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Socio-economic and Environmental Impact of Floriculture Industry in Ethiopia

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Table of Contents

<u>Content</u>	<u>Page</u>
ACKNOWLEDGMENTS	I
TABLE OF CONTENTS	II
LIST OF TABLES	IV
LIST OF FIGURE	IV
ABBREVIATIONS.....	V
ABSTRACT	VI
CHAPTER ONE: INTRODUCTION	1
1.1 Background and Justification	1
1.2 Statement of the Problem	3
1.3 Purpose	4
1.4 Limitations	4
1.5 Significance of the Study.....	5
CHAPTER TWO: LITERATURE REVIEW	6
2.1. Overview of Floriculture Industries	6
2.1.1. World Cut-flower Industry	6
2.1.2. Ethiopian Floriculture Industry	8
2.2. Socio- Economic Significance of Floriculture to Developing Nations.....	12
2.3. Socio-Economic and Environmental View of Floriculture Industries in Ethiopia.....	13
2.4. Food Security and Land holding Problem in Association with Floriculture Industries....	15
2.5. Other Countries Experience in the Floriculture Industry	19
2.6. Social and Environmental Standards of Floriculture Sectors.....	20

CHAPTER THREE: METHODOLOGY	25
3.1 Research Design	25
3.2. Data Collection.....	26
3.2.1. Secondary Data.....	26
3.3. Data Analysis	26
CHAPTER FOUR: FINDINGS AND ANALYSIS.....	27
4.1. Major Social and Environmental Implication of Floriculture	27
4.1.1. Social Implication of Floriculture.....	27
4.1.1.1. Job Opportunity Creation.....	27
4.1.1.2. Workers Health and Occupational Safety	29
4.1.1.3. Problems Women Encounter and Sexual Harassment.....	32
4.1.1.4. Workers Right.....	33
4.1.1.5. Problem on Surrounding Community Health	36
4.1.1.6. Compensation for Previous Land Holders	37
4.1.1.7. Socio Cultural Change	38
4.1.2. Environmental Implication of Floriculture.....	39
4.1.2.1. Water Resource Utilization.....	39
4.1.2.2. Water and Soil Pollution	40
4.1.2.3. Air Pollution.....	41
4.1.2.4. Land Cover Change	42
4.1.3 Economic Implication of Floriculture	43
4.1.3.1. Cut-flower Export Performance by Volume	43
4.1.3.2. Cut-flower Export Performance by Value	44
CHAPTER FIVE: CONCLUSION AND RECOMMENDATION	47
5.1 Conclusion.....	47
5.2 Recommendations	49
BIBLIOGRAPHY	51

List of Tables

Table 1: Ethiopian government support to export-horticulture

Table 2: Identified Social and Environmental Issues

Table 3: Performance of Ethiopian Cut-flower Export by volume

Table 4: Average Price of Cut-Flower

Table 5: Performance of Ethiopian Cut-flower Export by Value

Table 6: Share of Ethiopian Cut-flower Export Value from the Total Export Earning

Table 7: Flower Export by Destination for the 1998 E.C (2005/2006) Budget Year

List of Figure

Fig.1. Export Value in USD for Five Years (2003-2007)

Fig.2. Laborers back home from work

Fig.3. Women have to stand up and strictly take care of flowers

Fig.4. The Road Between Nearby Village and Floriculture Farm Greenhouses

Fig.5. Children Busy at their Play very close to floriculture farm fence

Fig.6. Poor Dry Waste Management in one of Floriculture Farms

Abbreviations

ADLI	Agricultural Development Led Industrialization
AISD	Agriculture Investment Support Directorate
ECuA	Ethiopian Customs Authority
EEPA	Ethiopian Export Promotion Agency
EHPEA	Ethiopian Horticultural Producers and Exporters Association
EPA	Ethiopian Environmental Protection Authority
E.T.C (E.C)	Ethiopian Calendar
EU	European Union
EuroGAP	European Good Agricultural Practice
FAO	Food and Agriculture Organization
FLP	Flower Label Program
ha	hectares
ICC	International Code of Conduct
IFC	International Flower Coordination
ILO	International Labor Organization
ISO	International Organization for Standardization
ITC	International Trade Center
MoARD	Ministry of Agriculture and Rural Development
MDGs	Millennium Development Goals
MPS	Millieu Program Sierteelt (Market Label)
MPS-SQ	Millieu Program Sierteelt – Socially Qualification
NGOs	Non Governmental Organization
OI	Oakland Institute
PANUPS	Pesticide Action Network Updates Service
PASDEP	Plan for Accelerated and Sustained Development to End Poverty
SNNPR	Southern Nations, Nationalities, and People’s Region
UN	United Nation
UNCTAD	United Nation Conference on Trade and Development
USA	United state of America
USD	United State Dollars
USEPA	United States Environmental Protection Agency
UWEA	Uganda Workers' Education Association
WFP	United Nations World Food Program
WHO	World Health Organization

Abstract

Floriculture industry is a new agro industry activity in Ethiopia. The expansion and growth of the industry magnified the economic significance of the sector, but the social and environmental implication of the sector was not given due attention even though the sector was still blamed for some of its social and environmental shortcoming world wide. Thus, this study assesses the impact of cut flower related to the environment, economic and occupational health and safety. The study will suggest solutions to the existing problems in the sector. In addition, it also intends to see if there is a land holding problem and food insecurity. The study depends on secondary data like articles by experts in the area, codes developed by the association and authorities both national and international, scientific books and other website documents in order to collect the necessary information and answer the research question “how Ethiopian floriculture industry affect the socio-economic and environment of the country.” And “What are the problems that flower farm workers face while working in the industry?”

Based on information gathered from different sources in floriculture development, major seven social and five environmental issues are identified. Among the identified social issues are as followed: job opportunity creation, workers health and occupational safety, problem women encounter and sexual harassment, workers rights, surrounding community health, compensation for previous land holders and socio cultural change. The identified environmental issues are water resource utilization, water and soil pollution, air pollution and land cover change. The only issue which was unanimously agreed and perceived positively by different authors was the wide job creation of the floriculture industry. However, the rest social and environmental issues are the negative implication of the sector. On the other hand the study also analyzed the economic implications of floriculture in terms of export performance by volume and value, share from the total export earning, and destinations.

To minimize the negative social and environmental impacts the study suggests the following: Promoting and creating awareness for floriculture farms, promoting integrated pest management and use of environmental friendly agrochemicals by giving incentives to floriculture producers, setting national minimum labour wage for floriculture industries, practicing clear and workable laws and regulations for pesticide application and control, revising the existing pesticide use and controlling proclamations according to the current local and international situations, setting buffer zones and keeping a certain safe distances for floriculture farms from residential area, water sheds and agricultural practices, existing rights to land and associated natural resources are recognized and respected. Finally I would say by taking these points into consideration it is possible to run sustainable floriculture production, and keeping a balance of its economic advantages without or with minimal negative social or environmental impact from the floriculture production practices in the country.

CHAPTER ONE: INTRODUCTION

1.1 Background and Justification

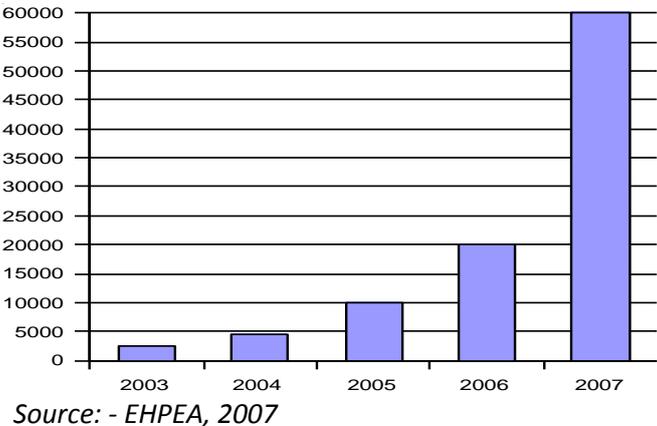
Floriculture can be defined as “a discipline of horticulture concerned with the cultivation of flowering and ornamental plants for gardens and for floristry, comprising the floral industry.”(Getu 2009: p. 240) It can also be defined as “The segment of horticulture concerned with commercial production, marketing, and sale of bedding plants, cut flowers, potted flowering plants, foliage plants, flower arrangements, and noncommercial home gardening.” (ibid.).

According to Getu (2009), flowers are luxurious products with high social value and rarely used for food. The demand for these luxurious products has increased in the international market in recent years. Most developing nations which have geographic advantage take it as a solution to achieve rapid economic growth. (Frank and Cruz, 2001). Ethiopia, like many other developing countries, is attempting to diversify its export base with a view to gaining new sources of income and foreign exchange and thus reducing its exposure to price volatility that typify international markets (Ethiopian Horticultural Strategy, 2007). Besides, the country is benefiting from this development through creating employment opportunity for unemployed citizens.

Because of these reasons, in the last five years, the floriculture industry in Ethiopia has become fast growing export business. As a result of due attention given by the government to this sector and the unparalleled advantages that Ethiopia has in this sector compared to any other products, a substantial number of investors have started investing in the country. According to Ethiopian Horticulture Producers Exporters Association pamphlet (2007), investors are attracted by an improved investment code, a five year tax holiday, duty-free import of machinery, and easy access to bank loans and land acquisition. In addition to the above incentives the favorable agro-ecological condition of the country, the abundant cheap and easily trained labour, proximity to EU and Middle East markets encourages so many foreign and local investor to invest in Ethiopia.

According to EHPEA (2007) the expansion of the horticulture sector and floriculture in particular in Ethiopia in the last three years has been phenomenal. There are: 66 export farms, 600 hectares of greenhouses, 150 hectares of land covered by open field flowers, 70 hectares by cuttings, 75 hectares by herbs and 600 hectares by vegetables and fruits. These generate valuable foreign exchange earnings for the country, in excess of US \$60 million in 2007 (Fig 1) and have created employment for more than 30,000 people.

Fig.1. Export Value in USD for Five Years (2003-2007)



Despite the fact that huge socio-economic advantages and considerable incentives are given, in Ethiopia the internationally known social and environmental disadvantages of the sector are vague. According to Fliess *et. al*, (2007), as reported in recent years, the global flower industry has received some negative publicity because labour unions, environmental activists and other NGOs have raised a number of issues linked to conditions of production on developing country flower farms.

Inappropriate choice of cultivation methods and a wide range use of chemicals and fertilizers realized for damage large areas of land and water (Fliess *et. al*, 2007). Long working hours and hazardous conditions are also common. These social and environmental conditions started to be realized in late 1980s by many northern country consumers and caused the introduction of international social and environmental standards for the industry (Frank & Cruz, 2001 p.72). Nowadays there are a lot of international, regional and local social and environmental standards to solve and minimize the risks of the industry. Ethiopia has developed her own national code of practice based on International Code of Conduct, the national labour and

environmental laws, international labels like MPS and EuroGAP, occupational health and safety standards, and WHO standards.

