

## **Social and Environmental Issues in Four Ethiopian Cut Rose Producing Companies**



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**MSc Thesis Research**

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## LIST OF ABBREVIATIONS

CETU	Confederation of Ethiopian Trade Union
DBE	Developmental Bank of Ethiopia
EFCCC	Environment, Forest and Climate Change Commission
EHPEA	Ethiopian Horticulture Producer Exporters Association
EIC	Ethiopian Investment Commission
FGD	Focus group discussion
MoLSA	Ministry of Labour and Social Affairs

## ABSTRACT

*Flower industries in Ethiopia are characterized by frequent violations of workers' rights and freedoms as well as environmental protection and handling problems. Despite the problems, little and/no case study research was conducted in the sector. Hence, a case study research was conducted on four rose producing companies in Ethiopia with the objective of providing practical recommendations on the major social and environmental issues of the sector in order to comply EHPEA code of practices and gain competitive advantage in the Netherlands. After asking their interest, four rose flower producing companies in Holeta, Menagesha, Sebeta and Ziway were selected. Twenty respondents were randomly taken from each company to fill the semi-structured questionnaire. Moreover, 18 key informants from the four rose producing companies (farm managers and labour union leaders), EHSC, CETU, DBE, EIC, EFCCC, MoLSA, FloraHolland consultancy services, Control Union and EHPEA were interviewed. Four focus group discussions were also conducted to understand the social issues associated to each company. Observations on soil fertilization methods, pest control techniques, water source and irrigation methods, energy source and waste management methods were made on the four rose producing companies. Ground theory and Kruskal-Wallis test and Chi-Square test were used to analyse qualitative and quantitative data, respectively. The stakeholder analyses showed that EFCCC, MoLSA, EHPEA, CETU are the key players to improve labour and environmental conditions. The four rose producing companies showed impressive progress for the improvement of labour conditions. For instance, minimum sector salary, collective bargaining agreement, different incentives and provision of agreement letters were some of the current measures taken to ensure good labour conditions. Working hours and days were also in accordance with national labour law proclamation. However, low wage, absence of minimum wage, hard to get new PPE when old one damaged accidentally, interference of top managers, negative image in the society, inadequate government support and high inflation in the country were the challenges associated with the four companies while working for the improvement of labour conditions and corporate social responsibilities. The overall result indicated that Ziway rose followed by Ethio Agri-CEFT showed relatively good performance in improving labour conditions and fulfilling corporate social responsibilities compared to ET highland Flora and Dream Flowers. The result also revealed that integrated pest management and fertilisation, installation of drip irrigation, electric power as energy source, recording and consumption of energy were the current environmental protection measures taken by the four industries. Dream Flowers and Ethio Agri-CEFT were established without preparing and submitting environmental impact assessment. In general, Ziway rose and ET Highland Flora also showed good performance in protecting the environment; appropriate wetland technologies were built.*

**Key words:** *Challenges, current measures, environment, feasible adaptations and inclusions, labour*

## 1. INTRODUCTION

### 1.1. Background

The floriculture industry in Ethiopia is an important sector in the economic growth of the country (Getu, 2009; Tizazu and Workie, 2018). Best of all, the job creation (more than 70,000) has the most direct and biggest impact for the nation. The sector also generates huge amount of foreign currency (222 Million USD) earnings to the country (Workman, 2018). As a result, the government of Ethiopia has been actively encouraging investors to invest on the flower sector. According to the report on Ethiopia developed by the Embassy of Japan (2008) the floriculture industry is starting to prosper due to three main reasons (1) the incentive packages launched by the government, (2) role played by the Ethiopian Horticulture Producer and Exporter Association, and (3) measures taken by Ethiopian flower growers to remain competitive in the international market.

The history of the Ethiopian floriculture industry dates back to 1980, when state farms started to export flowers to Europe. The first private farm that started trading flowers was the Ethioflora, which cultivated summer flowers but not roses and exported only to the Netherlands. Recently, Ethioflora produces mainly roses and export them to several countries. Another company which entered the industry in the early phase is Golden Rose Agrofarms Ltd (hereinafter referred to as “the Golden Rose”), which started growing roses in 2000 (Embassy of Japan in Ethiopia, 2008). Currently, more than 80 flower farms are producing cut flowers to the international market, mainly to the Netherlands. Most of these farms are found in Oromia region near to the capital Addis Ababa.

