farms because of low wages and poor working conditions.

Other factors that discourage local people from working in flower farms is the poor reputation of flower farms due to the deception and cheating discovered in lease agreements and corruption associated with the displacement of farmers from their lands. Many local people are annoyed at the failure of the flower industry to protect their environment and by the deaths of hundreds of domestic animals due to pollution of rivers from the discharge of waste from the flower industry. Farmers are outraged by the lack of compensation for their losses. Other than the employment

opportunities, neither the focus group participants reported nor the study found any services provided by the flower farms to the locals

9.4. Causes of Conflict between Flower Growers and Local Farmers

This section provides a brief description on how resources were transferred from local farmers to flower growers to contextualise the analysis of the conflict between flower growers and local farmers in Debre Zeit region.

9.4.1. Loss of Vital Environmental Resources: Land

The livelihoods of millions of people in Ethiopia are entirely dependent on renewable environmental resources, including crop land, forests, fish and water supplies. Despite land being a vital asset, and scarcity and disparity in the use of resources contributing to significant conflicts around the world (see literature review Chapter Two: Section 2.7.3), many farmers in the Adda district of Oromia regional state gave up their farm land to multinational flower companies. During the focus group discussions, farmers were asked why they gave up their land. Below is a summary of their stories.

"We were assembled for a meeting in the kebele hall[22]*. Chairman of the kebele and representatives from the local council talked a lot about the significance of the new investment projects and its benefits to the local community and the country at large. The chairman explained that, "they" are here to serve the community by providing light, water, roads, clinics, to provide employment for your sons and daughters. In the end, we were told to rent out the land and leave the site, alas!"*(Source: All Focus Group Participant, 2011).

A man in one of the focus group discussions reported that *"while I was working on my plot a chairman of the kebele came with other people whom I am not familiar with, and I was told about the project that was going to be implemented in the area. In the end, I was advised to rent out my plot on time before fencing and ground work for flower production starts. Otherwise, once the project is implemented, I could lose access to site and won't get any compensation payment, and I was told, my site was planned for dumping farm waste. I sobbed in tears and*

[22] Kebele is local council

cried like a baby in day light for losing land that was handed down in my family from generation to generation, and land I am sentimentally attached to and means a lot to me. It is fertile land. I felt ashamed and longed for death rather than seeing this unfolding in front of my eyes." (Source: Focus Group 5).

Another farmer who did not want to lease and leave his land reported that*, "I was told to rent and leave the land. Otherwise, your land would be contaminated by chemicals. Your herds would die and your family's health would be at risk. I was so terrorised, I thought, I would lose my family and herds due to toxic chemicals. I had no option but to rent the land and left my inheritance."*(Source: Focus Group 9).

Others reported

"Since we did not have any option, we signed the lease agreement in good faith and trust while we were receiving money. We neither read nor write. We never rented a land before and didn't know the ramification of law. After a few years, we learned that our verbal rental agreement for 5 years turned out to be 15 years on a signed lease agreement. We were truly cheated, and much to our dismay the law didn't help us. The court ruled against us believing we rented the land for 15 years. Shame on them! Either Law is blind and or judges are corrupt."

"The giant flower industry has a muscle to flex. Some of us were sent to prison, others were fined money (1000 Birr) just for merely protesting and bringing this case to court." (Source: Focus Group 1).

Similar types of testimonies emanated from other study groups and during group discussions. Farmers effectively had no choice but to give up their land. Otherwise, they would be considered as disruptive and treated harshly as anti-development agents (communication with Kebele Chairman). By frustrating local farmers, most flower farms appropriated more lands than they needed. In fact, the six flower farms surveyed in Debre-zeit region are currently utilizing only 57 percent of the land in their possession. Nonetheless, flower farms are still making good profits by leasing the remaining land at higher rates to other individuals who are engaged in crop production by using modern technology.

As most of the displaced households do not have land, they have to rent-in land or use other strategies such as share-cropping to produce crops and feed their families. However, the price of land rent increases every year and renting land was reported as one of the major shocks experienced by the displaced households. Current rate (leasing) price, on average, is 3000 Birr ($170) for a quarter hectare per year (all focus group participants agreed). This is 6 times higher than the rate that a quarter of a hectare of land was initially leased to flower growers. The study group reported, they were paid marginal compensation "2500 Birr" for a quarter of a hectare for five years. It is a dilemma that these people were made to lose their land at a cheaper rate and now they have to rent land at a much higher rate; a rate they cannot afford. Most of the displaced people are living below the poverty line and had to adopt different coping strategies to ensure survival.

Figure 9.1: Focus Group Participants in Qalitti Kebele



(Source: Author, 2011)

9.4. 2. Loss of Vital Environmental Resources: Water

One of the major environmental concerns about flower production is its intensive use of water. Currently, there is no regulation on the extraction and use of water in Ethiopia. The majority of flower farms in the study area (Sebeta, Debre Zeit, Holleta, Koka and Sululta) extract water from deep wells, and store it in a reservoir, while flower farms in Zeway are getting water from the Zeway lakes. Very few flower farms were observed at Debre Zeit harvesting surface run-off during the rainy season or from the rivers.

Figure 9.2: Water Reservoir in Sebeta



(Source: Author, 2012)

Water from runoff and rivers is uneconomical to the flower farms for it requires filtration of sediment and debris before use. Of the thirty flower farms surveyed for this study, only two had waste water treatment and recycling systems. Although recycling is an expensive process, experts in those farms explained that recycling helps to conserve water, minimizes fertilizer usage by up to 40 percent, and reduces environmental pollution.

9.4.3. Waste Management and Disposal

Flowers are mostly grown inside greenhouses under controlled environmental conditions (Figure 9.2) and with the heavy application of agrochemicals. Such heavy a consumption of chemical fertilizers and pesticides by flower farms could have detrimental impacts on the environment and could be lethal to humans and animals.

The local community in Debre Zeit area considers flower farms to be a threat to their livelihoods, not because of the amount of water they utilize, but rather because of the pollution of their water sources through the discharge of chemically contaminated waste water. This was one of the major issues raised during all focus group discussions. The death of livestock, loss of grazing land, and reductions in the livestock holding per household was associated with pollution of Wodecha River, which was the sole source of water for the community and their livestock.

To assess the impact of flower farming practices on the bio-physical environment, and test the complaints filed by the public and the local people, following Glasson et al. (2005) and Morgan (1998), an environmental risk assessment [23] was conducted for all flower farms surveyed in this study using a qualitative check list approach. Results are summarized in Table 9.3.

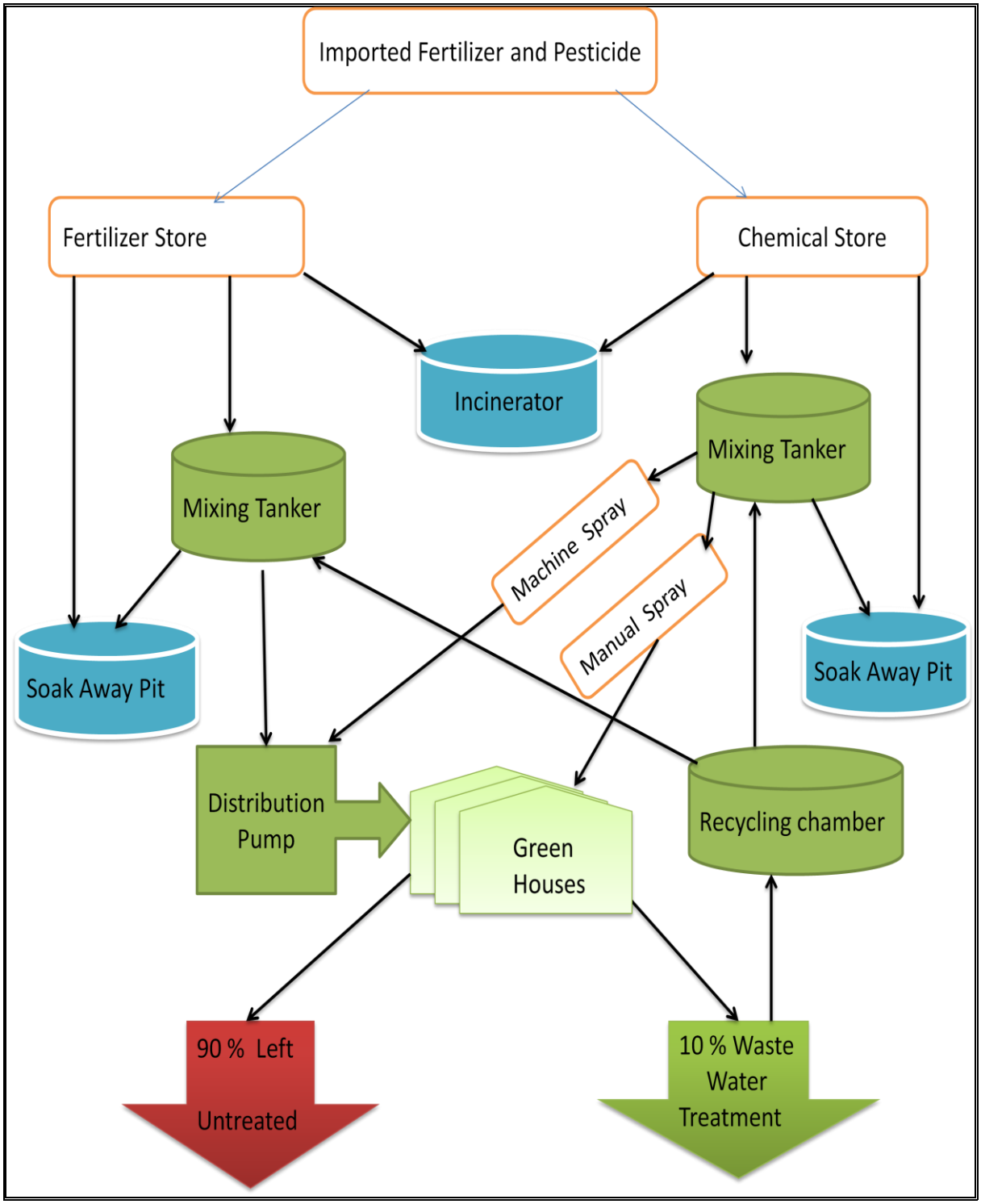
[23] Safety measures for employees working with chemicals are dealt with separately under the general working conditions of flower farms: (See Chapter Five: Section 5.3.3.3).

Table 9.3: Environmental Risk Assessment for Farm Waste

Major Type of Waste	Potential Hazard to Environment	Farm Location	Action Taken to Reduce Risk
1. Empty container	1. Could be used for food or drinking water, if left unattended 2. Unwashed container leaks chemical into the environment	Holleta, Sebeta Sululta, Debre Zeit Koka, Zeway	Incinerators are built in all farms. Chemical containers are washed, punctured and stored until burnt in incinerators.
2. Obsolete chemicals	Could be misused by unprotected personnel and lead to pollution of water and the surrounding environment	Holleta, Sebeta Sululta, Debre Zeit Koka, Zeway	Labelled and stored in chemical stores in one corner, with only few people having access to these chemicals (Figure 9.3).
3. Contaminated water from mixing room and laundry	May contaminate the water source or be drunk by livestock	Holleta, Sebeta Sululta, Debre Zeit Koka, Zeway	Soak away pits are built in all farms which are designed to purify chemical waste.
4. Excess water from green house and flushing containing pesticides and chemical fertilizers	May contaminate the water source and pose serious health threats to the public and livestock		Only 10 percent of the surveyed farms treat waste water. The majority (90 percent) have no set-up to mitigate risk.
		Debre Zeit	Some flower farms dump their waste directly into Wodecha river.
		Zeway	Waste water is directed through drainage and dumped directly into lake Zeway.
		Holleta, Sebeta Sululta, Debre Zeit Koka, Zeway	Planting on the ground: excess chemicals assumed to be infiltrating into the ground. The majority (90 percent) has no set up to mitigate risk.