1.2 Statement of the Problem

In Ethiopia, the economic advantage of the floriculture industry has overshadowed social and environmental sacrifices of the sector. There are different perceptions with regard to the socio-economic and environmental impacts of the sector in the country. Some government officials believed that the environmental and the social effect of the sector are very insignificant and should not be considered. Other environmental and social concerned bodies believed that the country is scarifying much more than the government expected.

Despite the fact that huge socio-economic advantages and considerable incentives are given, in Ethiopia the internationally known social and environmental disadvantages of the sector are vague. According to Frank and Cruz (2001) even if the floriculture industry were taken as a solution for economic development and gained in the generation of employment during the last 30 years in developing countries, these advantages of the industry are at the expense of social and environmental disadvantage. The majority of workers in these farms are young women and the health effects of pesticide exposure in women and men may be different in important ways. Women on average have lower body weight and a higher proportion of body fat than men. Women's breast tissue has been associated with significant accumulation of fat-associated pesticides. When women breast feed these pesticides may be passed on to nursing infant. In addition, effects of certain pesticides on human hormones may affect women and men differently and can have negative impacts on developing fetuses (Jacobs and Dinham, 2003). Jobs are often temporary, seasonal, casual and migrant, hence precarious. Long working hours and hazardous conditions are also common. Health and safety provisions are often poor, with workers not being provided with protective clothing, toilets, washing facilities and drinking water. (Smith *et. al*, 2004).

Inappropriate choice of cultivation methods and a wide range use of chemicals and fertilizers have negative impacts on soil and water condition. Too much use, or misuse, of herbicides and pesticides can threaten human, animal and plant life. Also, the trade, transport, and sales of flowers and plants cause a considerable amount of packaging waste such as boxes, trays

and plastics that can cause pollution due to toxic substances (Fliess *et. al*, 2007). Moreover, the industry has also created land holding problems.

There is little or no research work done about the environmental and social impacts of the sector while the floriculture industry is blooming in the country. Thus, this study wants to address the socio-economic and environmental implication of floriculture industry in Ethiopia.

1.3 Purpose

The purpose of this study is to assess the impact of cut flower related to the environment, economic and occupational health and safety. The study will suggest solutions to the existing problems in the sector. In addition, it also intends to see if there is a land holding problem and food insecurity. The outcome of the study will be used by other research fellows who are interested on floriculture area.

Research questions

”How Ethiopian floriculture industry affects the socio-economic and environment of the country?”

“What are the problems that flower farm workers face while working in the industry?”

1.4 Limitations

Due to time, distance and the related costs, the study is based merely on secondary data. Another limiting factor is the minimal amount of literature and data available on this topic in Ethiopia. It is also challenging to have access to data related to government offices and authorities due to lack of transparency and excessive bureaucracies procedures.

1.5 Significance of the Study

This research is hoped to contribute to understanding of the experiences of Ethiopia floriculture industry on the socio-economic and environment aspect. Especially, the study tries to explore the situation of flower workers in the industry. Moreover, further effort should be made to understand the dimension and complexity of the problem.

This study can increase the awareness about problems that flower farm workers face particularly for women workers, who comprise the majority of the work force, and how the industry affect the environment will give an insight into whether the floriculture industry in Ethiopia is operating according to the standards set by the International Code of Conduct (ICC). The findings of the study may encourage concerned bodies and farm owners to be more conscious of the issue and it can initiate the formation of a National Code of Conduct that governs working conditions at flower farms and the environment.

CHAPTER TWO: LITERATURE REVIEW

2.1. Overview of Floriculture Industries

2.1.1. World Cut-flower Industry

People all over the world realize that flowers enhance the quality of life and influence human feelings more than words or other gifts. Globalization, cultural exchanges, and celebrations enhancing fraternity such as New Year, Valentine's Day, Memorial Day, Mothers' Day, Fathers' Day, Christmas, and weddings have induced people globally to use flowers as a means of sharing their feelings. Above all, these celebrations have acquired one-to-one pairing with flowers in some cases, e.g. roses to Valentine's Day and carnations to Mother's Day. Increased use of flowers and ornamental plants makes marketing of flowers a lucrative business (Belwal and Chala, 2008 p. 217).

The majority of cut flowers are produced in countries with dedicated infrastructure having facilities for airlifting to major distribution centers. The Asia/Pacific region leads in flower production with a total production area of 244,263 hectares followed by Europe (54,815), Central/South America (45,980), North America (26,135), Africa (5,697) and the Middle East (3,845). The AIPH report estimates a global area of 360,000 hectares dedicated to world flower and plant production involving USD 60 billion in value terms and 100,000 companies (Belwal and Chala, 2008 p. 218). According to Belwal and Chala (2008) in 2001, the UN International Trade Centre estimated the global area of 200,000 hectares dedicated to cut flowers commanding value of USD 27 billion. In terms of total area of production, Asia and the Pacific cover nearly 60 percent of the total world area. The key markets for flower are Western Europe, North America and Japan. The EU is the world's leading importer of flowers. The other largest importers are Germany, the USA, the UK, France, The Netherlands and Switzerland accounting for nearly 80 percent of global imports.

According to Hamrick (2004), the Netherlands is the world's largest producer of cut flowers and foliage valued at USD 3.6 billion, followed by Germany and Italy. In addition, The Netherlands plays a major role in setting the global standard for daily prices through its computerized clock auction system and acts as the logistical distribution center for Europe. South American countries Colombia and Ecuador as well as Israel, are the major producers of

carnations and roses. An increasing investment has also been witnessed in Kenya and other African countries.

The share of the developing countries in the total trade has consistently been around 20 percent during the last five years. There has been a growth in the number of producing countries particularly among the developing nations in Asia, Africa and Latin America (<http://www.fao.org>). In the African continent, Kenya leads cut flower exports, expanding annually at 10 to 15 percent per year, followed by Zimbabwe. Flowers are becoming the driving force in the growth of Kenyan agricultural exports (Hamrick 2004). According to Hamrick (2004) export of roses (comprising 75 percent of flower export by weight) from Kenya was up by 19 percent in 2003 to The Netherlands auction market and increased the competition. Existing farms are being expanded and newer ones are being created in countries such as Tanzania, Uganda, Ethiopia, Malawi, Zambia, and Namibia. However, established flower producers have found investing in more than one African country helps spread the risks.

According to Belwal and Chala (2008 p. 218) some countries are both producer as well as consumers. In Israel, Africa and South and Central American countries, cut flowers have been a product produced mainly for export with no thought of a potential domestic market. On the other hand, in Asia, whereas cut flowers were initially produced for export, the market potential has rapidly changed to include opportunities for supplying to the local market as well. This unique development is on account of the rapid strengthening of economies in the region, high population densities, and the changing consumer's perception towards importance of flowers in their lifestyle (<http://www.fao.org>). If we take the case of Ethiopia, it is only recently that the mere concept of flowers as a gift emerged. Thus, the domestic market is not yet mature. Notwithstanding, Ethiopia has attracted several foreign investors in recent years, for exporting cut flowers mainly to European markets.

2.1.2. Ethiopian Floriculture Industry

In recent decades, the global demand for cut flowers has grown considerably. This growth in market demands and its diversification value has attracted increasing numbers of developing countries to the global fresh flower trade. These reasons seem to make Ethiopia come in to the picture of this business. But some people say that Ethiopia gives attention for this sector because the European production cost skyrocketed. European cut flower growers (especially Netherlands) have been looking to other continuities for more affordable conditions as experienced other East African countries like Kenya, Tanzania and Uganda (Laws, 2006).

Though floriculture development in Ethiopia blooming in recent years, it started for commercial purpose in 1980/81 which is now twenty six years ago. The first fresh cut flowers production was commenced in 1981 /82. The *Derge* regime had established Horticulture development corporations where government was responsible both for regulation and production even for marketing of horticultural products including flowers. During that time the production and export of cut flowers in Ethiopia was not established with well planned and aiming of profit seeking but foreign exchange earnings (Ethiopian Horticultural Strategy, 2007 p. 10).

As a result of this, the industry was one of the highly subsidized sub-sectors during the *Derge* regime (Habte, 2001). Floriculture was started to show modest increase in 1990s by 2-3 % from the agricultural output of the country. In 2001 it contributed \$ 4.7 million to the country's foreign currency earnings. But it was not as such significant enough to say it was important sector to develop the country's economy. In five years the total export earnings increased at least five times that figure. (Ethiopian Horticultural Strategy, 2007 p.10).

Because of the Government of Ethiopia gave more attention for favorable investment condition and a more enabling atmosphere for private sector development the floriculture sector started to grow fastly in the last few years. The first private floriculture producer started around 1997, a second in 1999. From 2001 onwards, other growers started coming in and according to Trade and Industry floriculture industries under production reached 65 in the year 2006 (ibid.).

Table 1: Ethiopian government support to export-horticulture

Government's allocation of a substantial amount of finance for investors who would like to engage in the sector and special loans are provided through the Development Bank of Ethiopia.

<p>Ethiopia's Investment Law</p>	<ul style="list-style-type: none"> • According to the revised investment law, a foreign investor can invest on his/her own or jointly with a domestic investor. • The Investment law guarantees capital repatriation and remittance of dividends. • The Investment law provides investment guarantee. • Investment guarantee and protection; in Ethiopia both the Constitution and the • Investment Code protect private property
<p>Investment Incentives</p>	<ul style="list-style-type: none"> • A package of incentives under regulation No.84/2003 developed • Incentives are available both to foreign and domestic investors. • No discrimination between a foreign and domestic investor.
<p>Types of Incentives</p>	<ul style="list-style-type: none"> • Customs duty exemption • Income tax exemption • Loss carry forward • Remittance of fund • Land availability for investment on leasehold basis • Utilities: electricity, telephone, water and road

Source: Ministry of Trade & Industry (2006)

These government support initiatives attract more and more foreign and local investors to the country to participate in the floriculture development. According to Ministry of Trade and Industry totally in the Horticulture sector, most of them are floriculture investors there are 235 licensed projects with an aggregate capital of 7.5 Billion Eth. birr, out of which foreign investors owned projects of 171 with capital of 5.3 Billion Eth. birr and local investors owned projects of 64 with aggregate capital of 2 Billion Eth. birr (Ethiopian Horticultural Strategy, 2007).

These high level support not only attract more and more investors and it helps Ethiopia has better comparative advantage as compared to other production countries in the region together with near to ideal agro climatic condition , proximity to EU market and relatively cheap

labour. Hence the sector is growing dramatically, in 2006 Ethiopia was the second largest exporter of large roses to the Dutch auctions (after Kenya) and the third largest supplier for small roses (after Kenya and Uganda) (Ethiopian Horticultural Strategy, 2007).