Although the industry significantly contributes to the country’s economy, it faces many challenges. Gezmu (2013) reported that the labour conditions in flower farms of Ethiopia are characterized by low wages, job insecurity and frequent violation of employees’ rights, and absence of social dialogue and poor safety measures. Most flower industry employees are living below the poverty line. Despite the Ethiopian government investment in attracting and creating a conducive environment for investors, not much has been accomplished regarding the enforcement of the labour laws.

Other important issues hampering the sustainability in the flower sector are more directly related to the value chain performance. For example, limited capital (and research), inadequate trained human resources and infrastructure, poor market knowledge and linkage, high cost of transport, insufficient safety measures and inability to satisfy foreign market demands (Kassa, 2006; Janko and Alemu, 2017).

Additionally, environmental issues such as pollution of soil, water and air through inappropriate use of fertilizers and pesticides and poor waste disposal system (Tizazu and Workie, 2018) bring big challenges to the export oriented floriculture sector to comply with the new sustainable goals and standards of their main markets such as the ones stated in the Floriculture Sustainability Initiatives (FSI) in 2017, aiming to trade 90% sustainable flowers and plants from their suppliers, and the Ethiopian Horticulture Producers Exports Association (EHPEA) codes of practices (*i.e.*, Silver level) already recognized by the FSI.

To ensure that the Ethiopian flower sector complies with current market standards, it is of utmost importance to engage on practical research among industries through comparative case studies that can develop thorough recommendations.



## **1.2. Problem statement**

The flower sector, as an export oriented floriculture, requires to give special attention to the implementation of social and environmental conditions to capitalise and gain competitive advantage in the existing markets and open new market channels. In Western Europe, the main market for the Ethiopian flower sector, the consumer demands and thereupon the trade requirements are becoming increasingly demanding and differentiated (Van der Maden *et al.* 2011), for which sustainable products have become a virtually compulsorily requirement to maintain a competitive advantage. Therefore, if the Ethiopian flower sector is to remain with a competitive advantage, then the growers need to improve their ability to adapt to these new standards of the world's flower market. Specifically, the Ethiopian flower industries have yet to improve the social and environmental conditions to be able to comply the market demands regarding sustainability as stated by the FSI and EHPEA (see section 1.1).

Despite the urgency to comply with the current market standards, there is virtually no applied research conducted using a case study approach, known by the author of this proposal. Therefore, it is of utmost importance to conduct a systematic case study research between compliant and non-compliant flower industries to effectively detect the constraints and opportunities of each flower industry as well as to reach concrete recommendations.

In accordance with the latter, the Ethiopian Horticulture Producers Exports Association (EHPEA) requested a research producing practical recommendations through a case study between compliant and non-compliant rose flower producing companies on how to achieve the major social and environmental issues of sustainability.

**Problem Owner:** Ethiopian Horticulture Producer Exporters Association

## **1.3. Research objective**

The objective of this research is:

- Provide practical recommendations on the major social and environmental issues to four rose flower producing companies in Ethiopia in order to comply EHPEA code of practices and gain competitive market advantage in the Netherlands

## **1.4. Main and sub questions**

What are the social and environmental issues faced by the four rose flower producing companies in Ethiopia?

### ***Social issues***

1. What are the challenges and problems in the labour conditions that workers experience (e.g., wages, collective bargaining and freedom of association, health and safety, equality of treatment, security of employment and child labor issues)?
2. What are the current measures to ensure good labour conditions?
3. What are the feasible and desirable changes, adaptations and inclusions that can allow the improvement in the labour conditions?

### ***Environmental issues***

4. What are the most urgent and relevant environmental challenges that the rose flower value chain is facing (waste management, use of prohibited chemicals, relying on synthetic fertilizers and pesticides, surface water depletion, relying non-renewable energy)?
5. What are the environmental protection measures that are implemented in the rose flower producing companies?
6. What are the feasible and desirable changes, adaptations and inclusions that can improve the implementation of environmental protection measures?