(Source: Own Survey)

Figure 9.3: Flower Farm Fertilizer and Pesticide Flow Chart



Author drawing based on Environmental Risk Assessment Survey

As depicted in Table 9.3 most of the farms have implemented mechanisms to deal only with a fraction of farm waste. The flower Farm Fertilizer and Pesticide Flow Chart (Figure 9.3) shows where the precautionary measures are installed. Incinerators are built on all farms within the farm compound, either from brick or 200 litre metal drums, in order to burn dry farm waste and used chemical containers. Before incineration, chemical containers are washed, punctured and stored in a chemical store. Expired chemicals are labelled and stored in chemical stores as shown in Figure 9.4. Only a few people have access to these chemicals. All farms reported that currently they do not have any mechanisms to dispose of these chemicals (unless an alternative is found in the future for proper disposal, by the Ethiopian government or agro chemical suppliers).

Figure 9.4: Photograph Expired Chemicals in Sebeta



(Source: Author, 2012)

Soak-away pits (burial pits that are 2 to 3 meters deep) were built in all the surveyed farms for the purpose of purifying chemical wastes and water discharged from the mixing room and laundry. However, because of leaching, in areas where the ground water is very close to the surface, this method of chemical disposal poses a serious threat to humans unless the chemicals are properly neutralised. Therefore, this technique is not encouraged by The UN [24].

[24] The United Nations Office on Drug and Crime does not advocate the use of burial pits unless chemicals are properly neutralized, as it poses long term risks to human health and the environment: UNODC. (2011) *Guidlines for the Safe Handling and Disposal of Chemicals Used in the Illicit Manufacture of Drugs*. Vienna: United Nation Publication: ST/NAR/36/Rev.1 120. P.13

However, as depicted in Table 9.3 and Figure 9.3, only 10% of the surveyed farms treat the heavily contaminated water discharged from green houses and flushing. Most farms (90%) have no pollution mitigation measures. In the following sections, two very extreme cases, where environmental issues were reported by local people (one in Debre Zeit and the other in Zeway region), are presented.

Case I: Debre Zeit

In Debre Zeit region, most flower farms use surface irrigation schemes. Excess water is discharged directly into Wodecha River without being treated. Many people living up-and downstream depend solely on this river for domestic consumption and for their livestock. People living adjacent to Wodecha River are anxious and have raised their concerns about the future of their children, and the wellbeing of their family and livestock.

The focus group participant reported that, children cross the Wodecha river bare-foot while travelling to and from school, and sometimes, though, this is unsafe, they were using water from Wodecha river. Although no loss of human life has been reported, the focus group participants reported the emergence and prevalence of skin, intestinal, and respiratory diseases that were unknown to the region before the establishment of flower farms.

Participants during the focus group discussions reported deaths of more than 300 cattle that drank the polluted Wodecha River in the past few years. Raising animals has become a burden on local farmers. Animals need to be attended to all the time, because of water pollution and fines imposed by the local Kebele for trespassing or grazing of animals on flower farms land. People cope with the problems of water pollution and the scarcity of grazing lands by fetching potable water from a distance (women travel several miles a day) and significantly reducing livestock holdings per household, as shown in the preceding chapter (see Chapter Eight: Section 8.3.1.2).

Although statistics are lacking and the actual causes of death couldn't be verified, the focus group participants reported that the number of wildlife, mainly birds, which died in the past few years, has notably increased. The study groups associated the deaths with using polluted water from Wodecha River.

Figure 9.5: Drainage Channelled to Lake Zeway



(Source: Author, 2012)

Case II: Zeway Region

Both the rural communities and flower farms in Zeway region depend on Lake Zeway. About 1.2 million people and their livestock drink this water, directly from the lake and through its outlet, Bulbula River. The lake is also a sanctuary for different kinds of birds and a source of fish for domestic consumption. Despite these facts, flower farms dump untreated waste and discharge contaminated water from green houses directly into Lake Zeway.

Such disregard for humanity and the environment has caused the deaths of livestock and countless numbers of birds. It was not uncommon to see a large number of dead fish floating on the surface and on shore during the survey period, October to December 2010[25].

[25] Despite the task group that was established after the outcry of local farmers not finding a link between the death of fish and water pollution, a study conducted by Addis Ababa University revealed the presence and accumulation of toxic chemicals in Zeway Lake at concentrations much higher than permissible levels. Yifru A. (2010) Environmental Impact of Floriculture Industries on Lake Ziway: With Particular Reference to Water Quality. School of Graduate Studies, Addis Ababa University.

9.5. Conflict Analysis

As land and water sources are vital assets to the livelihoods of displaced communities in Debre Zeit region, the study has evaluated how these resources were transferred to the multinational flower companies. This section presents the local people's strategies of resistance to land grabbing (for further discussion of land grabbing see Chapter Two, Section 2.3.5; p25) and identifies the root cause of conflict between flower growers and local farmers.

9.5.1. Local People's Strategies of Resistance to Land Grabbing in Debre Zeit

There is evidence of a public uprising against flower farm expansion. There has been a reluctance of the kebele and local council to take account of and represent the interests of the farming community to the state. On the one hand, they assume that the rural population have only usufruct rights but not ownership. On the other hand, the kebele and local council officials are paid civil servants accountable only upwards to the state and thus, they cannot resist state policy (Discussion with Kalite Kebele Chairman).

In addition, as reported by the Focus group participants, the local Kebele officials have benefited much from land grabbing (bribed by flower grower so as to manipulate, persuade and coerce the locals), and therefore, attending to this public concern is not in their own personal short-term best interest. As a result, local farmers have organized themselves and protested to save their land from land grabbers (see Chapter Two; Section 2.3.5a) who are destroying their livelihoods.

In Kalite Kebele, the Adaa district of Oromia Regional State, a demonstration was called on 31 October, 2010. Over 300 local farmers assembled and marched to the flower farms, blocked flower farm employees from accessing the farm, and demanded the return of their land. This happened five years after the land was leased to the flower companies because they believed the land was leased for only five years. The written contractual agreements were retained by the flower growers, and farmers were told to wait for their copy in order to be recorded by local officials. However, this did not happen, and even if it did, many do not read nor is it likely they would understand the legal terminology used.

Eventually, the demonstration was dispersed by police and local militia. Several protesters were taken into custody and charged on multiple counts such as attempting to harass foreign investors, disruption of development projects, intent to mislead the rural community and to instigate violence. There was no any news paper or media coverage about the protest and action taken by the state agents (communication with local officials).

Following this incident, the case was taken from the police to the First Instance Court in Debre Zeit. There, the verbal agreement of five years was found to actually be fifteen years on the written and signed lease agreements. Consequently, the flower companies won and the local people lost their case, and also their faith in the justice and judicial systems. Ten organizers of the protest stated that they were coerced to plead guilty and were sentenced to imprisonment. Some were fined 1000 Birr, and others were bailed out.

The political climate between local people and flower growers in Debre Zeit region continues to be tense and danger is threatening. On the one hand, many of the displaced farmers are living below the poverty line and fall beyond the point of recovery. On the other hand, the flower industry did not keep promises made to the community such as expanding schools and hospitals, developing drinking water outlets, building infrastructure, etc. Trust between local people and the flower industry has been lost. People are outraged by what they consider to be cheating associated with lease agreements, loss of their cattle to water pollution, emergence of new diseases, and lack of an organization that would listen, and properly address their concerns.

9.5.2. Conflict Tree of Flower Production

Following Fisher et al. (2005), using a conflict tree as a tool for analysis, the study identified the core problem, the root causes of the conflict between local farmers and flower growers, and, the effects farmers experienced during the course of this study. The core problem is represented by the trunk; the underlying causes by the roots and the effects are symbolized by the branches of the tree.

Figure 9.6: Conflict Tree of Flower Production for Debre Zeit Case Study

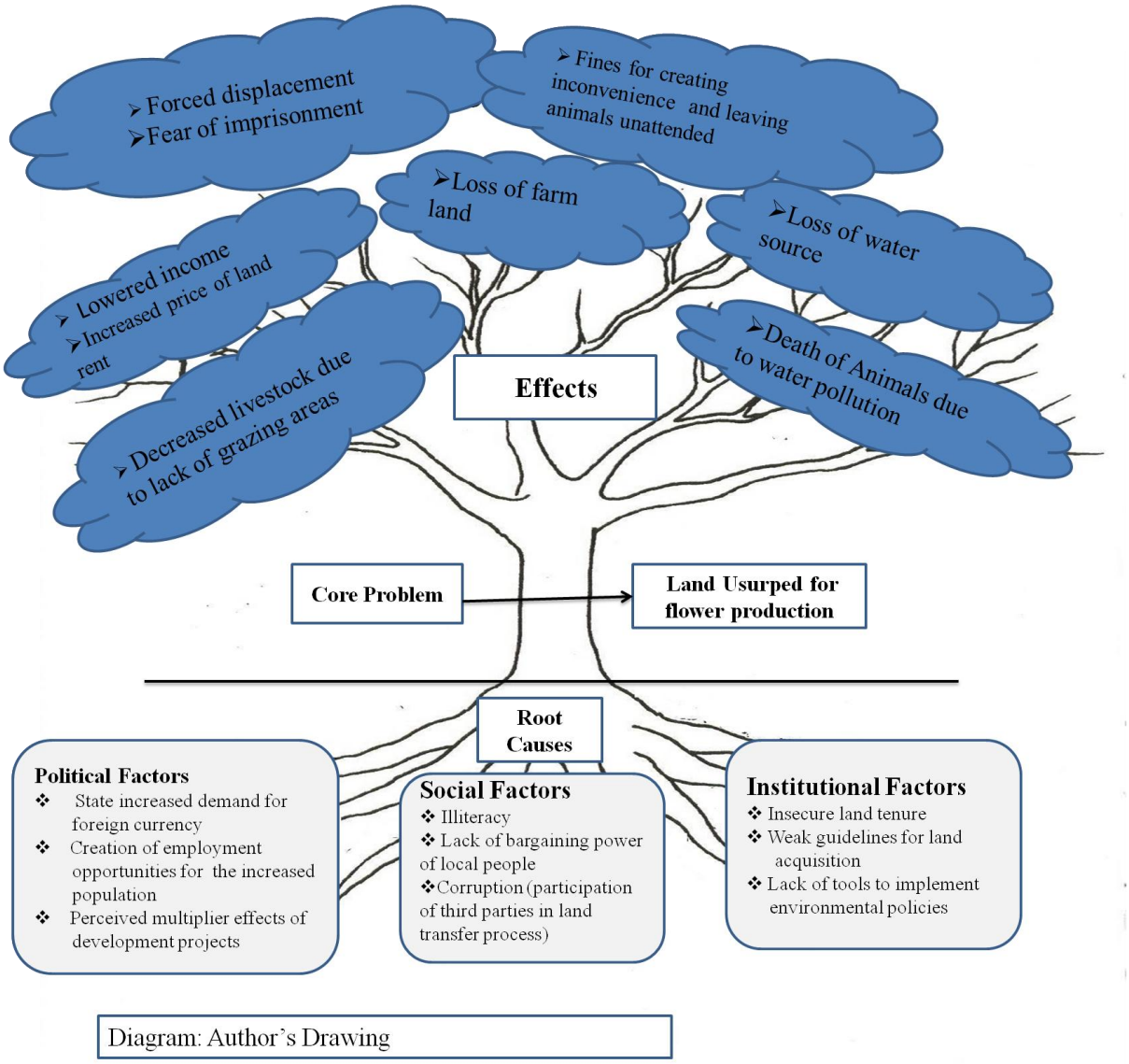


Diagram: Author's Drawing

The conflict tree represented in Figure 9.6 is a summary of 9 conflict trees, drawn by participatory processes, on flipchart, during the focus group discussions. The effects, the core problems and, some of the roots causes were pointed out by the focus group participants. The study later expounded the root causes based on an analysis of the various elements.