Government of Ethiopia formulated a comprehensive development strategy for the period 2005/06 – 2009/10 called ‘Plan for Accelerated and Sustained Development to End Poverty’ (PASDEP) to attain the Millennium Development Goals (MDGs) by 2015. Under this PASDEP it set program target an intensification of the recently initiated flower production in areas with altitude between 1,600 – 2,600 meters above sea-level. Accordingly out of the total of 2,031 ha of land leased to investors, the land covered by greenhouses is expected to reach 1,600 ha; an additional 400 ha of land will be put under green house shelter. The area under flower production (roses, cuttings, summer flowers) would thus increase from 519 ha in 2005/06 to 2,000 ha in 2009/10. In terms of employment generation the policy objectives is to increase the number of employees from well over 21,000 in 2005 (64.4% female workers) to a total of 70,000 in 2009/10 (Ethiopian Horticultural Strategy, 2007).

The recently initiated flower production areas are mainly around Addis Ababa, Upper Awash valley and Lake Ziway. Addis Ababa, the capital, with its altitude elevated about 2000 meters is the most suitable place for the production of high quality roses. Besides its suitable weather, all the infrastructures like roads, power, telecommunication and water have been availed for the investors in floriculture sector. Most of foreign and domestic investors on flower production have started their production on this area. It is also practically witnessed that Ethiopian highlands provide “Near Ideal” growing condition for roses. In the Upper Awash Valley with an altitude spanning from the range of 1200 to 1400 meters and the farms are located along the length of the River Awash with in 149 – 220 km away from the capital. Lake Ziway which is located in the southern region of the country (165 km from Addis Ababa) the farms situated between Lake Ziway and the main highway with altitude ranges between 1600–1700 m above sea level(<http://www.ethiopiaemb.org.cn/investpolicy.htm>) .

Among the resources which make Ethiopia favorable for floriculture development is water and irrigable land resources which the country has and the flower needs in abundant. Ethiopia has 122 billion cubic meter surface water, 2.6 billion cubic meter ground water, 12 river

basins, 18 natural lakes including the rift valley lakes and a potential of 3.7 million hectares irrigable land (<http://www.ethiopiaemb.org.cn/investpolicy.htm>). About 80 – 90 percent of these resources are located in the west and south west of the country where close to 40 percent of the Ethiopian population lives and 10 – 20 percent of these resources are located in the east and central part where most of the population has settled. But the above principal production sites are located within the low resource available and highly populated areas (<http://www.ethiopiaemb.org.cn/investpolicy.htm>). Most of the Floriculture farms are largely confined around the vicinity of Addis Ababa. Most farms are located in West *Shewa* particularly located in *Hollela*, *Sebeta* and *Addis Alem* while the rest are more or less evenly distributed in the Rift Valley and the Awash River Basin systems (Laws, 2006).

The fact of the matter is that Ethiopia is still in the beginning stages of floriculture industry and there are a number of challenges that must be resolved to continue the development of the sector with the present rapid speed. Among the challenges include social and environmental impacts of the sector which can create pressure on the sustainability and market acceptability of flower industries. According to recommendation given on the “Development strategy for the export-oriented horticulture in Ethiopia” based on the stakeholders discussions at the workshop on February 9th, 2007, Ethiopia needs development of a conducive legislative framework and pesticide registration system which is felt under responsibility of Government especially Ministry of Trade and Industry and Ministry of Agriculture and Rural Development as well as development of a Code of Conduct at sectoral level to demonstrate compliance with general standards (environment, workers’ welfare, etc) with responsibilities of Ethiopian Horticultural Producers and Exporters Association (Ethiopian Horticultural Strategy, 2007).

EHPEA currently take the initiative of developing a Code of Conduct for the Ethiopian export horticulture with support from the Dutch partnership program. This is very timely and relevant. Having a certified code of conduct is often seen as a way to lower transaction costs and improve market access and customer loyalty. Exporting countries with no code of conduct have a rather low level of export growth. In addition the first groups of Ethiopian growers are in the process of obtaining MPS-certification. A Code of Conduct for the export horticultural sector is very important to secure market access for the sector in general. The certification for quality standards such as MPS will be beneficial, particularly at the individual

company level. It contributes to the improved reputation of the suppliers and as such lead to greater customer loyalty (Ethiopian Horticultural Strategy, 2007).

2.2 Socio- Economic Significance of Floriculture to Developing Nations

For many developing countries, declining revenues from traditional commodities and the opportunities of a globalized market have led to the adoption of high-value agricultural exports to diversify production and achieve national growth and development. Over the last decade, these exports have generated significant amounts of foreign exchange, contributed to upgrade agricultural production skills, and created substantial opportunities for waged employment and self-employment. In many countries, diversification into high-value agricultural exports has become a key means of linking the world's developing nations to global product markets. Women in particular have been able to profit from these new labor market opportunities both as smallholders and as wage employees. (Dolan and Sorby, 2003).

From these high value agriculture productions floriculture industries are the major one. Most developing nations which have geographic advantage take it as a solution to achieve rapid economic growth. Cut flowers are often taken by national governments and international development agencies like World Bank as alternatives to tropical crops like coffee, bananas, and palm oil. Flowers need good light for at least 10 hours per day, possibly all year around. The temperature should be between 10-25 °C. In addition to these it needs water, land and labour (Frank & Cruz, 2001). Most developing nation especially tropical countries can offer in abundance all these resources.

Indeed, the nascent floriculture industries benefited the economy of developing nations. Today, nearly one-third of cut-flower trade on the world market originates in the developing nations where flower production started only 35 years ago. From 20.8 % in 1990 the market share increased according to the international trade Centre of United Nation Conference on Trade and Development (UNCTAD) to an estimated 28.4% in 1995. Although at a lower level, this tendency is continuing. In 1999 the percentage of the South of world wide export of cut-flower had exceeded 30%. Generally, developing countries' share in world exports has been risen an average annual growth rate of 7 percent (ITC, 2001) and they have increased

their income with an average growth rate of 32 percent per year (PANUPS, 2002). If one takes into account that the majority of the products from the third world are roses and carnations; in these segments the percentage of the developing nations especially in winter times is much higher. According to international trade center in the US and in many European countries from December to April at least every second rose is coming from Africa or Latin America (ITC, 2001).

World demand for cut flowers also increased substantially .The world market was 4 billion in 1998 since then it is constantly growing by about 15% every five years since the early eighties. The industrialized North, the consumption of cut flowers is highest amounting to a total of approximately 30 Billion US-Dollar per year (Frank & Cruz, 2001).

In terms of social development the flower industry is important since it's creating many jobs due to the labour intensive production pattern. It accommodates 10-25 or even 30 workers per hectare and is more than any other agro-industry offers. Approximately 190,000 people in developing countries are employed in the cut flower business, mainly women (PANUPS, 2002). This figure is possibly between 20-30 % more for indirect jobs in transport, plastic, construction, commercial...etc. sectors (David, 2002).

Some literatures like Frank and Cruzl (2001) see this job opportunity creation with its shortcomings. Even if the floriculture industry which created many jobs during the last 30 years in developing countries, the industry is an element of the international partition of labour with economic advantages for the North, and social and environmental disadvantage for the South , but important gains in the generation of employment.

2.3. Socio-economic and Environmental view of Floriculture Industries in Ethiopia

Since the industry is at its infancy stage and the government as well as optimistic society of the country were very pleased at the beginning observing that it will increase the nation's foreign exchange and give a work opportunity of many jobless society. More than hundred thousands of citizens got a job directly or indirectly from the sector and most importantly

women accounted for 70% of the total work force mainly located at rural areas. Due to the fact that women within such a developing country have some difficulties of having their own job it is turn out to be an important source of income and one way escaping from being dependant on their husband or family's shoulder. However, through time to time the initial reputation of the industry diminish after some opposition party parliament members and some press releases of an information that the industry has a negative impact on social and environmental aspect quoting as a reference Kenyans flower industry. These groups' claims the fact is that many flower investors in Ethiopia are came from Kenya after they are evicted from Kenya for their contribution of environmental degrading on Lake Naivasha. For instance, All Africa newspaper in its 21 February 2006 publication report that five major flower farms from Kenya abandon Lake Naivasha (Allafrica 2006).

Many Ethiopian environmental activists still argue that environmental policies or standards, labor regulations are not implemented by many companies within the industry as per the standards provided by the government. These concerns are related to labor right like working condition (Belwal & Chala 2008). One of the issues which floriculture industries world wide commonly blamed is unsafe working conditions of floriculture farm laborers associated to massive chemical usage of the industry. International environmental and workers advocacy groups charge the floriculture industry which grows cut flowers in greenhouses with exposing laborers to dangerous pesticides, with failing to provide health safeguards, and with damaging the environment from over use of nature resources. From a study made in Colombia, even if the industry provides jobs, and in particular jobs to segment of the Colombian population that doesn't have access to jobs very easily, or to jobs that pay well, the economic gains may still come at a cost to worker and environmental health (David, 2002).

2.4. Food Security and Land Holding Problem in Association with Floriculture Industries

According to the Okland Institute (2011 p. 9) hunger has been a dire problem in Ethiopia since the 1984-85 famine, which cemented the international image of Ethiopia as a drought and famine-prone country. While the state of famine is not a constant, the country consistently endures high levels of endemic food insecurity and malnutrition. In 2009, some 7.8 million Ethiopians (10 percent of the population) were considered chronically hungry. When global food prices spiked in 2008, an additional 6.4 million became dependent on emergency food assistance (by 2009 that number was down to 4.9 million). Ethiopia is currently the largest recipient of food aid in the world. The United States alone gave over USD 374 million in food aid in 2009, along with an additional USD 862 million in assistance to the Ethiopian government that same year. Ethiopia has faced severe drought 15 times since 1965. According to the Food Security Risk Index for 2010, it is one of 10 countries considered to be at extreme risk, and is ranked as having the 6th highest risk out of 163 countries surveyed. The pastoralist populations of the Afar and Somali Region continue to be the most acutely food insecure in the country. A significant proportion of the population in the northeastern highlands is chronically food insecure. In addition, people living along the riverbanks of major rivers of the countries are at chronic risk of food insecurity including in the Awash valley (ibid. p.10)

Since early 2008, the Ethiopian government has embarked on a process to award millions of hectares (ha) of land to foreign and national agricultural investors. According to the Oakland Institute team (2011) research shows that at least 3,619,509 ha of land have been transferred to investors, although the actual number may be higher. And most of the land is transferred for floriculture production. The Ethiopian government claims that these investments will allow for much needed foreign currency to enter into the economy and will contribute to long-term food security through the transfer of technology to small-scale farmers.

Despite Ethiopia's endemic poverty and food insecurity, there are no mechanisms in place to ensure that these investments contribute to improved food security. In addition, there are numerous incentives to ensure that food production is exported out of the country, providing

foreign exchange for the country at the expense of local food supplies. Finally, while the Ethiopian government lists transfer of technology as a major outcome of land investment, it has established no mechanism for such transfers to take place.