## 1.5. Limitations

At the beginning the scope of the research was to analyse the whole chain in the rose with special focus on social, environmental and profit dimensions. However, rose producing companies were not able to provide the profit aspects of the study because of their confidentiality policies. Hence, only qualitative data was collected for which the results are summarised in Appendix 7, but not included in the research. The latter was decided because the available data in the profit aspect are not enough to make thorough conclusions and recommendations. As a result, the scope focuses only on the social and environmental issues of the four rose producing companies.

One of the major limitations of this research was the long bureaucratic procedures of DBE, EIC and MoLSA. During data collection, these organisations took longer time (more than three days) to go through the interview. Lack of interest of the company managers and owners did occur. For instance, Linssen roses, Oleij roses and Friendship roses showed no interest. Because of these reasons, research focus and the selection of the rose producing companies were revised (by EHPEA).

## 2. LITERATURE REVIEW

### 2.1. General description of cut rose

A rose is a woody perennial plant which belongs the genus *Rosa* and family *Rosaceae*. Standard cut roses vary in size; (1) large Hybrid Tea, (2) intermediate Hybrid Tea, and (3) smaller sweetheart roses. It has a wide range of colours; white, yellow, to pink and red and/or combinations of different colours in the same flower. Different varieties of roses are growing in the world with different range of size. Most species roses are native to Asia, however, there are some varieties of roses, which are native to Europe, North America, and Africa as well. Roses, after harvesting, are usually stored and transported under cooled conditions until they are ready for sale at the retail level. They are mostly sold as mono bunches or used in bouquets and other flower arrangements. Some exquisite varieties are sold as single flowers (CBI, 2016).

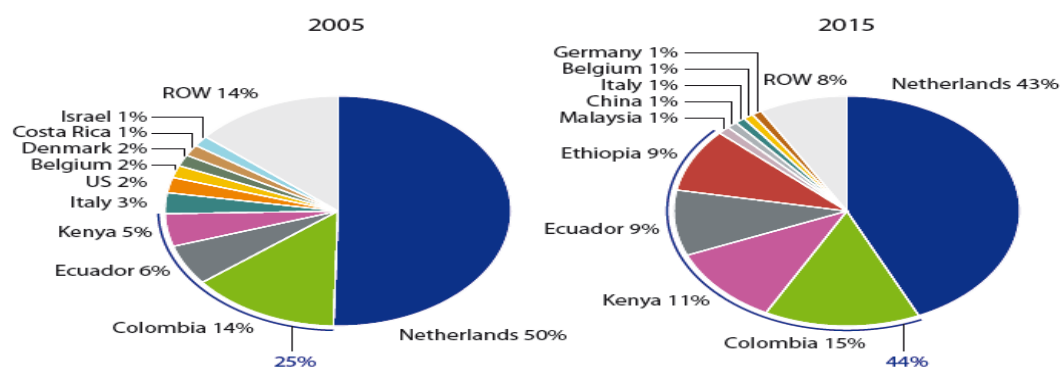
Due to the diverse climatic conditions and altitudes, all of the three types of rose varieties mentioned above are growing in Ethiopia; sweetheart (30-40 cm stems and small buds), intermediates (40-60 cm in stem length) and tea hybrids (60-80 cm stems). Janko and Alemu (2017) mentioned that the majority of Ethiopian production falls into the category of intermediate types, with considerable variation between farms. The yields per square meter also vary, with stems per square meter for tea hybrids ranging from 120 to 140 stems per square meter and for intermediates from 140 to 180 stems per square meter.

## 2.2. Global rose flower production and marketing trend

Cultural exchanges and celebrations such as New Year, Valentine’s Day, Memorial Day, Mothers’ and Fathers’ Day, Religious celebrations and weddings have induced the global community to use flowers as means of sharing feelings. For instance, most consumers use roses to Valentine’s Day and carnations to Mother’s Day. Belwal and Chala (2008) noted the increased use of flowers and ornamental plants makes marketing of flowers a lucrative business. Thus, currently, different regions of the world are producing various types of flowers and fetching appreciable prices from their customers. Asia/Pacific region is the leading producer of flower with a total production area of 244,263 hectares followed by Europe (54,815); Central and South America (45,980); North America (26,135); Africa (5,697); and the Middle East (3,845). In terms of total area of production, Asia and the Pacific cover nearly 60% of the total world area (Belwal and Chala, 2008).