The effects of this resource conflict with which the local people are burdened are enormous. Loss of farm land following forced displacement results in increased poverty. Sanctions are imposed in the form of fines and imprisonment, to deter mass protests. Loss of water resources due to pollution has added to the travelling distance for women and children who fetch water. A shortage of grazing area is accompanied by reduced livestock ownership. There are deaths of livestock due to pollution of water sources. Income is decreasing while the price of rented land and all other commodities in the market are increasing, as well as the penalty/fines for not attending livestock (trespassing on flower farm compounds).These are the main effects highlighted by the focus group participants.

The core problem, as represented by the trunk of the conflict tree, is "Land" that has traditionally been used by local people as their sole source of livelihood, and which is now transferred to multinational flower companies, whose objective is the production and export of flowers. Some of the reasons why farmers leased out their land are presented earlier in this chapter. However, as represented by the root of the conflict tree, a number of political, social and institutional factors have exposed farmers to a manifestation of the global land grabbing phenomenon.

Accordingly, an insecure land tenure system, weak guidelines for land acquisition, a lack of tools to enforce environmental policies, increased state demand for foreign currency, the perceived multiplier effects of development projects by the state agents, illiteracy and lack of bargaining power of the local people, were the underlying causes. The intricacies and interaction of all these factors introduced corruption and irregularities which were observed during the land transfer process. Thus, all of these can be cited as root causes of conflict.

The Ethiopian land policy (see Chapter 2: Section 2.6), that gives the state the right to disenfranchise farmers from their land, has been identified as one of the major causes of conflict between flower growers and local farmers in Debre Zeit region. Land is a major asset and the main source of income for the farming community. This policy deprived farmers of

the right to live on land they possess and to maintain their livelihood strategies and way of life. Unfortunately, neither the Ethiopian government nor the flower industries have properly addressed these issues and public outcry was ignored.

The loopholes created in the land acquisition guidelines for investment purposes have been identified as another underlying cause of conflict between local farmers and flower growers. The guideline states *"....the regional investment office can write a letter to the local kebele about your land application. You* [the Investor] *will be the one to conduct all further negotiation and you yourself will sign the contract"*(EIA, 2008: pp.21). Both domestic and foreign investors quickly recognized this weakness in the guidelines and exploited it, to their advantage, in order to expand their territory.

As reported by the focus group participants, the flower growers used various cheap techniques to make local farmers uncomfortable and leave their land, and leased farm land to the wealthy flower farm investors. Confining farmers, by constructing fences around their land and blocking roads, collecting fines for trespassing, spreading frightening messages about exposure to toxic chemicals and associated health risks, and hiring brokers who could manipulate farmers and persuade them to lease their lands at low rates are some of the techniques mentioned in the focus group discussions. Evidently, the guidelines give more power to investors, but expose the local rural farmers and small land holders to exploitation and poverty.

Lacks of tools to implement environmental policies are also identified as a main cause of conflict between local farmers and flower growers in Debre Zeit region. Discharging of untreated waste and contaminated water into the water course is not acceptable by any national or international standards. By law, flower growers are required to submit environmental impact study reports. However, the Ethiopian government's Environmental Protection Agency has failed to enforce the law and demand strict adherence of flower growers to waste treatment policies, as witnessed in Debre Zeit and Zeway regions. Consequently, the local people experience a number of problems associated with water pollution.

9.6. Chapter Summary

Using data from focus group discussions, and key informant interviewing, field observations, environment impact assessment checklist, the Displaced Household Survey and Growers and Exporters Survey, the chapter examined the growing conflicts between flower growers and rural communities in Debre Zeit, following the introduction of flower farms in the region.

The results show the political factors, such as increased state demand for foreign currency, the perceived multiplier effects of development projects and employment opportunities for the unemployed; institutional factors like insecure land tenure systems, weak guidelines for land acquisition, lack of tools to enforce environmental policies, and social factors like illiteracy and lack of bargaining power of the local people, have contributed to mounting conflicts between flower growers and rural communities in Debre Zeit.

Although the local farmers in Debre Zeit region protested about the loss of their livelihoods, mainly land, livestock and water resources, and irregularities observed during the land transition process, the Kebele officials and local council continue to undermine the questions and demands of the local community. The flower industry remains defiant and chooses to ignore concerns of the local farmers, and the Ethiopian government is failing to interfere and mediate between the parties.

Although farmers lost their court case for the time being, and the flower companies won, the analysis suggests that the conflict is not resolved. If the voice of the people continues to be ignored, and a permanent solution is not sought, it may eventually lead to another uprising of local people with a far reaching consequence.

CHAPTER 10: Conclusion and Recommendations

10.1. Changes Brought by the Introduction of Flower Farms in Ethiopia

Impacts of the rapid development of the flower sector on the socioeconomic dynamics and biophysical components of the Ethiopian valley region were studied. The study was engaged with pay and working conditions among wage workers in Zeway, with the dynamics of land expropriation/transfer and their implications for welfare in the Debre Zeit area. The conceptual framework for the study draws on the livelihood framework (Ellis, 2000), decent work agenda (ILO, 1999) and conflict tree (Fisher et al., 2005) to discern the impacts and change caused by the introduction and expansion of flower farms in the Rift Valley region. The following three, core research objectives were addressed in this study.

1. Working conditions in flower farms and the relationships between wage incomes and livelihoods of the flower farm workers.
2. The impacts of flower farm expansion on the livelihoods of the local community.
3. The incidence of environmental conflict among resource users.

The introduction of flower farms to the Central Rift Valley region of Ethiopia has caused a cascade of changes through its direct or indirect pathways. In order to address multidimensional development issues and identify the key links between flower farm development and its human impacts, a conceptual framework was developed (see Chapter Two: Section 2.8). The main components of the framework are:

i) Social change that invoked change in livelihood strategies and asset holdings,
ii) Economic change and,
iii) Biophysical change.

The next section discusses the social, economic and bio-physical changes brought about by the introduction of flower farms.

10.1.1. Social Changes Brought about by the Introduction of Flower Farms

Data collected from flower farm workers and local farmers who reside in the vicinity of the flower farms were analysed to examine the social changes brought about by the introduction of flower farms to the Rift Valley region of Ethiopia. A hypothesis of the study was that farmers who were displaced due to the establishment and expansion of flower farms may have experienced a decline in welfare. The study also hypothesised that income from employment may not be sufficient to make a living. Under such circumstances, households could be expected to adopt other livelihood strategies as coping mechanisms (see Chapter Two: Section 2.8).

To study these social changes in the livelihoods of people in the Ethiopia Rift Valley region, the study employed principles and concepts of rural livelihood diversification strategies suggested by Ellis (2000) and Reardon et al. (2007), and followed Hoddinott and Quisumbing (2003a) in using a retrospective vulnerability analysis approach.

As expected, the findings show a decline in welfare among the displaced community following the introduction of flower farms in the Rift Valley region of Ethiopia. The loss of farm land, water resources and livestock due to the expansion of the flower farms pushed many of the land-dispossessed households into extreme poverty. To cope with the change in assets and income, households were forced to shift from a dependence on natural capital to human capital. The main human capital of the land-dispossessed households available for a sale is their own labour.

Many scholars associated with the World Bank (World Bank, 2008b), argue that increasing wage labour in the local economy is an effective mechanism of reducing poverty in Sub-Saharan Africa countries. However, this study concludes that the livelihood lost due to land expropriation was not compensated by income generated through wage employment in the flower or other sector, as wages are very low and working conditions are precarious. An interesting finding from this study is that- there was a clear age differentiation (screening) during hiring in the flower sector. The elderly and local people evicted from their land, without or with very marginal compensation, were deliberately excluded from employment. This is because of (i) the strained relations that exist between flower farms and local people, and (ii) older people are viewed as less productive and less flexible workers.

Clear gender based stereotyping of employment were observed in the flower sector. The study shows the majority (77 per cent) of workers employed by the flower farm are women. The gender dimension of employment observed in the flower industry was attributed to an assumed submissive nature of women, lower turnover rates of women employees, and their willingness to work under difficult conditions for less pay. This allegation was supported by empirical evidence such as better wages for men than women, and fewer women in leadership positions than males, although there was no notable difference in education levels between male and female employees.

The establishment of flower farms in the Rift Valley region of Ethiopia has caused increased out-migration of the local people to big cities in search of better employment opportunities. On the other hand, it has prompted in-migration of people looking for wage employment from other regions. These immigrants are usually landless people who lack a means of living in the rural area, and are considered as "the disadvantaged segments of the Ethiopian". It is very hard to determine the motivation of these immigrants who live in a dire state and work for little pay. Their cheap labour is considered as an untapped resource that Ethiopia can offer to the world, by the state and the multinational flower growers. Flower farm employees consider themselves as a consumable input that is used to grow flowers As a nation and taking human dignity into account, issues of social justice, equality and equity and sustainability cannot be by-passed and ignored forever.

10.1.2. Economic Changes Brought by the Introduction of Flower Farms

The introduction of flower farms into the Rift Valley region was expected by the Ethiopian government to have positive economic impacts in the region. It was believed it would increase employment opportunities and social stability by providing permanent employment, and decent jobs improving living standards through better wages and the provision of basic social services to the local community (see Chapter Two: Section 2.8).

The economic changes brought about by the introduction of flower farms in the Rift Valley region and its impact on the livelihoods of people working in the flower farm, and local people living in the vicinity of the farms, were examined. The appropriate decent work

indicators developed by the ILO since 1999, and the framework for livelihood analysis developed by Ellis 2000 were used to assess economic changes that directly emanated from the introduction of flower farms. Aspects of employment analysed in this study were productive employment opportunity, rights at work, social protection, and social dialogue. These indicators are considered essential to achieve equitable, all-inclusive, and sustainable development and poverty reduction (see Chapter Two: Section 2.5).