The majority of these investments are in the lowland areas where, there are no land certification processes under way. Local people are being displaced from their farmlands and communal areas in almost every lease area visited by the OI team. Government pays little attention to patterns of shifting cultivation, pastoralist, or communally used areas, and therefore claims all these lands to be “unused.” Displaced farmers are forced to find farmland elsewhere, increasing competition and tension with other farmers over access to land and resources (The Oakland Institute, 2011). However, the issue of land is very sensitive, and to many Ethiopians, land is not merely a commodity but is a critical component of their identity. The loss of land, whether farmland, communal areas, grazing areas, or areas of religious or cultural value, has serious adverse impacts on local people, their food security, their identity and their socioeconomic conditions.

As the Oakland Institute (2011) study shows that the fertile river valleys in Gambella and SNNPR are prime land investment areas because of ample water supplies and good soil fertility. However, many of these areas face ongoing food security problems. There are also indications that the Afar region, one of the most food insecure regions in Ethiopia, will be another area of increasing commercialization of agriculture, as reportedly 409,000 hectares of land is available (all along the Awash River) for land investment through the federal land bank.

It is clear that commercial land investment is one more stressor, making those who are marginally food insecure even more susceptible to hunger. The underlying causes for food insecurity are all present in the areas of intensive land investment the lowland areas of Benishangul, Gambella, and the SNNPR. In many of these areas, OI visited local people who live very close to the margin. Their ability to feed themselves depends on a variety of criteria, and if any one of those criteria is not met (due to weather, flooding, conflict, etc.) their ability to feed themselves is placed in serious jeopardy.

In many cases, this food vulnerability has been the reality for generations, and communities have developed coping mechanisms to help combat food insecurity. For example, in many parts of Gambella (including the Abobo and Itang woredas), families farmed in sedentary plots along the riverbanks and practiced shifting cultivation on higher ground, which provided a buffer in the case of failed or poor harvests on their riverside plots. In addition, in times of food scarcity, resources from the surrounding forests often provide sustenance (fruits, nuts, seeds, roots, leaves, etc.)

As the OI research team found numerous examples where shifting cultivation plots were cleared by investors. The AISD calls these “abandoned farms,” but these areas have intentionally been left fallow for a time and continue to provide communities with an invaluable buffer against food insecurity. In addition, large tracts of forest are being cleared for land investment projects, thereby removing another critical buffer against food insecurity. A further potential impact is that commercial farming like floriculture will reduce other food supplies such as fish habitats/ populations (a key food source for certain groups) and other wildlife (hunted in times of extreme food scarcity). Runoff from commercial farms especially floriculture will also lead to contamination and reduction of water supplies. Loss, degradation, and reduced access to prime grazing land will further exacerbate this situation. These concerns are further increased by a changing climate, ongoing conflict, and the villagization process.

There is no recognition of the traditional/ancestral land tenure system. No consultation was undertaken and no compensation (either direct or in-kind) was paid to community members. There is no other land adjacent to their village available to farm. Finally, community members have been told by the woreda officials that other scattered settlements will be moved to their village as part of the villagization process. With more erratic rainfall and flooding in recent years, their ability to feed themselves was already undermined, and now the coping mechanisms (fishing, upland maize and sorghum production, forest resources) that reduced their vulnerability to food insecurity are gone, while more people will be coming to their village where no adjacent farmland is available.

It is evident that commercial land investment will have an immediate adverse impact on the ability of those already food insecure local populations. There is no clause in any lease

agreement that requires investors to improve local food security conditions or to make production available for local population. In fact, the federal government has done the opposite it has gone to great lengths to provide incentives for cash crops intended for foreign markets. A spokesperson for the AISD told the OI research team, “we have enough maize in the country, and we do not need more.”

Mr. Abera Deressa, federal minister for the Ministry of Agriculture sums up the dominant perspective we heard from government representatives: “If we get money we can buy food anywhere. Then we can solve the food problem.” According to Davison (2010) there have been allegations in the past that aid money and government expenditures are being used to further increase the reliance and support of citizens on the government. Purchasing food from national (or global) markets to be given as handouts to poor landless farmers will not increase the food security in comparison to smallholder self-sufficiency. Regardless of whether ADLI will reduce poverty and food insecurity in the long run, it is clear that in the short to medium term, the food security of those local people in the vicinity of current land investments, particularly when compounded with other existing pressures, will be greatly reduced (Human Right Watch, 2010).

2.5 Other Countries Experience in the Floriculture Industry

This section reviews the experience of flower farm workers in other countries where the floriculture has been operating for quite some time.

Examples, in Ecuador reveal that flower farm workers suffer from human right violations (Mena, 2005). However, workers tend to ignore their problems for fear of losing their jobs.

Some of the problems they face are:

- Exposure to toxic chemicals without enough protection wears and training
- Late payments, unpaid overtime work, non-affiliation to social security
- Pressure to fulfill their company's excessively high production rate
- Sexual harassment

Because of widespread poverty, they do not have an alternative means of making a living. Mostly, it is women who suffer since they are increasingly becoming the breadwinners of their families. In the greenhouses, workers are required to work until a desired production level is met. They have to stay late or work on Saturdays and Sundays without overtime payments.

Typical of the floriculture industry in Ecuador, like in other countries, is the tendency of some flower farms not to hire workers who try to form unions and/ or pregnant women. Women who join unions are sometimes strictly excluded (Mena, 2005). Such women are considered problematic and hence require close supervision by employers or their delegates. Once expelled from their jobs, they lose their chances of being hired in another flower farms.

Sepulveda (2004) discusses the experience of Columbia in the floriculture industry. Columbia is the second largest flower exporter after Holland. It supplies 13% of the flowers to the world market and contributes to 60% of the flowers destined to the USA. Despite its world standing in the sector, flower farms do not seem to comply even with minimum labor rights. Some of the problems in the flower farms include: unfair dismissal, failure to pay salaries, failure to comply with precautionary measures for pesticide handling and application, high workload, illegal sanction procedures, ill treatment of pregnant workers and lack of pension and provident funds. Employers may add some sanctions imposed on workers without being part of the work regulations. It is common for workers to be suspended from work, three to twenty days.

The situation of the floriculture industry in East Africa is not different from the rest of the world. The Kenyan floriculture industry is the oldest and most successful flower industry in Africa. The industry has expanded from a small scale to one of the most important “off-season” suppliers of cut flowers in the world. There are over 500 producers and exporters growing flowers in Kenya (Dolan *et al.* 2002).

According to the study made by Dolan *et al.* (2002), there are a number of problems affecting Kenyan flower farm workers. These include: employment insecurity, lack of overtime payment, non-representation, absence of complaint procedure, low wages, lack of promotion, poor health and safety issues, inadequate transportation, lack of support for pregnancy and maternity leave, and lack of awareness of rights and codes. Especially, for women lack of adequate maternity leave creates anxiety about securing women flower farm workers’ income. As a result, pregnant workers may hide their pregnancies or be forced to abort.

Similarly, Uganda’s floriculture industry dates back to the early 1990s (UWEA, 2006). By 1999/2000, the flower exports were valued at US \$ 22 million from approximately 85 ha production of only 2 varieties. Though the flower industry creates employment opportunities, workers are not fully enjoying their rights as workers. Workers’ health and safety conditions, lack of recognized workers’ union, lower wages, lack of medical facilities, and sexual harassment are issues in which problems are visible.

2.6. Social and Environmental Standards of Floriculture Sectors

International social and environmental standards for floriculture industries first introduced because of awful working condition in many flower farms around the world. In addition to this awful working conditions many Northern countries consumers started to realize the negative environmental impacts of cut flowers through the promotion of different social and environmental concerned peoples and organization. Among the social and environmental organizations Flower Campaign was the most known and oldest organization which established in the year 1990 in Switzerland and Germany. The organizers of the Campaign were Bread for the World, the International Human Rights Organization FIAN, and The children rights organization terre des homes (Frank & Cruz, 2001).

The Flower Campaign starting point was Colombia, biggest producer from developing nations and where many complaints about human right violations, health effects, etc. were lodged. The Campaign straggled first to reach working and living conditions of flower workers in Colombia and elsewhere through public action on the issues involved and maintain a continuous dialogue with flower producers, traders and representatives from governmental bodies, consumer association , development experts, horticultural specialists and European chemical companies. The aim of the Campaign was to bring these actors together their shared responsibilities for humane and ecologically sustainable production of cut- flowers (Frank & Cruz, 2001).

In 1993 “Colombian Clean Flower Declaration” proposed as a response to the Campaign to provide an independent monitoring of the legal national prescriptions. And in 1995 the Flower Campaign proposed a “Quality Seal for Cut Flowers” including ecological, social and labour aspects and independent mechanisms of control of the farms. But the dispersion of the cut-flower trade into more than 15,000 small outlets in Germany made a seal difficult to control. Therefore, in August 1998, the Flower Campaign proposed jointly with other organizations the international code of conduct (ICC) for cut-flower production. The ICC is based on the universal Human rights, the ILO conventions and basic environmental standards (Frank & Cruz, 2001).

Contents of International Code of Conduct (ICC) includes : Freedom of association and collective bargaining, Equality of treatment, Living Wages ,Working Hours ,Health and Safety, Pesticides and chemicals ,Security of employment ,Protection of the environment ,Child labour, Forced labour (IFC,2004).

There are also a lot of codes of practices that have been prepared by different bodies to reply the critics came form consumers and buyer of cut- flowers about bad working condition and unsafe environmental management. According to Frank & Cruz (2001) the majority of the codes have been used by multinational corporations and employers associations to counter public criticism or to preempt such criticisms. Most of these codes are very weak. ILO analyzed 251 codes in 1998, and only 15% included freedom of association and collective bargaining as criteria. Codes from employer side usually give more importance to environmental than to social standards. Independent monitoring or participation of workers, unions and NGOs hardly exists in company codes. The ICFTU presented a model code with

the ILO core conventions and proposals for mechanism of independent monitoring. There are also some codes where unions and / or NGOs made agreements with a company or a sector.

FLP, MPS, EuroGAP, are among the most known codes of practices which drafted by traders and / or employers. They have their own quality and shortcomings with respect to the expected safe environmental and social situations.

FLP

The German “Flower Label Program “FLP originated in 1996 as a purely business to business code between the German importers association BGI and the Ecuadorian exporters association Expoflores. It was a reaction to the critical mood in the German public about working condition in the flower industry. When the Colombian Clean Flower Declaration collapsed, the Ecuadorian industry proposed a similar scheme which was implemented in first farm with support of Ecuadorian and German government institutions. But it had explicitly excluded freedom of association, lack of sufficient criteria to auditing and it didn’t evolve the workers of the farms, workers union and NGOs. And to eliminate these shortcomings ICC incorporated FLP in 1999. The flower Label Program has been adopted by about 10% Ecuadorian floriculture businesses (Frank & Cruz, 2001).