The major market destinations for flower producing countries are Western Europe, North America and Japan (Belwal and Chala, 2008). Large importers of flowers are Germany, USA, UK, France, Netherlands and Switzerland— accounting for nearly 80% of global imports. The CBI (2016) report indicated that the Netherlands is the biggest trade hub for cut roses in Europe; both a large trader and producer of cut flowers. However, Dutch production of cut roses declined due to the increasing market share of developing countries producers and Russia’s decreasing appetite for imported flowers. Dutch imports from developing countries increased from € 337 million in 2010 to € 412 million in 2014. Rabobank (2016) described that up to 2013 Russia’s share in global flower imports rose steeply, but since the economic and political turmoil in Russia, imports have been declining. Moreover, Ecuador, Kenya and Italy have grown their market share in Russia’s cut flower imports, mainly at the expense of the Netherlands. The Dutch market share was 43% while the four rising flower stars—Colombia, Kenya, Ecuador and Ethiopia— in the same year accounted 44% of the global cut flower exports (Figure 5).

**Figure 1. World's largest cut flower export countries, 2005 vs. 2015**



Source: (Rabobank, 2016)

## 2.3. Rose flower production and export in Ethiopia

Coffee is the most valuable exported product in Ethiopia contributing 963 million USD and 33.6% export share followed by vegetables (with 538 million USD and 18.8% export share) and oil seeds (with 446 million USD value and 15.6% export share). Cut flowers (7.8%) ranks as the fourth most important export commodity next to coffee, vegetables and oil seed crops; generating huge foreign currency (222 million USD) (Workman, 2018).

As a result of the economic significance of cut flower, the government has given much emphasis to upscale the industry. Janko and Alemu (2017) showed that more than 80 farms are involved on the cut-flower production and exporting activities. However, only 32 farms are producing cut roses to the international market. Most of these farms are found in the rift valley region near to the capital Addis Ababa and grow multiple rose varieties, six to ten on average. The most important rose varieties currently in use are Pascha, Circus, Aloha, Milva, Shanty, Duett, T. Amazon, Paschamina, Jupiter, Indian Sunset and Sweet Candia. Gebreeyesus and Iizuka (2010) reported that the Netherlands, Germany, UK, Japan, United Arab Emirates and Saudi Arabia are the major market destinations for Ethiopian flowers. Over 94% of the total exports were sold to the European market in 2008 (Table 1).

**Table 1. Top market destination countries for Ethiopian flower export 2008**

<b>Top market destination</b>	<b>exports millions (USD)</b>	<b>% of total exports</b>
Netherlands	92.37	88.19
Germany	3.95	3.77
United Kingdom	1.54	1.47
Japan	1.32	1.26
United Arab Emirates	1.28	1.23
Saudi Arabia	0.83	0.79
Russian Federation	0.68	0.65
Israel	0.61	0.58
Ireland	0.46	0.43
Norway	0.41	0.39
South Africa	0.27	0.26
France	0.16	0.15
Cyprus	0.12	0.12
Australia	0.11	0.10

Source: (Gebreeyesus and Iizuka, 2010)

However, in recent times China (Beijing International Horticulture Expo) is becoming the market destination for Ethiopian flowers and horticultural products. EHPEA is looking this newly emerging market access and opportunities for their members (EHPEA, 2019). The recent report made by Workman (2018) placed Ethiopia in the fifth place as cut flower exporter in the world, next to Netherlands, Colombia, Ecuador and Kenya. Around 212 million USD was received from the export of the cut flower in 2017, slightly lower than 2016 export value which is 225 million USD.

#### **2.4. Importance of agricultural sustainability**

The Embassy of Ethiopia (2019) in Belgium defined a responsible and sustainable flower industries as those who respect (1) corporate social responsibility (support of medical care via construction of farm clinics, construction of local schools, provision of water in rural areas, affordable meals for employees and rehabilitation), (2) Integrated Pest Management, (3) code of practice and (4) provide employment to local people. However, European Union (2015) defined the scope of agricultural sustainability beyond being purely environmental and social issues, and includes economic viability as well.