The flower sector in Zeway region makes a positive contribution to the Ethiopian economy by creating sizeable employment opportunities and by provision of basic services, such as schools and hospitals. However, analysis of the data collected from flower farm workers, local people, and flower growers shows that the economic conditions are precarious. As shown in the analysis put forward, 75 percent of the workers are earning about a dollar a day. Analysis of poverty levels also shows an overwhelming majority of the flower farm workers are living below the poverty line (Table 6.4), and adopt a range of detrimental strategies to cope with low wages.

On the other hand, land dispossession has also contributed to increased poverty in the rural areas. Evidently, poorly organized land dispossession has disrupted the customary intra- and inter-household safety nets, caused erosion of assets and severely undermined farmers' capacity to be resilient. Land expropriation, without sufficient monetary compensation that could help farmers start new life, and a lack of provision of subsequent assistance, has resulted in dwindling of household annual incomes. It has also driven most of the previously self-sufficient households into abject poverty.

Of course, there are a few groups who benefited from the development of the flower sector in Ethiopia. These include the multinational flower companies, brokers, Ethiopian capitalists who are involved in the flower business, and few organizations that have business relationships with the flower industry, such as Ethiopian Airlines. Unfortunately, the projected economic benefits and the positive trickledown effect of the sector to the national economy, and, the assumptions towards improvement in living standards of flower farm workers and the rural community have not yet materialized.

The current IMF and World Bank new development paradigm is one that encourages investment and trade in the Global South rather than aid. The notion is that creating jobs,

foreign earnings will be maximised, economic development promoted, and this will increase the GDP of the nation. These are the underlying grounds or reasons for expansion of the flower industry in the global south. However, this philosophical concept should be considered carefully in the Global South for some sectors like the flower industry. As the study clearly shows, the promotion of the flower industry in reducing poverty in the rural areas is contradictory to the Ethiopian government policy of poverty reduction. Instead, it serves as a catalyst for increased poverty.

Firms, like the flower industry are profit-oriented capitalist enterprises that always look for opportunities to maximize profit. One way to maximize profit is to reduce the costs of production through cheap labour. There is a huge and cheap supply of labour in Ethiopia. A huge population in need of employment allowed these capitalist firms to pay low wages. The study has shown that because of low wages, the economic conditions of those low paid labourers are very precarious. The majority of the work-forces are indebted labourers. As presented in the case studies, (see page 132 and 133), they took food and other items from the nearby retailers, which has to be paid every month. Because of this, they are in a kind of bonded labour with the flower firms and cannot escape the vicious cycle of poverty.

The strategies they have adopted to cope with low wages are very detrimental. Those flower farm workers who were unable to afford food for their own consumption are regularly getting food assistance from their families in the country-side. “Food Crops” that would have been consumed or sold to improve the welfare of the rural community are regularly sent to the town to support the labour-force workers so that they can continue to provide cheap labour to the capitalist flower firms. In another words, not only the Ethiopian government, but also impoverished people in the country-side are directly subsidizing the flower industry by paying for the labour force.

Although flower farms owners/managers complain of making marginal profits and claim that they are doing their best to pay decent wages to farm workers, the study argues that the underlying reasons for poor working conditions and payment of low wages to workers is the structural and institutional problem faced by many countries in the Global South. Capitalist firms are accountable only in a capitalist society where there are well established labour laws including minimum wage, strict environmental regulations and strong labour unions. Unlike countries in the North, Ethiopia lack minimum wage setting in the private sector, means and

capacities to implement policies and regulations, Nor does it have the use of advanced technologies to monitor malpractice and violation of policies, or well established institutions to impose fines and sanctions to the extent of revoking licences and closing firms.

In contrast, environmental costs are low or nonexistent in the Global South, even if there are labour laws and environmental policies, the tools to implement these policies are rudimentary, there are no strong labour unions and there is no labour negotiation. These are some of the many reasons why flower industries are migrating to countries in the Global South, often also closing or reducing the size of their farms in the North.

The researcher acknowledges that the industry sector in Ethiopia as well as the Ethiopian flower industry is relatively young and "not well developed". Flower growers have to start from scratch and import most of the technologies, equipment and supplies, and experts from abroad, build their own capacity in due time. In comparison to some of their competitors, such as Kenya, the higher prices of inputs and overhead costs that Ethiopian flower growers absorb, leaves the Ethiopian flower industry in a relatively disadvantaged position. This is not to justify the short-comings of the flower industry, but explain somehow why the perceived trickledown effect of the flower industry on the Ethiopian economy and rural society is so marginal.

The economic changes brought about by the introduction of flower farms in the Rift Valley region and its impact on the livelihoods of people working in the flower farm, and local people living in the vicinity of the farms are very marginal. The findings clearly show that the original assumptions held by the flower industry itself, the Ethiopian government and the general public, regarding decent job opportunities for the rural poor remain unfulfilled promises.

10.1.3. Biophysical changes Brought by the Introduction of Flower Farms

Data collected from the flower growers, from the local people living in the vicinity of flower farms, from the focus group participants and through an environmental risk assessment were analysed to examine the bio-physical changes brought by the introduction of flower farms in the Rift Valley region of Ethiopia. The hypothesis of the study was that changes in the bio

physical environment, such as diminished water levels or pollution of water sources may have negative impacts on society, and livestock and wild life population and diversity through direct or indirect path ways.

The findings from this study support the hypothesis relating to bio physical changes and very little was done to regulate the impact the sector pose on the environment. Negligence was observed in the Zeway region on the flower farm side in protecting the local environment. Jobs created for close to 9,000 people in Zeway region occurred at the expense of pollution of Lake Zeway on which nearly 1.2 million people entirely depend for their living. It is indisputable that pollution of Lake Zeway has human health impacts and alters the population dynamics of the lake environment.

Discharge from flower farms has also caused pollution of Wodecha River which was the main source of water for thousands of people and their animals in Debre Zeit region. This has added a burden to women and children who are forced to travel long distances every day to fetch water for household consumption. The distance that livestock travel every day to get water has also increased. Although the extent of the impacts is beyond the scope of this study, impacts on human health, death of livestock, wildlife, and death of large numbers of birds was reported.

There was also evidence of local farmers protesting against flower farm expansion due to a failure to restore the livelihoods of dispossessed people from their land in Debre Zeit region. The conflict tree (sees Chapter Nine: Section 9.5.2) depicted that the risks and burdens that the local people shoulder are enormous. Flower growers also feel that the Ethiopian community is sceptical of the benefits of the flower industry. They often blame local people for creating a hostile environment and causing trouble. Some growers have lost confidence to further invest in the flower industry. They are worried about losing their investments and about seizures of their farm land and assets, one day, to the indignant locals; should there be political instability or social upheaval in the country.

If an ex-ante impact evaluation were conducted, some of these negative impacts would have been minimized. The findings strongly suggest the need for a compulsory ex-ante integrated impact assessments of any contested development strategy that involves displacement of people, loss of assets, disruption of livelihood activities and negative impacts on the physical

environment. In addition, even if some countries like Ethiopia have plausible environmental policies, they may lack the institutional capacities to enforce such policies. Thus, the study also advocates for the need to build and strengthen the institutional capacity of regulatory agencies such as that Environmental Protection Authority (EPA), Ministry of Labour and Social Affairs (MoLSA) and Ethiopia Workers Confederation Trade Union (EWCTU).
Specific conclusions and various policy implications are drawn from this study. As the study covers a broad range of issues, in the following sections conclusions and recommendations are given and summarized based on each research objective.

10.2. Practical Implications for Decent Work

The general working conditions of flower farms in the Central Rift Valley region of Ethiopia were examined. The findings suggest that unlike the original assumptions held by the Ethiopian government and the flower industry, the flower sector did not create decent job opportunities for the rural poor. Over the last few years, little or no improvement was seen in the working conditions of flower farms and the progress toward this is painfully slow.

The study clearly shows the flower sector suffers from precarious employment practices where labour legislation is not fully enforced. The Ethiopian labour law and ILO conventions that Ethiopia ratified were often ignored. Lack of contractual agreements between employees and flower farms has created a sense of job insecurity and has left farm workers without protection. Since employees' rights and responsibilities are not clearly defined, it is not uncommon to see that leave for personal or family problems are denied. Others are compelled to work for extended hours, and as a result drop out from a night school and college. The establishment of trade unions was undermined and employees' concerns and grievances were often neglected. As a result, flower farm workers were left with minimal protection and are prone to abuse and exploitation.

Women represent not only an overwhelming majority of the farm worker community but also the most vulnerable section of the flower farm community. Most women work in the green house where working conditions are less favourable and hourly pay is low. In fear of losing jobs, quite a few of them did not take full advantage of benefits available to them (e.g. maternity leave, or leave of absence). Many of them worked without questioning ambiguous

overtime policies, and most tend to tolerate inconsistencies in their pay, and harassment by co-workers or leadership groups.

Not many employees were conscious of occupational hazards and work place safety nor were they adequately trained in the use of safety measures and protective clothing. Safety training was offered only to a small segment of the workforce who directly deals with chemicals. The overwhelming majority of farm workers were assigned to work without receiving proper training and orientation. There were no well-organized training plans and orientation kits on safety measures and use of protective clothing. The use of protective clothing made from poor quality fabrics and synthetic materials, improper use of equipment and chemicals, unawareness of risks arising from exposure to chemicals, severely compromised employees' safety. The study indicates that because of a lack of regular compliance inspections, employees are coerced to work in a harsh environment without proper protective clothing, which in turn, exposes employees to all kinds of health hazards associated with exposure to hazardous chemicals.

Although the act of allowing under age children to be with their mothers and earn some money, by allowing them to work in flower farm may seem reasonable, in essence it is a violation of labour law and may serve as a precursor that opens the way for exploitation of child labour. Employees have mixed feelings about their working conditions concerning safety measures, employee benefits, and office working hours. Employees' previous work experience, length of time they worked in the same positions, and income level appeared to be major factors that influenced employees' response to the working condition survey questionnaires used in this study.

Recommendations to Improve Working Conditions

Both the Ethiopian government and the flower industry need to actively work hand in hand in order to alleviate the burden on the flower farm workers and improve working conditions to an acceptable level. The following recommendations are made to improve the working conditions:

While the Ethiopian government was focusing on creating a favourable environment to attract investors and promote development projects in the country, it has fallen short in enforcing laws, policies, reviewing investment plans and progress, and holding investors accountable for their action. The Ethiopian government has to find a balance between its pursuit in promoting investment and economic growth and the need to regulate and control development projects. The following recommendations are made in this regard.

a). Ethiopia is signatory to the ILO, and has ratified most of ILO conventions. It also has its own labour laws and proclamations (377/2003). It is imperative to build the capacities of labour law enforcing institutions such as MOLSA at central, regional and local levels in order to tackle the broad range of issues associated with the rights of human beings at work.

b). The poor working conditions observed in the flower sector were partly attributed to the Ethiopian government taxation system. Therefore, it is vital to waive or ease taxation on protective clothing and impose strict regulations to ensure farm workers are well protected from exposure to toxic chemicals.

c). The role of trade unions is improving working conditions and increasing the wage bargaining power of employees. Since employees and trade union chairmen are afraid of losing their jobs if they agitate employees to take action or demand their rights, the government and the Workers Federation of Ethiopia must encourage and support workers' trade unions and ensure legal protection against any form of retaliation

d). It is essential to build and strengthen the institutional capacity of Environmental Protection Authority (EPA), to implement environmental policies and protect the local environment.