MPS

The Dutch “Horticultural Environmental Program” MPS (Millieu Program Sierteelt) was introduced not only for the flower but for the whole horticulture industry in the Netherlands. It started in early 1995, especially to improve the image of the Dutch flower industry. The following year it was extended to other European countries (Belgium and Denmark), since 1998 also the southern countries (Israel, Kenya, Tanzania, Zambia, Zimbabwe, contacts in Latin America and Asia). By the end of 1999 exactly 3,633 farms were registered in MPS, the big majority of those (3309) were from Holland (Frank & Cruz, 2001). The MPS standard is the dominant code on the European market and many African and European flower producers comply with the standard (Ethiopian Horticultural Strategy, 2007).

MPS is not a code based on fixed criteria but more an environmental management system, based on a comparison among the farms with regard to the use of pesticides, fertilizer and energy (in Africa also water) and the waste management . Due to the public pressure in

Holland and other parts of the world MPS since 1998 is working on a “Social chapter”, which is existing as the 5th version as of now. Recently, in a very interesting development, after a lot of public pressure and debate, a letter of intent has been signed to include ICC in to MPS (Frank & Cruz, 2001).

According to Getu (2009) MPS Socially Qualified (SQ) is a certificate that allows growers to demonstrate that their products are cultivated under good working conditions. MPS-SQ includes requirements on health, safety and terms of employment, and respect for universal human rights, the codes of conduct of local representative organizations, and International Labour Organization (ILO) agreements. This certificate is becoming a pre-condition for entry into the market system in some nations now, and will likely be used by many in the future. The basic purposes of participating in the MPS certification are diverse depending on the type of certification. But generally, they help a floriculture farm to meet environmental standards, its purchasers’ interest, stay competitive in the market, meet government regulations and enhance production efficiency on the farm.

EuroGAP

The EuroGAP evolved from Germany and has specific compliance criteria as a standard with 15 clauses in the protocol, and with specific requirements for a number of aspects that may affect the quality of agricultural products. These cover pesticides type and their traceability, the keeping of records on varieties of crops being grown, the management of waste disposal, and the monitoring of operatives’ hygienic practices. The EuroGAP standard ties up well with the ISO 22000 standard and may lead to certification (Elaine, 2006).

EuroGAP blamed for it is not worker friendly. It mainly focuses on the quality of the product out put. It also focuses on worker health and safety and welfare but does not mention the workers rights and freedom of association (USEPA. 1996).

According to Getu (2009 p. 259) Ethiopian Horticulture Producers and Exporters Association (EHPEA) developed its own Code of Practice in 2007 with the aim of providing “...a mechanism that enables the Ethiopian floriculture sector to achieve the highest performance standards by continuous improvement and sustainable development thereby improving the competitive position in the market.” In the process of developing the Code, review of

Ethiopian laws, the concerns and labels of the international market, stakeholders' concern and the interests of farmers have been taken into account.

Getu (2009) stated that the Code sets the minimum requirements a flower farm has to fulfill to get the certification for the Bronze Level, which is compulsory for all EHPEA members. A flower farm will receive EHPEA Code Accreditation after its compliance is proved through independent verification from an internationally accredited verification body selected by tender. The higher standards and compliance criteria of the Silver Level and the Gold Level are not yet finalized although the Code states that they "are in preparation" and will entitle to MPS GAP/ EUREP GAP Certification and MPS SQ Certification which are international market labels. Compliance at this Bronze level, among other things, ensures that the farm does or refrains from the following:

- a) Measure, document and evaluate every month its performance on water consumption, pesticide use, fertilizer use, waste management and energy consumption;
- b) Assess the risk related to the environment and occupational health and safety and put in place suitable mitigating actions in accordance with the Environmental Impact Assessment procedures;
- c) Not to purchase, store or use banned and un-registered (excluding temporary permission to use products) pesticide products as per WHO list of internationally banned pesticide products;
- d) Implement safe pesticide use and storage;
- e) Ensure that personnel related to pest control activities are trained (ibid., p. 260).

It is very clear that the Code's standards can be a regulating framework for the sector in minimizing adverse environmental impact. However, only 10 out of more than 86 floriculture farms have so far met the terms of the Code. According to Dr Glenn, the second and the third auditing will be conducted very soon ensuring greater compliance from the farm. Moreover, EHPEA has a plan for all its members to get the certificate by the end of 2009. This seems ambitious in view of the world economic recession which affects the sector. Not all floriculture farms operating in Ethiopia have joined EHPEA, thereby putting non-members outside the regulatory framework of the Code. It is to be noted that only 10 of the farms are regulated by the Code leaving more than 85% of the farms unregulated (ibid., p. 264).

CHAPTER THREE: METHODOLOGY

This study contribution is based on literature and secondary data analysis. According to Glass (1976 p. 3) secondary analysis is the reanalysis of data for the purpose of answering the original research question with better statistical techniques, or answering new questions with old data. Secondary analysis is an important feature of the research and evaluation enterprise. Thus, the paper is a social science research conducted on social environment which takes an insight to floriculture industry practice.

There is a well-established tradition in social science of reanalyzing quantitative data. However, among qualitative researchers, to date, there has been no similar research culture that actively encourages new researchers or students in the social sciences to conduct reanalysis of data collected by other researchers (Corti and Bishop, 2005). Even though it is difficult to reanalyzed qualitative data this research paper is mainly constructed on different information sources and qualitative data which shows the industry practice and it starts looking in to the problem with an inductive reasoning by developing different criteria in order to conceptualize the social and environmental effects of the floricultural industry using existing literature sources.

3.1 Research Design

The research design is the overall plan for relating the conceptual research problem to relevant and practicable empirical research which means it provides a plan or a framework for data collection and analysis (Ghauri and Grønhaug 2005 p. 56). Alternatively, Saunders *et. al*, (2009) define the research design as a general plan of how the research question/s are going to be answered. Accordingly based on the research type and the research question the study employed a research design that can guide it to apply the appropriate form of data collection and analysis method. Among the type of research design case study is the most commonly used research design in qualitative data. Case study is a detailed exploration of a specific case which could be a community, organization, or a person (Bryman and Bell 2007 p. 62). Hence the paper is mainly a case study that explores an organization, which in this case is floriculture industry. This is a single and holistic case study that concerned only with the organization as a whole (Saunders *et. al*, 2009). Case study is best applicable when questions like ‘how’ are to be answered.

3.2. Data collection

In this section the type of data/sources and the data collection methods the study chosen are briefly presented based on its employed research design.

3.2.1. Secondary data

Secondary data are information that have already been collected by others for other purpose (Ghuri and Grønhaug 2005; Saunders *et. al*, 2009) and includes books, journal articles and websites of organizations and catalogues. The study depends on secondary data like articles by experts in the area, codes developed by the association and authorities both national and international, Scientific books and other website documents. According to Ghauri and Grønhaug (2005) and (Windle 2010 p. 323) secondary data has an advantage of cost effectiveness, efficiency, convenience, and time and money savings and also ease of access. However, since these data are collected for another study it might not fit our problem and it might be less accurate and less reliable. As mentioned before a case study can be used to collect secondary data since it serves both as a research design and data collection method, so the study used case study as a method.

3.3. Data analysis

According to Ghauri and Grønhaug (2005) the purpose of analysis is to understand and gain insights from the collected data and also to make sense of data theory is needed. In secondary data analysis data collection and analysis are conducted simultaneously in an interactive way with intensive interplay between data and theory. Accordingly the study has got insight of the data collected based on the respective finding to answer the research question “how Ethiopian floriculture industry affect the socio-economic and environment of the country” and “What are the problems that flower farm workers face while working in the industry?”. In other words, the study has investigated the data collected and has reached an understanding of the case through findings and answer to research question.

CHAPTER FOUR: FINDINGS and ANALYSIS

4.1. Major Social and Environmental Implication of Floriculture

Based on information gathered from different journal articles, books and websites of organizations and catalogues in floriculture development, I have developed a set of criteria to evaluate the floriculture activities from the social and environmental perspective. Among the social perspective I have identified seven major criteria, and from the environmental perspective five major criteria (Table2). The identified social and environmental criteria's are summarized and discussed below.

Table 2 Identified Social and Environmental Criteria

No	Major Social Issues	Major Environmental Issues
1	Job Opportunity Creation	Water Resource Utilization
2	Workers Health and Occupational Safety	Water Pollution
3	Problem women encounter and sexual harassment	Soil Pollution
4	Workers Right	Air Pollution
5	Surrounding Community Health	Land Use Change
6	Compensation for Previous Land Holders	
7	Socio-Cultural Change	

Source: Study result (2012)

4.1.1. Social Implication of Floriculture

4.1.1.1. Job Opportunity Creation

Wide job opportunity creation of the floriculture industry was a predominant positive social concern and perception of almost all authors writing on the sector. The creation of wide job opportunity especially for unskilled labour was mentioned by different authors. Most authors agreed that the sector created job opportunity for both skilled and unskilled labours for the local as well as the surrounding rural community (Fig. 2). There were even workers from other far towns and rural areas who were found working in the floriculture farms.



Fig.2. Laborers (women's) back home from work

The study result of Ethiopian Ministry of Trade and Industry in the year 2006 indicates that, until April 2006, the floriculture industry created 21,356 job opportunities for both skilled and unskilled personnel on 321.3 hectares of floriculture coverage. In the year 2004 it only created jobs for 3,000 people on 150 hectares of floriculture land cover.

According to PANUPS (2002), in terms of social development, the flower industry is important since it's creating many jobs due to the labour intensive production pattern of the sector. It accommodates 10-25 or even 30 workers per hectare, more than any other agro-industry offers. In addition to the direct job creation, the sector also creates indirect jobs through the spillover effects of the development (small local cafes, tea rooms, home rental etc. were established around the floriculture farms which give services for directly hired workers and also create indirect job opportunity for business owners). Approximately 190,000 people in developing countries are employed in the cut flower business, mainly women. This figure is possibly between 20-30 % more for indirect jobs in transport, plastic, construction, commercial, etc. sectors (David, 2002).

Fatuma's (2008), study shows that the sector creates more job opportunity for unskilled resource poor people, especially for women who are poor, illiterate and mostly marginalized

from other job opportunity and hence forced to live a low standard of life. In five of the sample farms taken in her study 67% were women, out of whom 92 % were illiterate and without any skill. This finding is in agreement with a study result of Ethiopia Ministry of Trade and Industry that showed out of 21,356 persons working in the floriculture farms only 746 (3.5 %) of them had skill and some sort of professional certification.

4.1.1.2. Workers Health and Occupational Safety

With regard to matters dealing with workers' health and safety issues, different literature indicated that they face problems that affect their health conditions. For example, the absence of toilet facilities and their poor condition, absence of clean drinking water, showers, absence of maternity leave as well as absence of first aid and free medical care coupled with the presence of high temperature in the greenhouses create potentially hazardous effect on workers' health.