It was also mentioned that sustainable agriculture is important to (1) produce safe and healthy food, (2) conserve natural resources, (3) ensure economic viability, (4) deliver services for the ecosystem, (5)

manage the countryside, (6) ensure animal welfare and (7) improve quality of life in farming areas (European Union, 2015).

EAT (2019) reported the existence of scientific evidences that links diets with human health and environmental sustainability. As a result, the report emphasized the importance of global adoption of healthy diets from sustainable food systems to safeguard planet and improve the health of billions. However, transformation to healthy diets requires substantial dietary shifts. A diet rich in plant-based foods and with fewer animal source foods confers both improved health and environmental benefits.

Sustainable agricultural practices are in line with maintaining biodiversity and soil health thereby improvement of pest and disease control, nutrient availability, water use and yields of the crop. However, a much more substantial change in approach is needed to ensure that agricultural biodiversity can fulfil its contribution to food security and climate change (FAO, 2011).

EU (2012) revealed that sustainable agriculture offers decent working and living conditions. Social structures in rural areas will also be improved, creating an environment that is also attractive for tourists. It enhances animals to live in their natural environment as they fed an appropriate natural diet and do not suffer from epizooties. In general, sustainability of agriculture circulates on a combined focus of environmental changes and their impact on society, the environment and economic dimensions.

Because of the abovementioned advantages, international organizations and interest groups such as FSI and Dutch flower group (FloraHolland, Royal Lemkes and Water Drinker) are working together to have a healthy, vital and sustainable horticultural sector in the globe. FSI members are collaborating to improve practices and drive positive change towards the sustainable production and trade of flowers and plants. There are 14 Voluntary Sustainable Standards and Schemes in the FSI Basket including EHPEA silver level code of practices for sustainable flower production. The social aspects of sustainability benchmarking are carried out by the global social compliance program (GSCP) whereas the environmental benchmarking by GLOBAL G.A.P (FSI, 2018).

## **2.5. Sustainability in Ethiopian Flower Industries**

Only the people and planet aspects of sustainability issues in Ethiopian flower industries are reflected by different researchers; little/no research works was done on the profit aspects. The summary of three P (people, planet, profit) in Ethiopian cut flower industries are given below. Furthermore, the previous research works (Gezmu, 2013; Getu, 2009) are mentioned, which are focused at producers' level only *i.e.* value chain approach sustainability research was not conducted.

### **2.5.1. Social sustainability**

The Ethiopian rose flower industry has been criticized for poor working conditions on some farms (Partner Africa, 2009; Gezmu, 2013). Low wages, employment insecurity, absence of social dialogue, health and safety issues were reported as the main social issues in Ethiopian flower industries. Hence, Partner Africa in collaboration with Finlay's, Marks and Spencer, and the EHPEA developed a project that would enable producers to meet the standards, thereby improving conditions for workers. The project showed success as it has brought positive impact in solving workers' issues.

### **2.5.2. Environment sustainability**

Because cut flowers, particularly roses, require high amount of water, fertilizers and pesticides, environmental considerations are growing in flower farming. Surface water depletion is, therefore, one of the main constraints in rose flower production. The residue of pesticides and fertilizers left in the soil are also causing adverse effects on non-target organisms. Moreover, the sector lacks proper waste management system (Getu, 2009; Belay, 2014).

Due to the above mentioned problems, Hatch and Wells (2012) advised the Ethiopian government to consider the incoming floriculture companies to a more deeply understand of the environmental concerns. They also emphasized the importance of collaboration amongst EHPEA, Ethiopian government, and international actors for more effective regulation and industry self-governance with respect to environmental sustainability. This report also pointed out the need to consider developing a Gold Seal, which can be used to inform international consumers of the most sustainably-produced flower and therefore, provide incentive for companies to reach the Gold Level.

## **2.6. Conceptual framework and operationalisations**

Three sub-questions (challenges, current measures and feasible changes and inclusions) were developed for each social and environmental dimensions. While 8 and 7 aspects were identified for social and environmental dimensions, respectively, which were served as a base line to develop survey questions, checklists and define scope of the research (Figure 3). The social and environmental aspects were developed in accordance of the codes of practices of EHPEA.