On the other hand, the global flower business has a number of challenges. Some flower farms presumed to be lucrative in Ethiopia, were bankrupted and have already shut down- but the reasons why are beyond the scope of this study. One of the major challenges is the growing consumer demand in the North. Moreover, the Ethiopian flower growers do not have their own label in the international market and hence most have to rely on the Holland auction market.

Such absolute dependence on a foreign agency is a major constraint to the Ethiopian flower industry. The majority of growers have no other option except accepting the terms and conditions set by this agent, and sell their product for marginal profit. There is also lack of centralized regulation of the international flower market.

Moreover, consumers in the global north demand high quality flowers that are produced under acceptable social and environmental conditions. To overcome these challenges and beat the fierce competition for international flower markets, and fetch higher prices, Ethiopian flower growers must improve the quality of their products, and their social and environmental standard to become a certified Fair-trade producer. Although different certifiers have different schemes, the following improvement should be made by Ethiopian flower growers to improve the working conditions.

a): Disclose the terms and conditions of employment to each worker in writing at the time of recruitment. Working hours' wages and overtime policies must be clearly defined and respected, and employees should be informed of their employment status and given hiring kits (that comprise offer letters, nature of the contract, employee benefits) and a team member's hand book. Each worker must be paid the wages owed when due and each provided with an itemized statement of earnings and deductions.

b): In order to improve the working conditions and minimize employees' attrition rate, it is imperative the flower farms respect labour laws ratified by the Ethiopian government, listen to the voice and concerns of its employees, and treat employees with respect and dignity.

c): The flower farms must have orientation and safety training sessions for new employees. They should prepare training manuals and orientation kits and develops a culture of training every new employee about risks of exposure to chemicals, safety measures, protective clothing, and hand washing, and post information about workers' protections, and safety posters at work sites.

d): Protective clothing should be provided that meets standards and protect workers from exposure to chemicals, regularly maintain or replace worn or damaged parts and create awareness regarding the danger of exposure to harmful chemicals.

e): Farm workers should not wonder where to take breaks and eat lunch. The farm should build well-furnished and regulated break rooms and provide enough latrines, tap water, and sanitation supplies at a reasonable walking distance from the work place.

f): Women need to be empowered and given protection for reporting and formalizing a sexual harassment complaint. It is vital to empower women and build their confidence levels by educating them and creating awareness about their rights and resources available to them. Women deserve equal pay (for same service as their male counterpart) and equal representation at all levels, and the flower industry must introduce and practice affirmative action and equal employment opportunity.

g): Employees' development should be supported by encouraging them to attend school and providing on- job training, and shuttle to and from work should be arranged especially for those who work late hours.

10.3. Practical Implications for Living Wages

Regarding impact of wage income from the flower industry on the livelihoods of the flower farm workers, the following conclusions are drawn.

Although it remains very low, wages from employment in the flower sector play a significant role for the participating households. Most flower farm workers are poor immigrants who migrated from other parts of the country and nearby towns in search of jobs and are willing to work for low wage. Because of low wages and rumours about consequences of exposure to chemicals used in flower farms, local people are anxious about the flower industry and reluctant to work in the flower farms.

It is evident that income earned from working in flower farms alone is not enough to cover the basic needs of a household. Employees offset the effects of a low wage income by participating in different income generating activities. Those households participating in agriculture and self-employment earned relatively better income, though they work relatively longer hours. However, earning less than a dollar a day, the majority of farm workers were living below the poverty line and in a vicious poverty cycle, and are forced to adopt

unpopular coping strategies, such as skipping breakfast or lunch, which are, detrimental to their lives.

The following recommendations are made to improve wage

a): The wages of flower farm field workers is below the regional and national average, thus, the study suggests revision of the minimum wage of flower farm field workers. Although increased labour productivity is necessary to raise wages, better wage policies are also needed, therefore, the Ethiopian government has to establish federal and state minimum wages.

b): As wage income is closely related to education levels, employers should encourage employees' self-development plan and provide support to those who are attending school by excusing them from mandatory overtime, instituting tuition reimbursement programmes for preparatory and night shift college students, and including education in their promotion guidelines. It also helps to reduce employee's attrition rate

10.4. Implications for Displacement of Rural Households

Displacement is stressful for the individuals and families involved. The study shows that the poorly planned displacement of the rural community and lack of long-term assistance to affected people, leads to increased poverty. Elderly men and women and households headed by women are most vulnerable. It is difficult for them to adjust and recover by participating in various coping strategies. The lesson drawn from this study and presented in the subsequent paragraphs reveals the state and the private firms involved in project-based displacement of rural communities should do better to offset the apparent negative impacts of displacement.

Lesson One: The majority of flower farms were established on land previously owned and used by local people. The study revealed that a number of things went wrong when land was made available to investors through the removal of local people. Neither a Social Impact Assessment (SIA) nor Environmental Impact Assessment (EIA) study was conducted. Challenges that displaced households would face were not part of the expropriation equation

at all. Local people were not consulted nor involved in decision-making processes when their land was proposed for flower production.

Lack of coordination and representation of government during the land transition processes, created a vacuum that was quickly filled by brokers. Involvement of brokers introduced corruption and further complicated the deals between local farmers and flower growers. As a result, many farmers were involuntarily evicted without long-term assistance. Such arbitrary dispossession of the land from the local people pushed the community in to poverty.

Recommendation: The findings strongly suggest the importance of conducting ex-ante Social Impact Assessment (SIA), and having proper plans and organization, and a responsible body that can oversee and coordinate the displacement and resettlement operation before displacing people from their habitual land for the sake of development projects. It also suggests the provision of a secure land ownership right to the farmers, to pay enough compensation, and provision of long-term material and technical assistance to displaced people, in order to help them acclimatize to a new environment, and help them become self-sufficient and resilient.

Lesson Two: It is argued that large scale investments like the flower industry will create a huge employment opportunity, improve GDP growth and government revenue (World Bank, 1996; World Bank, 2008b). The World Bank suggests that loss of income from small scale farming will be compensated for by the creation of permanent or temporary income from created jobs. In contrast to these scholars who argue that development projects promote the livelihoods of local people through provision of jobs and serve as an effective means of fighting poverty, the study vividly shows that the benefits that go to local people are very marginal, and that poorly planned displacement projects are detrimental to the local people.

In line with Lanjouw (2007), and Davis et al. (2009), who pointed to the marginal impact of off- farm employment to the rural poor, this study clearly shows that this was also the case in the Ethiopian Rift Valley region. Local farmers in this region are not benefiting much from the expansion of flower farms in their vicinity. The benefits that go to the rural community were limited. This could be attributed to the very low wage labour offered by the industry, safety concerns from exposure to chemicals used by the farm, the growing anti-flower industry sentiments, and loss of trust between farmers and the flower industry. Local farmers

are suffering from loss of livestock wealth due to shortages of grazing land (created by the expansion of the flower industry) and death of livestock from drinking water polluted by discharge from the flower industry.

They are also agonizing from loss of their land, perceived that they have been cheated in the lease agreements, and see the emergence of new diseases in their locality. Local farmers are not willing to work for the flower industry nor does the flower industry have sufficient trust in local farmers to hire them. In order to maximize the benefits for local farmers, especially those of the displaced households, it is imperative to ease the tensions between the flower industry and people.

Recommendation: The study suggests reconciliation by diffusing the tensions and animosity between local farmers and flower growers, and paying competitive wages to attract the participation of local people in the flower the industry. Regular inspection of the flower industry for compliance to law and environmental policy has to conduct by the Environmental Protection Authority, holding the flower industry accountable for its actions and indemnifying losses incurred by farmers, and improving the land leasing system, are required.

Lesson Three: A number of irregularities abuses have been observed in the land acquisition process, which was a major source of tension between the flower growers and local farmers. Therefore, it is time for the Ethiopian government and flower growers to review what went wrong during land acquisition and displacement processes. Because of the lack of negotiation skills and bargaining power of the local people, the involvement of corrupt brokers, the absence of support systems or the involvement of the government in the transaction processes, many of the displaced people did not get much benefit.

Most farmers were forced to rent their farm land at extremely low rates, and also left cheated through signing lease agreements that they did not understand. The hope of getting back their land after a five year lease period died when the court ruled against their petition. Now, they have to wait another 10 years to get their land back, even though the majority have no hope of getting their land back at all, considering the huge investment by flower farms.

Flower growers are hoarding more land than they can use. Many people do not understand why so many people were displaced from their land when the flower industry doesn't need all

these lands. The profit that flower companies are making, by renting land that they do not use to other people growing food crops, when the lives of many of the displaced people slips into poverty, is frustrating, and adding fuel to the already strained relationship the industry has with the local people.

The popularity of the flower industry is dwindling with time. The industry failed to fulfil promises it made to the local community. It just did a nominal job in expanding infrastructure, building schools and hospitals, and introducing clean water. Rather it polluted their waters and caused the deaths of thousands of domestic and wild animals, birds, and fish, and exposed the population to new diseases and illness that had never been there before.

The conflict between flower growers and local farmers is growing wider and deeper. Indignant local farmers protested against the acts of the flower industry (misappropriation of land and deception in the lease agreement) in 2010 by marching to the flower farm and blocking flower farm employees from accessing flower farms. Although the protest was quelled by state agents and local people lost their cases in court, the problem is not yet resolved - it is just suppressed.

Recommendations:

a): If state and civil society keep silent, and the contradictions and hostility between the industry and people is not resolved in a civilized way, it may explode one day with far-reaching consequences. The study recommends that this possibility be taken seriously and that the government starts working with the industry and local elders to find solutions that would appease both parties, sooner rather than later.

b): The Ethiopian government have to establish a legal procedure to stop illegal land deals and land-grabbing orchestrated by the flower industry through unlicensed brokers. The study strongly recommends major revisions to the guidelines presently used for land acquisition by displacement and leasing. The land deal has to be official and through the established legal system, as stated in the Oromia Rural Land Use and Administration Proclamation (ONRS, 2007). Provision of legal support and advice to the local communities in areas where new

projects are proposed to be introduced is vital to create awareness, and elevate their negotiation skills and power to fight corruption.

c): Owing to heavy usage of chemicals by the flower industry, scarcity of water due to pollution of water sources has been seen in some localities, and people and domestic animals have to travel far to get water. This requires an absolute revision of the water abstraction and waste water management practices of flower farms and immediate state intervention to protect the environment and ensure safety of its citizens. It is vital that the Ethiopian government and Environmental Protection Agency closely oversee strict adherence of investors to national and international environmental policies. The government must institute waste treatment and safe disposal mechanisms into any development project and demand the introduction of waste and water recycling systems in all flower farms.

d): The study also recommends that the flower industry comply with environmental protection guidelines to safely dispose of chemicals, and shoulder full accountability and pay liability for damage or loss of assets incurred to farmers due to pollution of water sources. As has been observed around the world, industries rarely comply with guidelines (see Chapter Two: Section 2.6.3), this call again for building capacity of legislation enforcing institution.

10.5. Overall Conclusion

As described at the outset, sustainable development is defined as development that seeks to satisfy the needs of the present without compromising the ability of future generations to meet their needs (WCED, 1987: p.11). The concept of sustainable development is the result of the growing awareness of the global links between ever-growing environmental problems and socio-economic issues, poverty, inequality, and concern about the future of humanity. It is believed that humanity has the ability to make development sustainable (*ibid*). Since the 1980s, numerous environmental protections protocols were signed and standards and policies have been enacted, to protect our environment and ensure sustainable development. Ethiopia is signatory to many of those international agreements.