Beside these, as explained by the Federal Ministry of Agriculture and Rural Development Crop Protection Department, there was no control measures taken either during importing the floriculture chemicals or even after the chemicals were imported to the country. The Ministry of Agriculture and Rural Development Crop Protection Department was given a mandate and responsibly for control of agrochemicals imported and which it had procedures to give certification. But because of higher priority given by government for floriculture expansion, the importation of floriculture agro-chemicals by floriculture owners is being done without the procedures the crop protection section of MoARD used to follow earlier. The desire of the government for the promotion of the investment of this sector facilitated the importation of strong agro-chemicals, which could have and still will have an impact on environment in the future. The MoARD Crop Protection Section had only lists of what and how much chemicals were imported by different farms as its facilitation (Custom and Bank purposes) work to the sector. Up to now, more than 200 different agrochemicals were recorded imported by different floriculture farms in to the country. (<http://www.addisfortune.com/Vol7No359/.htm>).

It was difficult to gain quantitative data which shows the type and trends of health problems caused by the chemicals as reported from workers in floriculture farms and different health centers. However, chemical were seen damaging the health of the workers. Skin chemical

allergies, respiratory problems, and unconsciousness because of inhalation of chemicals are among the direct health problems associated with the chemicals as witnessed by the health centers. In addition to these health problems mentioned by health centers, the workers added early abortion in women, birth problems, stomach aches, vomiting, and poor appetite.



Fig. 3. Women have to stand up and strictly take care of flowers

According to Workneh (2007) study shows that workers sometimes experience health and safety problems due to long hours of standing in the greenhouse causing their feet to swell and also causing kidneys problems (Fig. 3) and other health related problems including headaches, coughing, skin rushes, respiratory problems, blood vein problems, pneumonia, bronchitis, sinus, vomiting and others. However, the management does not seem to be concerned about worker's health, as they do not seem to be taking measures to improve some of the important facilities such as the provision of safe drinking water and toilets on the farm. Instead, the management is more interested in protecting the flowers from plant diseases rather keeping the workers healthy.

Workers in flower farms need to have some knowledge about health and safety issues so that they know the safety procedures and take the appropriate measures. However, in most farms workers do not seem to be aware of the importance of occupational health and safety matters (e.g. how to properly use cutting tools) and training is not provided about health and safety issues.

According to Workneh (2007) another important indication that most of the surveyed flower farms do not pay attention to workers' health condition is regarding the absence of maternity leave for women workers during and after pregnancy. In all the farms that have been surveyed, there is no farm that provides maternity leave for its temporary and daily laborer pregnant workers with full pay. About 74.7 % of the respondents indicated that their farms do not provide maternity leave. Except one namely Joy Tech and Jo flowers that allow their pregnant workers who are permanent and signed contracts to have 2 to 3 weeks maternity leave, most of the female workers do not have access to maternity leave.

However, article 35 (5a) of The Ethiopian Constitution states that women have the right to maternity leave with full pay. And the same article (5b) indicates that maternity leave may, in accordance with the provision of law, include prenatal leave with full pay. However, women in most of the flower farms surveyed are not exercising their constitutional rights.

With regard to whether the flower farms give the necessary support for pregnant mothers (for example, free medical care for pregnant women & their babies, allowing to take their salaries in advance so that they can use it to cover maternity related costs, assigning pregnant mothers to less difficult tasks), 80.6 % of the respondents said "no" and the rest said "yes" . As stated above, only respondents from Joy Tech indicated that their farm offers limited maternity leave for pregnant workers and it is also the only farm that gives its workers pregnancy support (Workneh, 2007).

Article 88 of the 2004 Ethiopian Labor Law indicates that "An employer shall grant leave to a pregnant woman worker without deducting her wages, for medical examination connected with her pregnancy; however that she is obliged to present a medical certificate of her examination." Sub title 3 of the same Article also points out that "A woman worker shall be granted a period of 30 consecutive days of leave with pay preceding the presumed date of her confinement and a period of 60 consecutive days after her confinement." However, this provision does not seem to be properly enforced in the Ethiopian floriculture sector.

4.1.1.3. Problems Women Encounter and Sexual Harassment

Workplace violence can happen on workers (Rogers, 2003) and it has many forms. Some are physical in nature and some are non-physical. Usually less attention is given to nonphysical violence, which includes psychological, emotional violence, verbal abuse and the like. Of the most common type of violence women face in the workplace sexual harassment stands out.

Sexual harassment occurs when a person, usually a man, takes advantage of his/her authority to suggest or demand sexual acts from the other person, using any form of coercion, intimidation, or violence (Mena, 2005). Hadjifotiou (1983) defined sexual harassment as a male behavior that claims a woman's sex role over her duty as a worker.

This means that men are considered as main harassers over women. Sexual harassment would include repeated and unwanted statements or sexually discriminating remarks, which cause the worker to feel threatened, humiliated, patronized or harassed or which interfere with the worker's job performance, undermine job security or create a threatening or intimidating work environment. Sexual harassment can take many forms. These include embarrassing remarks or jokes, unwelcome comments about dress or appearance, deliberate abuse, the repeated and/or unwanted physical contact, demands for sexual favors, or physical assaults on workers.

Harassed women feel guilty and keep it secret. Because they think they are going to be accused of it. Even though sexual harassment is common at work places, women usually try to keep quiet. Sexual harassment can have psychological and physical effects (Anderson, 2006). Related to sexual harassment is sexual abuse which is a sexual approach involving force, deceit, coercion or violence to intimidate, dominate, submit, or assault and hurt a person's body and integrity.

Another serious problem affecting women's health is the intensive application of chemicals and pesticides which are often forbidden in the North but dumped in Southern countries (Homborgh, 1993). Women in particular because of their reproductive roles are likely to be primary victims. Besides, women are less likely to get health and medical care especially if they are poor. Even if they are employed, it is said that women are less likely to get healthcare

services. This is because their salary is not that enough to cover medical expenses (Anderson, 2006).

4.1.1.4. Workers right

In relation to workers rights, many concern areas could be raised. Among which the following were mentioned and shall be explained accordingly: Low wages, absence of legal work leaves (annual leave, sick leave, maternity leave) and involuntary overtime work, insecurity of employment and freedom of organization and bargaining (Nigussie, 2009).

Payment of Wage

According to Nigussie (2009) the wages of daily workers varies depending on the kind of work and skill the section requires within the sector where workers were engaged in. Wages ranged from 6.50 to 12.50 Eth. Birr/day which is less than a dollar. The minimum wage range was paid to greenhouse workers. And the maximum wage range paid for chemical sprayers (protection teams) and flower graders (pack house workers). According to the sample taken from five farms, the minimum wage paid for daily workers was 210 Eth. Birr (12.1 USD) per month and the maximum wage was 375 Eth. Birr (21.6 USD) per month. But the daily workers suggested that if 100-150 % pays increment of their wage could fulfill their basic need only. The ILO (2006) report the average minimum wage of daily laborers in floriculture farms of Ethiopia was almost similar to the abovementioned result (200 Eth. Birr per month) (11.5 USD). According to Price Water House Coopers (2006) in Kenya, 2 USD/day, in Zimbabwe labor costs are 1.5 US\$/day, and in Ethiopia 0.8 US\$/day.

The so-called "Permanent" and "Contract" employment contracts are not known as a term of employment according to Ethiopian labor laws. This grouping of employment type is different from as indicated in the Ethiopian labor proclamation No. 377/2003 Article 9 and 10 as "definite" and "indefinite" types of employment contracts. When the condition of the so called "permanent" and "contract" employment contracts is assessed, they have to be included under the "indefinite" type of employment contract as per Ethiopian labor proclamation No. 377/2003 and hence it is possible to keep workers rights indicated and given by this proclamation. In addition to "contract" and "permanent" employees there are the so-called "Temporary" employees (day-laborers). Again this classification is not indicated in Ethiopian

labor proclamation No. 377/2003. Therefore this could complicate to keep and respect the rights.

Legal work leaves

According to Oromia Labor and Social Affairs Bureau inspection report of the year 1999 E.T.C, out of 27 inspected farms, none of them found respecting any one of the legal work leaves. ILO (2006) reported that in Ethiopia there is a gap in fulfilling the minimum labor conditions in the floriculture farms which includes, unlawful contractual agreements, absence of weekly rest day, failure to implement annual leave, sick leave, maternity leave, condition of overtime work, and overtime work not payable as per the proclamation, work conditions on public holidays and absence of the right payment, payment in case of termination and period of notification are not affected legally, female workers do not have special work conditions, and absence of labor statistics.

Long Working Hours and Involuntary Over Time

Basically overtime is not necessarily problematic if: it is not excessive; workers are compensated appropriately; and it is chosen freely. However, in most of the cases in floriculture industries of developing countries, it is not voluntary and that workers are not given the opportunity to refuse in accordance with their rights. In the study carried out by Dolan. *et.al*, (2003) in Kenyan floriculture industries on all farms covered by the study, overtime is generally compulsory and is particularly common at certain times of the year, such as in the run-up to Christmas, Valentine's Day and Mother's Day, when pack house workers are under great pressure to pack flowers before the nightly flight to Europe departs.

More female workers interviewed were involved in overtime work (since they formed the majority of pack house staff), which can have serious implications as they typically also bear the responsibility for work in the home (childcare and domestic tasks) (Dolan. *et.al*, 2003).

In the same trend UWEA (2006) revealed that in Uganda a day's work is always much longer than the usual working day in other places of work. One has to leave work only after accomplishing the task assigned to his/her. Some times it is difficult for the worker to tell whether one is working overtime because all the hours and days of work have been made

compulsory. The same is true in Ethiopia. In Ecuador also workers work until they finish a certain number of assigned tasks, and whether or not they stay late depends on how experienced and quick they are. Some times workers must enlist the help of their family members, including children and adolescents, to be able to finish their work (Norma and Silvia, 2005).

Job Insecurity

Floriculture industries are characterized by short-term contracts, as short as a day base contracts which makes employer-worker relationship is on an informal basis and difficult to keep the right and securities of the workers. Insecure job exposed to work exploitation, direct repression and unfair dismissal (Frank & Cruz, 2001). In several instances, seasonal and casual workers said they worried about becoming pregnant, sick or injured because they risked losing their jobs. This insecurity had specific gender implications related in some cases to women's exclusion from benefits such as maternity leave and sick pay, as well as the fact that many workers leave their children behind in rural areas due to job insecurity. Job insecurity is exacerbated by mistrust of management, and lack of adequate trade union protection from unfair dismissal (Dolan. *et.al*, 2003).