### **2.6.1. Social aspects**

**Minimum sector salary:** The minimum sector salary for junior workers was developed (1450 Birr per month) by collective agreement of employees and employers. This basic salary was used to determine whether the flower industry is complying the code of practices or not.

**Working hours, resting days and overtime payment:** Six working days (48 hours) and one resting day (24 hours) in a week are determined as workers' right in Ethiopia (Federal Negarit Gazeta, 2004). Besides working and resting days, overtime payment rates for the workers has been also proclaimed *i.e.* workers who did overtime work from 6:00 am to 18 pm, 18pm to 22pm and 22pm to 6am shall get 1.25, 1.5 and 2.0 times of their salary. For those workers who did overtime during holidays, the employer shall pay double of their salary. These baselines were used to develop the survey questions and checklists.

**Freedom of association and collective bargaining:** The legal framework of rose flower industries in recognising the rights of workers to form groups and collective bargaining, availability and efficiency of the association was used in this research.

**Health and safety of workers:** The following points were included in this aspect; (1) free and appropriate personal protective equipment; (2) drinking water and washing facilities; (3) provide clean toilets and offer showers; and (4) clear safety instructions of chemicals.

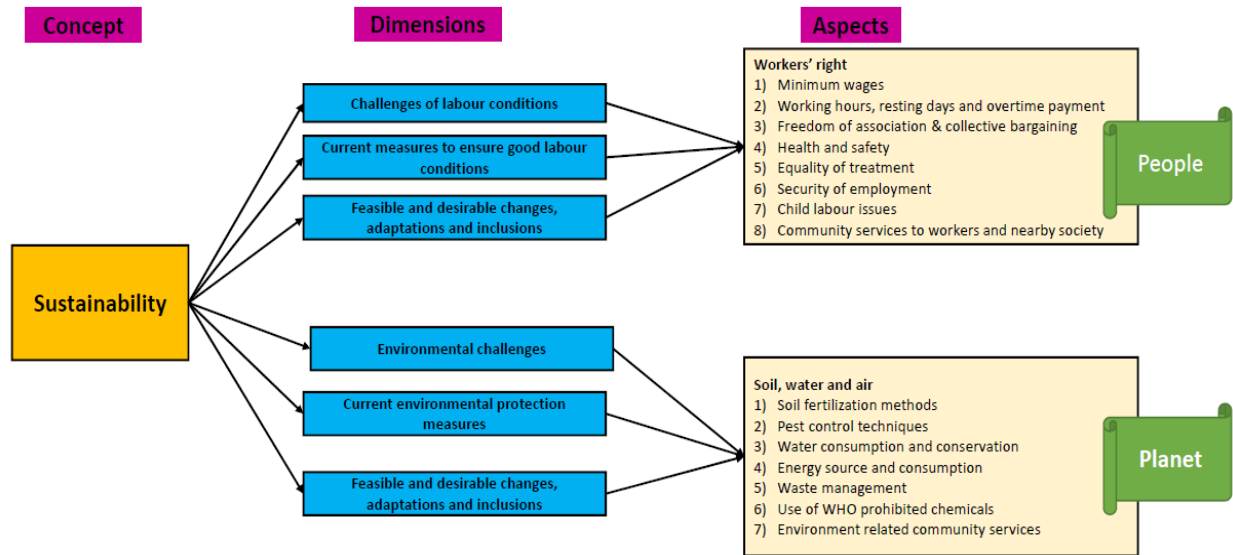
**Equality of treatment:** This aspect was used to determine how the rose producing companies were treating workers irrespective of their ethnic origin, sexual orientation, political opinion and religion.

**Security of employment:** Every worker (permanent, non-permanent and seasonal) shall get a copy of his or her contract from the employer. Thus, respondents were asked whether they received

**Child labour issues:** children below the age of 18 shall not work under hazardous conditions.

**Community services to workers and nearby society:** Some rose flower companies are involved in community service activities such as schools, health services and road access. All these services were also considered.