At the beginning of this thesis, sustainable development in the context of this study was defined as improving the quality of life of the community living close by or working in flower farm, reducing the burden posed on the environment from discharge of harmful wastes from the flower industry, and ensuring the well being of the present as well as the future generations.

Although the contribution of the flower industry to the national economy is undeniable, as shown in the preceding chapters, the benefits that go to the community are very marginal and the flower industry, as it is now, has many flaws when it comes to social, economic and environmental issues. The issues of social justice, equality and sustainability are ignored; therefore, under the current conditions the flower industry is not all-inclusive and sustainable. There are urgent needs for new concepts and strategies to improve the socio-economic, political climate, and environmental aspects of the flower industry, and the role it plays in the livelihoods and wellbeing of the present and future generations.

This thesis provides significant insights that can shape the future of the Ethiopian flower industry, by highlighting major challenges of the sector and opportunities to be explored by the industry and the government to ensure the sustainability and competitiveness of the Ethiopian flower industry.

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Appendices

Appendix 1: Tests of Variables Used and Models employed in the Study

I). **Multicollinearity:** Tests for variables used as predictors of wage level
Stata command used: pwcorr

Table A 1. 1: Correlation Analysis of Variables Used as Predictors of Wage Levels

	Age	Sex	Family home	Education	Previous service year	Present service year	Working hr/day	Organization
Age	1							
sex	0.1858	1						
Family home	-0.0221	0.2619	1					
Education	0.0857	0.0851	-0.0876	1				
previous service years	0.3331	0.0699	-0.0632	0.1533	1			
present service year	0.2393	-0.1322	-0.1641	-0.0331	0.2406	1		
working hr/day	-0.091	-0.5555	-0.3411	0.0012	0.027	0.0809	1	
Organization	0.028	-0.2681	-0.5179	0.1367	0.1349	0.1683	0.3719	1

II). Multicollinearity: The study also used the command for variance inflation factor "vif" after regression to check for multi-collinearity. As a rule of thumb, a variable whose VIF values are greater than 10 are considered as collinear. Therefore, in this case it appears to be no problem of multicoliniarity.

Table A 1. 2: Correlation Analysis for Wage Predictors

Variable	VIF	1/VIF
Working hr/day	1.6	0.62436
Sex	1.56	0.64191
organization	1.5	0.66484
Family home	1.44	0.69636
Age	1.21	0.82405
previous service year	1.2	0.83152
present service year	1.16	0.85897
Education level	1.06	0.94121
Mean VIF	**1.34**	

III). Hemoscedasticity : Null hypothesis: variance of the residuals is homogenous
Stat command "estat imtest". Since the p-value is very small, the study rejected the null hypothesis and accepted the alternative hypothesis that the variance is not homogenous

Table A 1. 3: Hemoscedasticity of Residuals IM-test

Source	chi2	df	p
Heteroskedasticity	98.66	42	0.000
Skewness	21.86	8	0.005
Kurtosis	2.13	1	0.144
Total	122.65	51	0.000

IV). Multinomial Logit Model: Tests for variables used to estimate flower farm workers livelihood diversification strategies. The test for the assumption of the independence of irrelevant alternatives (IIA), shows there was no evidence that this assumption was violated when wald test and small-hsiao test of IIA assumption were run, justifying the application of the MNL specification to the data. Table A 1.4, contains results of wald test that all coefficients associated with an independent variable equal zero

Table A 1. 4: Wald Tests for Independent Variables

**** Wald tests for independent variables			
Ho: All coefficients associated with given variable(s) are 0.			
incomesource1	chi2	df	P>chi2
sex	0.784	2	0.676
age	10.807	2	0.005
Age Squared	9.293	2	0.010
Marital Status	6.250	2	0.044
Head household	3.776	2	0.151
Total Household	9.204	2	0.010
Present Year of Service	10.087	2	0.006
Education	2.851	2	0.240

Negative results shows that the assumptions are not violated.

mlogtest, smhsiao base					
Ho: Odds (Outcome-J vs Outcome-K) are independent of other alternatives.					
**** Small-Hsiao tests of IIA assumption					
Omitted	lnL(full)	lnL(omit)	chi2	df	P>chi2
Agriculture	-25.532	-23.726	3.611	9	0.935
Self-employment	-31.84	-10.073	43.53	9	0.000
Wage employment	-5.14	-0.000	10.281	9	0.328

V). Multinomial Logit Model: The tests below are for variables used to estimate displaced household livelihood diversification strategies. The test for the assumption of the independence of irrelevant alternatives (IIA), shows there was no evidence that this assumption was violated when wald test and small-hsiao test of IIA assumption were run, justifying the application of the MNL specification to the data.

Table A 1. 5: Wald Tests for Independent Variables

****** Wald tests for independent variables**

Ho: All coefficients associated with given variable(s) are 0.			
incomesource2	chi2	df	P>chi2
Gender of HH Head	3.012	2	0.222
Age of HH head	9.102	2	0.011
Marital status	3.617	2	0.164
No of Children's below 10 Years	2.902	2	0.234
No of Adults above 10 years	6.40	2	0.041
Education level of Head	3.679	2	0.159
Distance to the Town	14.39	2	0.001
Total Area Owned	3.401	2	0.183
Access to credit	5.602	2	0.061
Total Livestock Unit	3.412	2	0.182
Increases price of land rent	8.502	2	0.014
Reduced number of livestock	2.918	2	0.232
High price of commodity in the market	1.283	2	0.526
Loss of Farm land	9.859	2	0.007
Flooding	3.824	2	0.148

*** Small-Hsiao tests of IIA assumption
Ho: Odds (Outcome-J vs Outcome-K) are independent of other alternatives.

Omitted	lnL(full)	lnL(omit)	chi2	df	P>chi2	evidence
2	-1880.477	-0.000376	0.954	16	0.000	against Ho
3	-1088.846	-0.0002177	0.692	16	0.000	against Ho

Appendix 2: Workers' questionnaire

Date: .....

A. <u>Personal details</u>

1. Name of respondent .....Age? ..... Sex? .....
2. Marriage status? Single Married Divorced
3. Are you the head of your household? Yes/No, If not, what member are you? .....
4. How many members in your household? .....
5. Number of children? .....
6. Where is your family home? .....
7. What level of education do you have? 10complete___, > 7__, elementary 1-4 ___, No education ___

B. **<u>Previous employment</u>**

1. How long have you been working on this farm? ..... years
2. How long have you been a farm worker, even on other farms? ..... years
3. Where did you work before being employed on this farm? .....
4. What was your job position at your previous work place? .....

C. Job description.

1. How long have you been working on this farm? ..... years
2. Where were you working before joining this firm? .....
3. What was your job position at your previous workplace? .....
4. How many hours do you work per day/week/month? ..... per .....
5. Do you only work with cut flowers? Yes No

If no, what else do you do? .....

6. Are you a permanent or seasonal worker? Permanent/Seasonal

If seasonal, what do you do when not working on this farm? .....

D. Wages and Expenditure

1. What is your salary (cash)? ..... per .....(day, week, month)
2. Do you do much overtime work? Yes/ No
3. If yes, do you get paid for it? Yes/No
4. How much do you get paid for overtime work? _____
5. What proportion of your monthly wages do you spend on:

01 accommodation _____ 02 food_____ 03 transport _____

04 children's education_____ 05 others (specify) _____

6. How many times has your salary at the firm been increased since you joined?

Year	Salary
2002	
2003	
2004	
2005	
2006	
2007	
2008	
2009	
2010	

7. Do you feel that your economic condition has improved/worsened since you started work at the firm? Explain.

.....

8. What is your view about the impact of having the job at the farm on the welfare of your family over the years?

Year	Welfare Condition over the years
2002/2003	
2004/2005	
2006/2007	
2008/2009	
2010	

9. Do you have other sources of income?

Yes No

10. If yes, we would like you to list your sources of income and rank them in order of importance (NB: Income not necessary at this stage).

Sources of income	Rank

E. BENEFITS

1. Do you receive annual bonus? Yes/No

If yes, how much is it? .....

2. Is transport provided by farm? Yes/No

If no, how far do you travel each day to come to work? _____hour/minute

3. How many days of paid leave do you receive each year? .....

4. How many days of sick leave do you receive each year? .....

5. Do you have access to paid maternity leave? Yes/No

6. Do you receive assistance for funerals? Yes/No

7. Does the farm provide food assistance/discounts/rations? Yes/No

F. SAFETY

1. Do you feel that your working conditions at this firm have improved/worsened since you joined? Explain:

.....

2. Do you come into contact with pesticides/agrochemicals? Yes/No

IF YES, Do you wear protective clothing? Yes/No

If not, why not?.....

3. Do you have knowledge of occupational safety and potential health problems that may be caused by working on this farm? Yes/No,

If yes, please provide details .....

4. Do you ever feel that your health is jeopardized? Yes/No, If yes, please provide details.....

G. OCCUPATION

1. Have you always held the same position on this farm?
   0Yes/No

If not, what did you do before this?

.....

2. If you worked on a different task on this farm, would you say your current work conditions (not pay) are:
   Better/worse/similar?

30. If you had a previous job at another farm, would you say that conditions of work (not pay)
   Better/worse/similar/?

3. Are there prospects for career advancement or promotion? Yes/No

4. In what ways do you think your working conditions can be improved (not necessarily pay)?

.....

5. In what ways has your life changed since you started working with flowers?

.....

H. <u>OTHER</u>

1. How are gender relations at your place of work? Do you feel you get different treatment by virtue of being a man/woman?

.....

2. Have you learnt anything from the advisors at the firm that you have found useful outside your employment?

.....

3. What changes have taken place as far as availability of services and goods in this area as a result of flower farms?

   Clinics: .....
   Transport: .....
   Entertainment: .....
   Retailers: .....
   Wholesalers: .....
   Others: .....

Appendix 3: Growers'/exporters' questionnaire

Date: _____

Name of farm: .....
Location: .....
Name of respondent: .....
Position in company: .....
Year when the farm was established: .....

Information on economic indicators

1. Do you farm anything other than cut flowers? .....
2. What area of land do you have under cut flowers? .....
3. How has this changed since you first started in cut flowers? .....
4. What does your farm grow (flowers, Vegetable)? .....
5. What has been your acreage and productivity per year since you started?

	2002	2003	2004	2005	2006	2007	2008	2009	2010
Acreage									
Yield/acre									

6. What changes have you realized in terms of export sales since you joined the flower industry?

	2002	2003	2004	2005	2006	2007	2008	2009	2010
stems per year									
Value									

7. What changes have you realized in terms of local sales since you joined the flower industry?

	2002	2003	2004	2005	2006	2007	2008	2009	2010
stems per year									
Value									

8. What activities were you involved in before joining the cut flower industry?.....
9. Are you still involved in those activities? Yes/ No

What other activities are you involved in as a result of your involvement in the flower industry?.....

10. I would like to know how important your income from cut flower is/has been compared to other sources over the years. Can you rank them in order of importance?