Lack of Freedom of Association and Collective Bargaining

Even though organizing themselves is very fundamental issue for floriculture industry workers to keep their rights, unfortunately it is highly detested by almost all flower farms employers. Unorganized workers reduces the possibilities of collective bargaining power and amount of social benefits, fact which often companies exploit as a competitive market strategy and to obtain more profit. Unorganized labour also helps to avoids responsibilities of employers in observing the workers human right (Frank & Cruz, 2001).

Flower farm owners are not willing to allow workers form associations, as this will enable workers to become aware of their rights through their involvement in the association. However, The Ethiopian Constitution of article 113, sub title 1 of the 2004 Labor Law states, “*Workers and employers shall have the right to establish and form trade unions or employers’ associations, respectively and actively participate in them.*” It is not fair that flower farm

workers are denied to exercise this fundamental right, which is enshrined in the country's constitution.

Some study show that, one of the reasons why employers do not want workers to form association is that using their association workers will demand for improved working conditions and for improved pay. These are some of the key issues which employers usually try to avoid (in their dealings) with workers in order to maximize their profit by keeping workers wages at minimum

4.1.1.5. Problem on Surrounding Community Health

According to Fatuma's (2008) study, the floriculture farms were seen very close and there was only five meters between the farm and road to densely populated residents of the area (Fig. 4). The neighboring households were strongly complaining of a pungent and irritating smell coming from the nearby farms especially while chemical spraying was going on in the farm greenhouses. Most of the time the chemical spraying was done in the morning times and the surrounding communities explained they were unable to eat their breakfast because of the disturbing bad smell coming out of the farms greenhouses. The local communities added the smell of the chemicals put them in a state of discomfort and headaches and pain. Some people especially with asthmatic problems are suffering highly and their health problem got worse. According to studies done in other countries they experienced and faced such problems as a result of floriculture. UWEA (2006) mentioned from its research in Ugandan floriculture industries in the neighboring communities of flower farms complain of a smell when spraying was going on at the farm. According to UWEA (2006), it was also reported that bees which are necessary for pollination have disappeared due to spraying, hence poor yields in the surroundings.



Fig.4. The Road Between Nearby Village and Floriculture Farm Greenhouses



Fig.5. Children Busy at their Play very close to floriculture farm fence

4.1.1.6. Compensation for Previous Land Holders

According to The Oakland Institute (2011) issues of compensation were challenging to discuss, as government officials insist that no one has been displaced from farmland, and thus compensation does not need to be paid. The compensation requirements are clearly stated in Ethiopian legislation. Proclamation 455/2005 outlines the procedures for expropriation, including the advance payment of compensation equivalent to the replacement cost of property on the land and any improvements (value of capital and labor) made to the land.

In addition, displaced persons should receive 10 times their average annual income from the previous 5 years. However, this only applies to land where the farmer has legal title. No legislative expropriation or compensation procedures exist for those who do not have title, which is the rule in the areas where investment is currently focused. Several sources told OI that compensation is frequently given out to farmers in the vicinity of Addis Ababa who have land expropriated (for urban expansion, industrial land uses, etc.), and that compensation was also given out during the rapid floriculture expansion that occurred from 2005 to 2007. (The Oakland Institute, 2011)

The OI research team did not find any villages or farmers that were offered compensation from lost land. In some cases, those who lost land were offered employment by the investor. Even if land, titled or not, was compensated at a fair value, the land itself cannot be replaced, as land cannot be purchased in Ethiopia. This compensation is thus not sufficient to restore livelihoods and only leads to increased farmer landlessness.

4.1.1.7. Socio cultural change

According to the stakeholders mentioned in Fatumas' (2008) study the issue of a socio-cultural change in the floriculture farm area, it was because of the coming of foreign investors and new employees into the area in association with the floriculture development which caused the change of lifestyle in the area. The transfers of technology, work interest increment and culture enhancement in relation to the former norm of the local people, improvement of skill of most workers were recognized. Attitude toward modernization was a point stressed because of the coming of foreigners around the study area. Before floriculture development, the livelihood of most of the people's around floriculture farms were depending on mixed agriculture and some on fuel wood marketing due to per-urban mode of life in the locality, but now most of them changed there mode of life and became workers of the farms and employed.

4.1.2. Environmental Implication of Floriculture

Environmental implication of floriculture involved the intensive use of water as well as soil, the water and air pollution because of its intensive and toxic chemical usage and waste disposal system of the industries is other areas of interest. Here are main environmental impacts of the Ethiopian cut flower.

4.1.2.1. Water resource utilization

One of the major nature of flower farm is it *consumes a high amount of water*. E.g. One hectare of a flower farm consumes over 900 cubic meter water per month (Organic consumers Association 2006). Some study show that about 90% of flower is make up with water. This means that exporting flower is like exporting water. Despite the use of high level water by flower farms, they are very reluctant to use an effective way irrigation system that will led the case much worst (Ethiopian review 2010). Recent research showed that there is a loose of natural capacity in river Awash. Since Most farms follow the step of the Awash River valley or its tributaries around the Great Rift Valley in order to take their positional advantage to proximate themselves to the capital city, Addis Ababa, in which the main cargo flight service is located. This led to rivers and lakes to lose their natural capacity due to high water consumption. In this region particularly there are a lot of local farmers who are dependent on water for their crop cultivation and cattle breeding. Decreasing of water level of those lakes and rivers in which their life is dependent on made them to frustrate, instable and finally put their future livelihoods in danger. Considering Kenya's flower industry as a reference, still conflict going on by a concerned local people and flower farm investors those who depends their live in Lake Navisha .There is a clear procedure on Ethiopian legislation bodies and EPHEA about how much water a single farm should use per area. However, the water level is dropping from time to time and there is no action is implemented to tackle this problem. In the future, water expected to displace oil as the greatest resource challenge, and Water is central thing for survival and without it, life would be impossible. Water is a central component of Earth's ecosystems, providing important controls on the weather and climate and it should be given a high consideration for conservation.

4.1.2.2. Water and Soil Pollution

Another water related problem is water pollution that causes problem on human and animal health. Flower farms mostly use hazardous chemicals in the form of fertilizers or pesticides which can be easily washed off from the ground and enter in to water bodies. Moreover, excessive usage of inorganic chemicals in the farms which later produce Nitrate soon after will get into water bodies by which can be washed away from the farms by rain or some other means can cause serious damage on people (eutrophication). On rare occasions, this nitrate will cause infants led to death. Solid wastes and toxic chemicals that contaminated water body can develop water born disease. A number of proclamations and several rules are passed considering water resource and in order to maintain environmental sustainability. However, none of them prevent from current environmental degradation and pollution.

Water scarcity as well as pollution combined can affect environment and social sustainability. Societies who depend on rivers and lakes for their livelihood might become frustrated and may lead them to migrate to another place for a better water resource. To challenge this problem sometimes local farmers confront with commercial farms and conflict might arise where and how to access the water. A way of resolving such kind of problem is minimal and there is no clear way of participating stakeholders how to manage the water resource.

Another most visible impact of floriculture industries on the environment is the depletion of the soil through the intensive usage of fertilizers and chemical as well as during the waste disposal of cut flowers (Fig 6). The different types and amount of chemicals exposes the soil to loss its natural fertility. They have different character and reacted differently when they apply to the soil and change its texture, acidic value and fertility. Researcher from Colombia stated the treats that “Flower farmers in Colombia don’t realize that the intensive use of the soil, the water and the intensive and excessive use of chemicals is going to convert the Savannah of Bogota into a sterile land,” (USEPA, 1996).



Fig.6. Poor Dry Waste Management in one of Floriculture Farms

4.1.2.3. Air pollution

Air pollution is another environmental degradation factor in which the industry is accused of. The major contributors are excessive usage of pesticides during flower cultivation. One factor that aggravate the usage of pesticides is that flower shops around the world wants to receive their orders with a fresh condition and pesticides plays the main role in maintaining flower freshness. According to Getu (2009) pesticides has a capacity of contaminating organisms, soil & water. Due to its highly volatility nature , is estimated that only 0.1 percent of the total applied pesticide attain its intended goal but the rest 99.9 percent leaves as an air pollutant. The pesticides applied in the greenhouses travels an average distance of 1,500 miles, adding significantly to global warming and air pollution (Anon, 2003).

UWEA (2006) mention in its research in Ugandan floriculture industries the neighboring communities of flower farms complain of a smell when spraying is going on at the farm. It was reported that bees necessary for pollination have disappeared due to spraying hence poor yields in the surroundings. The findings of IEDECA in Ecuador also showed that one of the reasons for rising of conflicts between flower farms and the surrounding communities were the smell released from the floriculture industries during the application of pesticides. Thus, they include in one of local legislation that companies now set grounds leaving distance of 1000 m from the residential areas and that 20% of the companies ground be left for green areas and fences (Frank & Cruz,2001).

It is believed that the Sector usually uses more pesticides than conventional ones. E.g. recent data from Ethiopian Agricultural research Institute show that “18 of the 96 insecticides and nematicides imported by the flower farms were not on the MPS-code list (the list of pesticides registered in Ethiopia) and similarly for 19 of the 105 fungicides.” (Ecologist 2009)

4.1.2.4. Land Cover Change

According to Fatuma (2008) most of the local communities and previous land holders perceived and explained the issue of land use change in association with the shortages of agricultural products, fuel and construction woods and price increase as well as the rapid climatic change seen in the locality. They were stressing that, because of most of agricultural lands and eucalyptus plantations were changed from forest cover and farm lands to floriculture farms, therefore, there have seen a shortage of agricultural products and forest products. Most of the people in Holeta area explained, as a result of their poor livelihood and increased prices of produce they couldn't afford to purchase agricultural and forest products as per their needs. This finding was confirmed by the ILO (2006) report document on Ethiopia which stated that one of the side effects of floriculture expansion is problem of conserving the forest resources.

Ethiopian Environmental Protection Authority (EPA) explained its status on this issue relating to the comparative advantage of the current resource utilization due to the floriculture expansion with the previous land use system. The Authority put its stand by adding saying that there has to be further studies as to choices on which land use will be more appropriate and useful for the economic, social and environmental advantage of the society at large.

4.1.3 Economic Implication of Floriculture

In this section the Ethiopian floriculture industry is analyzed in terms of export performance by volume and value, share from the total export earning, and destinations.

4.1.3.1. Cut-flower Export Performance by Volume

Like most other agricultural commodities, the total export of cut-flowers for Ethiopia fluctuates in growth over time and is insignificant in its volume. This fluctuation is partly attributed to the instability in the supply. The insignificant export volume of cut-flowers is due to the underutilized potential of the sector and the high capital and knowledge intensive nature of the sector (Zewdie, 2007 p. 80).