**Figure 2. Conceptual framework**



Source: Author's own construction (2019)

### 2.6.2. Environmental aspects

**Soil fertilisation methods:** Application of both organic and inorganic fertilizers are important to improve the physical, biological and chemical properties of the soil. The rose flower producing companies were, therefore, assessed whether they are considering appropriate soil fertilization practices or not.

**Pest control techniques:** Integrated pest management are effective and eco-friendlier than pesticides. Thus, the methods of controlling pests in rose production were assessed. Moreover, some pesticides are recognised as extremely hazardous and prohibited to use by WHO. Producers and input suppliers (EHSC) were assessed whether they know and purchase those WHO prohibited chemicals or not.

**Water consumption and conservation:** Rose is a tropical plant which require large amount of water for its production. Thus, the amount of water consumed by the farm should be recorded and reported. Furthermore, there must be efficient and wise water utilisation practices such as drip irrigation. Thus, companies were assessed whether they record and report the water consumption trends or not.

**Energy source and consumption:** Rose producing companies who use renewable energy (electricity) is eco-friendlier than those who use non-renewable energy sources (fuels and natural gases). Utilisation of energy of the company should always be recorded and reported. The four rose producing companies were assessed on these respects.

**Waste management system:** Care should also be given while disposing waste pesticides/chemicals and their containers since they may harm animals and humans if carelessly removed. The waste water should also be treated before it is going to be recycled. Waste removal routes should not be connected to drinking water sources, springs, ground water, surface water, rivers, dikes and lakes. Waste recycling activities were also taken into account.

**Environment related community services:** Rose producers may be involved in environment related community services such as planting of trees and sewage treatment activities. These activities, therefore, were identified and assessed.

### 3. METHODOLOGY

#### 3.1. Description of the study area

The study was conducted from June 26, 2019 to September 10, 2019 in four main rose growing regions with the objective of developing practical recommendations on environmental and social issues in order to comply the EHPEA code of practices and gain competitive market advantage in the Netherlands. Holeta, Sebeta, Menagesha and Ziway were purposively selected as study areas and their descriptions are stated as follows. Holeta is a district town which is 29 km far from Addis Ababa; located 2400 m.a.s.l altitude, 9° 00' N latitude and 38°30' E longitude. The minimum and maximum temperature is 6°C and 22°C, respectively (EIAR, 2019). Menagesha is also a town found next to Holeta in the Mirab Shewa Zone of the Oromia Region.

Furthermore, Sebeta is a highland area (2,356 meters above sea level) located 8°54'40"N latitude and 38°37'17"E longitude. However, in terms of distance from capital Addis Ababa, Ziway is relatively far (160 km) from the other three study areas (Oromia Regional State of Ethiopia, 2015). The location of these study areas are shown in Figure 3.

**Figure 3. Map of the study areas**



Source: Google map



### **3.2. Sampling techniques and sample Size**

Almost all rose producing companies in Ethiopia (95%) are found in the Central highlands (EHPEA, 2015) *i.e.* Addis Alem (2 companies), Holeta including Menagesha (6 companies), Sebeta (7 companies), Debre Zeit (6 companies) and Zeway (4 companies). However, from these 25 companies, only two Ethiopia-based (ET Highland Flora in Sebeta and Ethio Agri-CEFT PLC in Holeta), one Dutch-based (Ziway Rose PLC in Ziway) and one Indian-based (Dream flowers in Holeta-Menagesh) rose flower producing companies were selected for this study.

Because the investors in Holeta are of different origin and diverse type, two rose producing companies (Ethiopia and India-based) were taken. Moreover, Ziway was included as study areas since most Dutch-based rose producing companies are found in these areas. However, rose growers from Sebeta and Debre Zeit are of Ethiopian origin. As a result, one rose producer in Sebeta was selected due to the reason that the number of producers in Sebeta is slightly higher than Debre Zeit.