Enterprise Name	Ranking in the Year								
	2002	2003	2004	2005	2006	2007	2008	2009	2010

Information on employment and working condition

1. What was your total workforce from the time you started up to present?

Work Force	2002	2003	2004	2005	2006	2007	2008	2009	2010
Managerial men									
Managerial women									
Non-managerial men									
Non-managerial women									

2. How many permanent workers do you employ on your farm? .....
3. What proportion of permanent cut flower workers are female? .....
4. What proportion of seasonal cut flower workers are female? .....
5. When you employ seasonal workers, are these the same people each year?.....
6. How many of these work only with cut flowers? .....
7. Do you employ additional cut flower workers at the peak of the cut flower season?

YES/ NO, How many if so? _____

8. Since you started producing cut flowers, have you improved non-wage working conditions (e.g. housing, schooling, and recreational facilities) for cut flower workers on your farm?.....
9. Have you improved non-wage working conditions for other (non-cut flower) workers, if at all you have them?

Information on safety measures on the use of chemicals

1. What chemicals do you use in the production process and for what purpose?

Type	Use	Quantity per acre

2. Do you experience any problem of chemical run-off as far as land use is concerned?
If yes, what steps have you taken to solve the problem?
.....
3. What human protection measures do you take in the use of pesticide?
.....

Information on promotion of the flower industry

1. Have you ever received a loan from anywhere? Yes/No
If yes, from where and how much? .....
2. What are the interest rate and the payback period?
.....
3. Do you feel the conditions attached to the loan are favourable? 01yes, 02 no
Why? .....

4. What additional physical infrastructure or equipment such as buildings, roads, sheds, glasshouses, new vehicles, pumps, etc. have you added to your farm since you started?

Item	Year added	Approximate value	Remarks

5. Are there any institutions that have helped you in one way or the other to develop your industry? Mention them and the ways they have helped your farm?

Institution	Assistance	Remarks

6. Do you have any plans to expand? Yes/ No
If yes, what are the major factors encouraging you to expand?
.....

7. Do you feel that the Government of Ethiopia is helping you in promoting the flower industry? Explain:
.....
8. What are the requirements in order to invest in a flower project?

(a) Production

Item	Quantity

(b) Export

Item	Quantity

38. Do you have any observations on any present or future problems/obstacles faced by cut flower growers in Ethiopia? If yes, please mention them

.....

39. What are your views on the future of the Ethiopia cut flower industry?

.....

Appendix 4: Household Livelihood Survey Questionnaire (A to G)

HOUSEHOLD LIVELIHOOD SURVEY QUESTIONNAIRE
BASIC HOUSEHOLD

FORM A **DATA**

Date of Interview:		Village:	
Interviewer:		District:	
Respondent:		Checked:	
Household Code:			

Members of HH currently resident

	Name	Age years	Sex (M/F)	Relationship to H/H head CODE	Education Level Reached CODE	Main Occupation CODE
1						
2						
3						
4						
5						
6						
7						
8						
9						

Total resident HH members:

Members of family permanently away

	Name	Age ears)	Sex (M/F)	Relationship to H/H head CODE	Education Level Reached CODE	Main Occupation CODE
11						
12						
13						
14						
15						

INCOME FROM TRANSFER

Members of family permanently away (same people as for previous question)

	Name	When Left	Years Away	Current Place of Residence Code	Sends Money Home Y/N Code	How Often? Code	How Much? (each time)
11							
12							
13							
14							
15							

Total Estimated Remittances in the past Year: _____

(Period from. . . . . to . . . . .) Et. Birr

HOUSEHOLD LIVELIHOOD SURVEY

FORM B **INCOME FROM AGRICULTURE (Land + CROP + Livestock)**

Form B 1: Land Owned and Operated by the Household

Date of Interview:		Village:	
Interviewer:		District:	
Respondent:		Checked:	
Household Code:		Reference Period: From (past year up to interview date)	To

incl. Homestead and gardens

Garden ID	Area/Unit	Location/ code	Ownership Own/Rent CODE	Rent In Land Cost ET.Birr	Rent Out Land Income ET.Birr	Use of garden (crop grown etc)
A						
B						
C						
D						
E						
F						
G						
H						

Total No of plots:		Total Area Owned:		Total Area Used for Farming:	

(including land rented in)

Total income from Land rent out

FORM B 2: Livestock Income

INCOME FROM AGRICULTURE (Livestock)

Household Code:

Milk Cattle: No: Total Days Milked: Average Daily Milk Yield: units

Item	Unit	Quantity Consumed	%	Quantity Sold	%	Total Produced	Average Price	Variable Costs	Net Cash Income	Net Total Income
Livestock & Products										
Milk										
Cattle										
Goats										
Chickens										
Sheep										
Eggs										
							Sub-Totals:			

Form B3 Crop Income

INCOME FROM AGRICULTURE (CROP)

Household Code:

Item	Unit	Quantity Consumed	%	Quantity Sold	%	Total Produced	Average Price	Variable Costs	Net Cash Income	Net Total Income
Main Crops										
Sorghum										
Maize										
Beans										
Teff										
Wheat										
								Sub-Totals:		
Minor Crops										
							Sub-Totals:			

Total Cash Income from Agriculture (CROP + LIVESTOCK) Et.Birr
(rental income plus all other net cash incomes above)

Total Income including HH Consumption: ET.Birr
(rental income plus all net total incomes)

WORKING SPACE (VARIABLE INPUT COSTS)

Activity Farm or HH	Input Item	Qty Used	Price	Total Cost

Activity Farm or HH	Input Item	Qty Used	Price	Total Cost

HOUSEHOLD LIVELIHOOD SURVEY

FORM C3 **NON FARM WAGE INCOME RECEIVED BY HOUSEHOLD**

Date of Interview: | Village:

Name of Interviewer: | District:

Household Code: | Checked:

Reference period: From To

(past year up to interview date)

All household members who have earned ***Non-farm wage income*** during the past year should be interviewed using this form. For example, if there are 3 HH members who have earned Non-farm wage income during the year, then fill in this form 3 times (once for each person). This form can also be used for pension

Name of Respondent: Sex:

Months	Type of Pay	Wage Rate Et. Br Per Unite		No of Units	Income Earned ET.Br	Type of Work	Code	Place of Work	Code
June									
July									
August									
September									
October									
November									
December									
January									
February									
March									
April									
May									
Year Total:	ET.Br								

Non-Farm wage Employment (additional details)

Activity : No. of Employees: Annual Net Income:

Continue with additional pages if there are more HH members with full-time, seasonal or casual earnings. . . . . .

(wage income)

Total Wage Income Earned by Household Members: Et.Br
(sum of year totals for all HH members earning wage-income)

HOUSEHOLD LIVELIHOOD SURVEY

FORM C2 **SELF EMPLOYMENT INCOME RECEIVED BY HOUSEHOLD**

Date of Interview: | Village:
Name of Interviewer: | District:
Household Code: | Checked:

Reference Period: (past year up to interview date) From | To

All household members who have earned income from self employment during the past year should be interviewed using this form For example, if there are 3 HH members who have earned income from self employment during the year, then fill in this form 3 times (once for each person)

Name of Respondent: Sex

Months	Type of Pay	Wage Rate			Income Earned ET.Br	Type of Work	Place of Work
		ET.Br	per Unit	No of Units		CODE	CODE
June							
July							
August							
September							
October							
November							
December							
January							
February							
March							
April							
May							
Year Total:	ET.Br						

Non-Farm Self Employment (additional details)

Activity: No. of Employees: Annual Net Income:

Continue with additional pages if there are more HH members with full-time, seasonal or casual earnings self-employment income

Total Income from self employment Earned by Household Members: (sum of year totals for all HH members earning income from self employment) ET.Br.

WORKING SPACE FOR INCOME FROM SELF EMPLOYMENT

INCOME FROM SELF EMPLOYMENT

Item	Unit	Quantity Consumed	Quantity Sold	Total Produced	Average Price	Variable Costs	Net Cash Income	Net Total Income
Beer Sales								
Handicrafts								
Charcoal								
Vegetable Retail								
					Sub-Totals:			

Total Cash Income from self employment Et. Birr

HOUSEHOLD LIVELIHOOD SURVEY

FORM C1 **FARM WAGE INCOME RECEIVED BY HOUSEHOLD) (OFF FARM INCOME)**

Date of Interview:		Village:	
Name of Interviewer:		District:	
Household Code:		Checked:	

Reference Period: (past year up to interview date) From ____ To ____

All household members who have earned off-farm income during the past year should be interviewed using this form. For example, if there are 3 HH members who have earned wage income during the year, then fill in this form 3 times (once for each)

Name of Respondent: Sex:

Months	Type of Pay	Wage Rate			Income Earned	Type of Work	Place of Work
		ET.Br	Per Unit	No Units	ET.Br	CODE	CODE
June							
July							
August							
September							
October							
November							
December							
January							
February							
March							
April							
May							
Year Total:		**ET.Br**					

OFF-FARM INCOME (additional details)

Activity: No. of Employees: Annual Net Income:

Continue with additional pages if there are more HH members with full-time, seasonal or casual earnings. . . . .

Total OFF-FARM Income Earned by Household Members: Et.Br

(sum of year totals for all HH members earning off-farm income)

OFF FARM INCOME SOURCES

Item	Unit	Quantity Consumed	Quantity Sold	Total Produced	Average Price	Variable Costs	Net Cash Income	Net Total Income
Farm Wage Labor Exchange								
Firewood								
Grass for thatching								
Medicinal plants								
Building pols								
Dung Collection								
Fishing								
					Sub-Totals:			

Total Cash Income from self employment Et.Birr

Do you or any member of the household collect any product(s) from the lake or the surrounding? a) Yes b) No

If yes, which one(s)? Could you please recall the amounts of products you have collected from the lake and the surrounding?

HOUSEHOLD LIVELIHOOD SURVEY

FORM D **HOUSEHOLD ASSETS**

Date of Interview: | Village

Interviewer: | District

Respondent: | Checked

Household Code:

Reference Period: From To

(past year up to interview date)

[A] Numbers of Cattle

At Start of Year | At End of Year

Number Purchased: | Number Sold: | Number Consumed:

[B] Numbers of Goats or Sheep

At Start of Year: | At End of Year:

Number Purchased: | Number Sold: | Number Consumed:

[C] Donkey or Horse owned

[D House Construction

Wall Construction: (brick, wood, mud etc.)

Roof Construction: (corrugated iron, thatch)

Piped Water Y/N: | Drinkable Water? Y/N | Mains Electricity Y/N

[D] Selected Farm and Household Assets (number owned by HH)

Item	No. Owned
Bicycle	
Hoes/Spades	
Axe	
Buckets	
Metal Bowls	
Plastic Bowls	
Donkey(s)/Cart	
Bed	
Bedding	

Item	No. Owned
Torch	
Watch	
Clock	
Radio	
Cassette/Radio	
Television	
Telephone	

HOUSEHOLD LIVELIHOOD SURVEY
HOUSEHOLD DIARY - PURCHASES

FORM E

Household Code: Village:

All members of the household should enter in here items purchased for household consumption, of whatever type During a two-week period.