Table 3: Performance of Ethiopian Cut-flower Export by volume

Year	Volume (in million stems)	Growth (%)
2000	1.64	-
2001	4.02	145
2002	6.72	67
2003	16.0	138
2004	32.0	100
2005	83.0	159
2006	112.0	34.94

Source: Computed from the Data of Ethiopian customs Authority (2007)

Table 3 shows that the annual growth of volume of cut flower export between 2000 and 2001 was 145%. In the following period, it was not sustained. It declined to 67% between 2001 and 2002. The reason for this decline, according to the Ethiopian Export Promotion Agency, is mainly because of the general price decline in the international market for flowers. However, the year 2005 has shown the highest growth rate of 159% which is attributed to the increasing number of investors engaged in the production of cut-flowers. In general, the rate of growth in volume fluctuates from time to time though the export volume of cut-flowers is on the increase from year to year.

4.1.3.2. Cut-flower Export Performance by Value

There is positive relation between the growth rate in volume of exports of cut flowers and the growth rate of export income from cut-flowers. In the period under consideration, there is considerable fluctuation in the export earnings and its growth rate. The fluctuations occur due to the price changes in the international flower market (Zewdie, 2007 p. 81).

Table 4: Average Price of Cut-Flower

Year	Price (USD/stem)
2000	0.23
2001	0.16
2002	0.18
2003	0.18
2004	0.16
2005	0.15
2006	0.17

Source: Computed from the Data of Ethiopian customs Authority (2007)

Table 4 shows that the price of cut-flower has been fluctuating from year to year which resulted in the fluctuations of export value (Table 5).

Table 5: Performance of Ethiopian Cut-flower Export by Value

Year	Value (in USD)	Growth (%)
1996	216,158	-
1997	157,000	27
1998	247,000	57
1999	118,052	-52
2000	382,346	224
2001	660,038	73
2002	1,212,968	84
2003	2,904,000	139
2004	5,050,000	74
2005	12,645,000	150

Source: Computed from the Data of Ethiopian customs Authority (2006)

Table 5 illustrates the fluctuating cut-flower export earnings starting from year 1996 onwards. As has been said, this is due to the fluctuating cut-flower prices in the international market.

The unprecedented rise of 224% in value in the year 2000 is attributed to the bacterial attack on other African exporters that degraded their quality and volume of exports. This phenomenon boosted the price of Ethiopian cut-flowers (ibid. p.82). On the other hand the 1999 export value (118, 052 USD) was a decrease of by 52% from the previous year's value (247,000 USD). This is the highest drop in export earnings experienced by Ethiopian floriculture industry (ibid.).

Table 6: Share of Ethiopian Cut-flower Export Value from the Total Export Earning

Year	Income from cut flower export (USD)	Income from the total export (USD)	%share of income of cut flower from the total export
1996	216,158	419,447,000	0.05
1997	157,000	602,295,000	0.03
1998	247,000	550,832,000	0.04
1999	118,052	431,659,000	0.03
2000	382,346	418,040,000	0.08
2001	660,038	447,976,000	0.15
2002	1,212,968	436,310,000	0.28
2003	2,904,000	842,700,000	0.60
2004	5,050,000	596,521,000	0.85
2005	12,645,000	793,228,000	1.59

Source: Computed from the Data of ECuA and EEPA (2006)

The share of cut-flower export value from the total export earning during the first four years (1996-1999) is characterized by a series of fluctuation (Table 6). However, after 1999 it showed an increasing pattern. When compared to the years after 2003, the share of cut-flower export from the total income of exports is very low during the year between 1996 and 2002. This is due to the corresponding low volume of cut-flower exports (ibid. p. 83).

As shown in table 7 in the 1998 E.C (2005/06) budget year, close to half (42.42%) of the Ethiopian cut-flower exports were sent to the Netherlands followed by Germany which accounted for 32.07%. From this it can be said that the EU countries are the major importers of Ethiopian cut-flowers. As compared to the EU countries, there was an insignificant share of export made to other countries. From African countries, the highest share of cut-flower exports (0.3%) was made to Kenya followed by Zambia (0.04%).

Table 7: Flower Export by Destination for the 1998 E.C (2005/2006) Budget Year

Country	Weight in stem value in USD	value	% Share
Netherlands	73,367,782	6,418,297	42.42
Germany	29,418,360	4,852,104	32.07
United States of America	758,380	770,094	5.09
Belgium	7,859,058	654,737	4.33
United Kingdom	3,051,002	546,604	3.61
Italy	2,925,395	476,317	3.15
Sweden	851,445	225,187	1.49
United Arab	968,053	206,855	1.37
Israel	1,767,770	194,986	1.29
France	334,270	166,349	1.10
Russian Federation	1,657,460	144,309	0.95
Saudi Arabia	663,850	108,530	0.72
Norway	554,419	93,137	0.62
Poland	179,700	87,164	0.58
Portugal	179,780	58,131	0.38
Kenya	69,860	46,065	0.30
Romania	320,361	20,568	0.14
Lebanon	90,610	9,996	0.07
Yemen	102,440	9,983	0.07
Hungary	20,700	8,134	0.05
Costa Rica	1,760	6,865	0.05
Zambia	16,240	6,074	0.04
Zimbabwe	24,660	5,015	0.03
Japan	63,100	3,422	0.02
Slovenia	1,680	2,505	0.01
RE Union	31,840	1,881	0.01
South Africa	25,340	1,491	0.01
Bosnia	11,500	1,373	0.01
Uganda	25,000	1,176	0.01
Cauman Island	1,060	931	0.01
Sudan	8,520	911	0.01
Djibouti	3,040	891	0.01
Congo	1,290	198	0.00

Source: Ethiopian Export Promotion Agency (2007)

CHAPTER FIVE: Conclusion and Recommendation

5.1 Conclusion

The floriculture industry is one of the newly emerging industries of Ethiopia. Since its modest beginning in the early 1990s, it has created employment opportunities for a large section of the population. Realizing its capacity to generate employment, foreign exchange and the country's geography advantage, the government is also encouraging investors to invest in the sector. Despite these advantages, negative aspects are existed behind the industry which hindered from the production of sustainable flower. The major and most worrying negative factor of the flower is focused on environmental issue because floriculture requires intensive use of chemical fertilizers and pesticides and needs huge amounts of water than conventional farming in addition to thoroughly monitored waste management system. If it is not well managed, whatever the farms put on the ground, sooner or later, will end up in the water or soil. In addition the country has a history of a deadly cycle of drought and famine for the decades due to environmental degradation.

In order to evaluate the impact of floriculture industry in the country I have developed a set of criteria from a social and environmental perspective. From the environmental perspective I have been identified five major criteria. These are: water pollution, soil pollution, air pollution water resource utilization and land use change. Among the social perspective I have identified seven major issues, which are absence of workers' health and occupational safety, workers rights abuse, problem women encounter and sexual harassment, surrounding community health problems and improper compensation for previous land holders. Except job creation all the rests are negatively existed in the floriculture industry. Considering workers health and occupational safety it is evident that the inadequacy or complete lack of facilities, presence of high temperature in the greenhouse, repeated exposure to chemicals and pesticides are likely to make workers' vulnerable to health risks. It would seem that the management is not willing to regularly checks workers' health conditions, nor is it committed to improve workers' health and safety issues through training. Some of the workers have already experienced ill-health effects as a result of their poor working conditions.

Even though the floriculture industry has created employment opportunity for many Ethiopians the problems related to employment conditions, fundamental rights at work, safety

and health condition of workers and social protection are huge. The increase in production and profit should not be at the cost of workers. Therefore, worker's human right and working conditions need to be given due attention

Problems related to pesticide and chemical use and application were also identified. Workers do not follow safety instructions all the time and also they are not regularly informed about health risks and the necessary precautionary measures they need to take as a result of coming into contact with chemicals and pesticides. Workers do not usually use protective wears, in addition to their uniforms being too old worn out. These situations increase workers' exposure to the negative-health effects of pesticides and chemicals. It is absolutely important that workers be informed about the possible negative effects of chemical risks so that they can take precautionary measures, and that workers need to be oriented to the importance of following instructions in the applications of pesticide.

Recently foreign financed commercial farms are entered in to the country and still land under leasing. Land grabbing has an environmental as well as social impact. It will lead to an environmental destruction in need of appropriate farm land, Moreover, local peoples will evict from their farm lands for flower investment purpose and relocate them to a place where either that lack infrastructure or infertile land with a low compensation or not at all. Most of their lands are covered by green houses now and it were once used to grow crops and surrounded by woods that were convenient to collect firewood. Of course these new commercial farms significantly supplement the national economy and contribute to an economical sustainability through generating foreign exchange currency and creates job for citizens. However, today in the country millions lives are seeking food aid and the government is leasing extremely large lands to commercial farms that threatens own food security. It is an investment against the country's food security.

5.2 Recommendations

Based on the discussions, findings of the analysis and experience of other countries producing floriculture products, the following recommendations are stated to sustain the floriculture industries with its minimum social and environmental impacts and optimum economic benefits in the country.

- Initiate and promote by giving incentives to floriculture producers to exercise integrated pest management (IPM) practices and use of environmental friendly agro-chemicals. The government must take the responsibilities of facilitating any sort of possible incentives.
- More ecological farming could help to avoid pesticides that will be beneficial to the health as well as to the environmental conditions.
- Health and safety training to workers.
- Promote and create awareness for floriculture farms to certify international and the newly developed local code of practices. The promotions and awareness creation job should be made by socially and environmentally responsible government organizations, concerned civil societies and organizations and/or by floriculture farm owners associations in their line of operation.
- Allow workers to establish their own associations which can represent them in matters dealing with the management
- Clear and workable laws and regulations are needed for pesticide application and control. Also, the existing pesticide use and controlling proclamations need revision according to the current local and international situations. Establish a third party organization at national and regional levels which can be responsible for auditing the operation of floriculture farms as per the international and national laws as well as the code of practice for social and environmental sustainability of floriculture production.
- Introduce maternity leave and women-focused packages for pregnant workers.

- Setting national minimum labour wage (including day labour) for all development works, including floriculture industries is vital.
- Establishing facilities on the farms such as toilets, clean drinking water and health care facilities.
- Preparing enough protective wears, ensuring workers use them every time.
- Setting buffer zones and keeping a certain safe distances for floriculture farms from residential area, water sheds and agricultural practices. Implementation of buffer zone management can include practices like planting trees in their farm yard to minimize any environmental risks from floriculture.
- Existing rights to land and associated natural resources are recognized and respected.
- Processes for accessing land and other resources and then making associated investments are transparent, monitored, and ensure accountability by all stakeholders, within a proper business, legal, and regulatory environment.
- Investments do not jeopardize food security but rather strengthen it. (For those that are chronically food insecure, and live within the vicinity of the lease areas, food security will be weakened, not strengthened.)
- Investors ensure that projects respect the rule of law, reflect industry best practice, are viable economically, and result in durable shared value.
- Investments generate desirable social and distributional impacts and do not increase vulnerability.

Taking these points into consideration it is possible to run sustainable floriculture production keeping the balance of its economic advantages without or with minimal negative social and/or environmental impact from the floriculture production practices in the country.

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