Starting Date: Page:

Day	Items	Total Cost
	Total Expenditure	

HOUSEHOLD LIVELIHOOD SURVEY
HOUSEHOLD PURCHASES PAST YEAR (LARGER ITEMS)

FORM F

Household Code: Village:

This form is for collecting data on household purchases of more expensive, or irregular, items during the past year. Going back Wards from this month, ask the household month by month to remember important things they have bought, and its

Month 2010/11	Items	Total Cost
MAY		
APRIL		
MARCH		
FEBRUARY		
JANUARY		
DECEMBER		
NOVEMBER		
OCTOBER		
SEPTEMBER		
AUGUST		
JULY		
JUNE		

Total Expenditures:

HOUSEHOLD LIVELIHOOD SURVEY
HOUSEHOLD ASSETS PRICES

FORM G

Current Prices for Farm and Household Assets (2010/11prices)

This form should be used to collect data on the current prices of items listed under Household Assets in Form D. Prices could be collected at the same time. For each location Zeway or Debre Zeit (District), find out the current typical price for the most popular type of each item

Location

Item (typical or most popular type)	Price 1	Price 2	Price 3	Average
Hoe or Spade				
Axe				
Iron sheet				
Buckets				
Metal Bowls				
Plastic Bowls				
Torch				
Watch				
Clock				
Radio				
Cassette/Radio				
Television				
Mobile Telephone				
Donkey(s)/cart				
Bicycle				

WORKING SPACE (ASSET PRICES)

Appendix 5: Household shocks and shock coping strategies' Questionnaire

HOUSEHOLD LIVELIHOOD SURVEY
Household Vulnerability Context (shock and shock copping strategies)

Date		Village:	
Interviewer:		District:	
Respondent:		Checked:	
House Code:			

This form is for household vulnerability situation. One form to be completed for each household. Ask the head of the household the following question

A) In the last 10 years has this household been affected by a shock; an event that led to ***a reduction in your asset holding,*** Caused your ***household income to fall*** or resulted in ***a significant reduction in consumption?*** I would like to learn more about the worst shock in the last 10 years

WHEN IT HAPPENED	TYPE OF SHOCK	STRATEGIES TO OVER COME
Now During The Survey		
5 Years Ago		
10 Years Ago		

Appendix 6: Focus Group and conflict profile Questionnaire

FOCUS GROUP DATA

Date of Interview:		Village:	
Name of Interviewer:		District:	
Village Code		Checked:	

Members of Focus group Discussion

ID	Name	Age (years)	Sex (M/F)	Relationship to H/H head	CODE	Education Level Reached	CODE	Main Occupation	CODE
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									

Project profile

Project Name :		Starting Date
Action	Agenda	Capacity

Main Questions for Conflict Profile

Where it is located? On whose land?	a) State owned bare land. b) Land that has been used by the local people
Current status of the project	a) Planned, b) Operational c) Completed
What are the main natural resources that the project utilizes?	
History of community reaction to the project	a) no reaction b) reacted and mediated, c) reacted but action taken by government
Where is the source of water for the project?	a) river, b) ground, c)lake
What are the benefits generated by the project to the local people?	
Has the project generated any conflicts in the community?	

Conflict Indicators

What are the indicators of conflict?	How does it directly impact the community members? How did they respond
	What large scale and medium scale users Do to continue using the resource?
	What are the mechanisms that people use to voice their views?
Key question for identification of root cause	What are the main Issues around the distribution of resources?
	How is competition for resources managed? What inequities exist?

Appendix 7: Equivalence Scale for Consumption and Labour

To Compute Household size in Adult equivalent based on consumption needs the following standard conversion factors were used.

Age Group	Male	Female
Less than 10	0.6	0.6
10 -13	0.9	0.8
14 - 16	1	0.75
17 – 50	1	0.75
Greater than 50	1	0.75

Source: Institut Pan-Africain pour le Developpement 1981 as quoted in Storck et al. (1991)

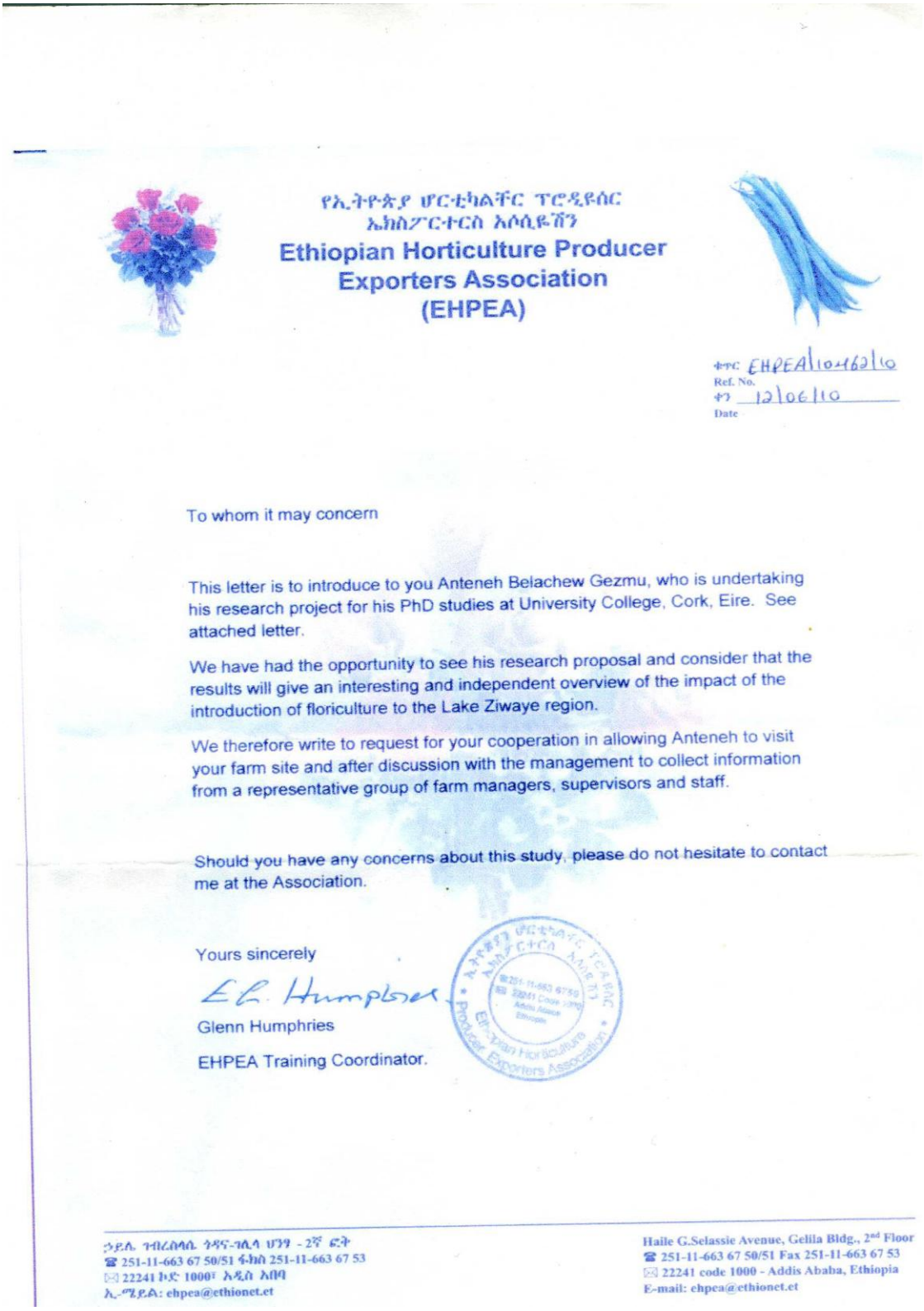
To compute household labour force in Man-Equivalent the following standard conversion factors were used

Age Group in Years	Male	Female
Less than 10	0.0	0.0
10 - 13	0.2	0.2
14 – 16	0.5	0.4
17 – 50	1	0.8
Greater than 50	0.7	0.5

Source (Storck et al., 1991), these conversion factors were developed from different sources

Appendix 8: Support Letters to conduct the survey

A) Support Letter to Flower Farms



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ኤክስፖርተርስ አሶሲዬሽን
Ethiopian Horticulture Producer
Exporters Association
(EHPEA)

ቁጥር EHPEA/104/62/10
Ref. No.
ቀን 12/06/10
Date

To whom it may concern

This letter is to introduce to you Anteneh Belachew Gezmu, who is undertaking his research project for his PhD studies at University College, Cork, Eire. See attached letter.

We have had the opportunity to see his research proposal and consider that the results will give an interesting and independent overview of the impact of the introduction of floriculture to the Lake Ziwaye region.

We therefore write to request for your cooperation in allowing Anteneh to visit your farm site and after discussion with the management to collect information from a representative group of farm managers, supervisors and staff.

Should you have any concerns about this study, please do not hesitate to contact me at the Association.

Yours sincerely

Glenn Humphries

EHPEA Training Coordinator.

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☎ 251-11-663 67 50/51 ፋክስ 251-11-663 67 53
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✉ 22241 code 1000 - Addis Ababa, Ethiopia
E-mail: ehpea@ethionet.et

B) Support Letter to Qalitii Kebele

Bul. Mootummaa Naannoo Oromiyaa,
GodinaShawaa Baha... Magaalaa Qonnaa
fi Misooma Baadiyyaa ... Aba'aa

Lakk Qalmu/B/582/04

Guyyaa 25/01/04

Wirtuu Misoomaa Ganda Qalittii tiif.

Qalittii

Dhimmii :- Deeggarsaa gaafachuu Ilaala.

Akkuma armaan ollitti ibsuuf yaalameetti Obbo. Anteenh Belaachew Gezmu kan jedhamu Qoraannoowwaan adda addaa (PhD) isaattif gargaaraan hojjachaa kan jiruu fi akkasumas Ragaawwaan isaa barbaachisuu hunda Funnaanuuf deeggarsa hojjataa misooma ganda irraa waan barbaaduf isiinis dhimma kana hubatani deggarsaa barbaachisa ta'e hunda akka gootanif kabaajan isin gaafana.

Bul. Mootummaa Naannoo Godina Shawaa Baha... Magaalaa Qonnaa fi Misooma Baadiyyaa ...

Nagaa wajjin!

Addisuu Malkaa
Gaggeessaa Adeemsa Hojii Mis. Eegumsaa
fi Ittlfayyadama Qabeenya Uumamaa

C) Support Letter to Udee Kebele



Bul. Mootummaa Naannoo Oromiyaa,
GodinaShawaa Bahaa Waajira Qonnaa
fi Misoomaa Baadiyyaa Aanaa Ada'aa

Lakk Alm/s18/582/04

Guyyaa 27/07/2004

Wirtuu Misoomaa Ganda Udee tiif.

Udee

Dhimmii :- Deeggarsaa gaafachuu Ilaala.

Akkuma armaan ollitti ibsuuf yaalameetti Obbo. Anteenh Belaachew Gezmu kan jedhamu Qoraannoowwaan adda addaa (PhD) isaartif gargaaraan hojjachaa kan jiruu fi akkasumas Ragaawwaan isaa barbaachisuu hunda Funnaanuuf deeggarsa hojjataa misooma ganda irraa waan barbaaduf isiinis dhimma kana hubatani deggarsaa barbaachisa ta'e hunda akka gootanif kabaajan isin gaafana.

Nagaa wajjin!

Addisuu Malkaa

Gaggeessaa Adeemsa Hojii Mis. Eegumsaa
fi Itoftuyyadama Qabeenya Uumamaa