Twenty workers (at production and processing unit) in one industry from all job categories were taken randomly as respondents to answer the first research question (challenges of labour conditions). Four Focus group discussions were also conducted to understand the intention of the local community to the rose producers. While the 4 flower farm managers and labour union leaders, General Manager of EHSC, Advisor and Secretariat officer of the President of CETU, Senior Expert for Development Institutions Monetising Compliance and Regulation from EFCCC, Ministry of Labour and Social Affairs, EHPEA Training Department Head, Agriculture and Service Investment Projects Directorate Director from EIC, DBE Communication Director, Account Manager of FloraHolland Consultancy Services Plc, Control Union Ethiopia Inspection and Certification Plc coordinator and Certifier were taken as key informants to answer the other research questions. Thus, 80 questionnaires, 18 interview sessions and 4 FGD were conducted. Wholesalers, retailers and consumers were not included as interviewees as well as respondents. However, desk research and the results of the interview with Royal FloraHolland were used as a means to identify the strengths, weakness, opportunities and threats of those actors. In general, purposive sampling technique was used for the selection of study areas and rose flower producing companies while simple random sampling method was employed to select respondents.

### **3.3. Research strategy**

Both qualitative and quantitative data were collected through different data collection instruments. Desk research, case studies (interview session) and observation were used as qualitative data collection instruments. While quantitative data were collected through questionnaire. PRA tools (chain and farm mapping) was also used. The descriptions of each data collection instruments are given below (section 3.2.1. to 3.2.5.).

#### **3.3.1. Desk research**

Relevant information from journals, books and internet were collected and compiled to explain the research problem, stakeholders involved in rose value chain, their roles and gaps in the chain. In addition, it was used to elucidate the research findings. Moreover, relevant secondary data were collected from EFCCC, which were used for triangulation of the sub questions of planet.

#### **3.3.2. PRA tools**

**Farm mapping:** The workers of each rose flower producing company were asked to draw the value chain map of their farm as part of the participatory approach of this research. Talented workers were selected to draw the map whereas the other participants were guiding the draftsman how to draw the farm. Discussion during the mapping process was held between the researcher and participants. Based on interest, seven to eight employees per flower industry were selected and participated in this discussion.

### 3.3.3. Surveying

Semi-structured survey questions on labour conditions (minimum wages, working hours, resting days and overtime payment, freedom of association & collective bargaining, health and safety, equality of treatment, security of employment, child labour issues and community services to nearby society) was prepared for the workers.

### 3.3.4. Case studies

**Interview:** Checklists related with (i) planet and (ii) people aspects were prepared to all interviewees so as to answer the three sub questions of planet and people, respectively. The interview results of labour conditions were used as means of triangulation to the survey results of the respondents.

### 3.3.5. Observation

Besides interview, the planet aspects i.e. soil fertilization methods, pest control techniques, water source and irrigation methods, energy source and waste management methods, were observed and recorded with picture, audio and/or video evidences.

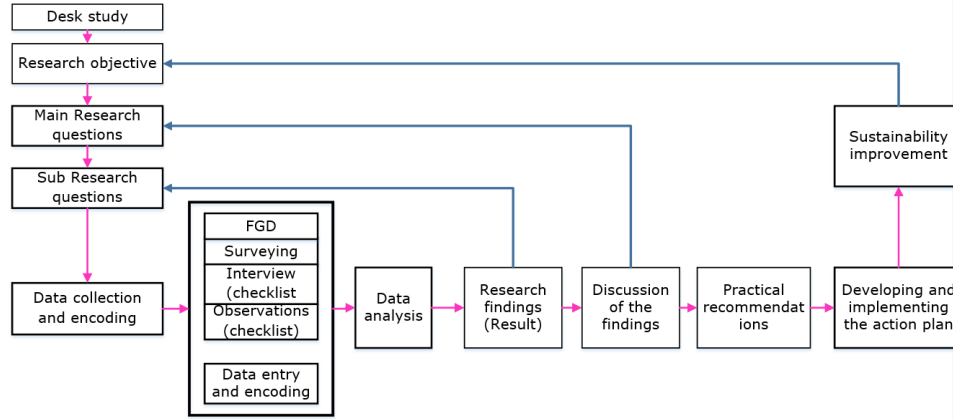
**Table 2. The purposes of data collection instruments**

Tools	Purpose	Output
<b>Desk research</b>	<ul style="list-style-type: none"> <li>- To answer the first main research question</li> <li>- In-depth understanding &amp; prioritization of problems</li> <li>- To analyse stakeholders with regard to sustainability</li> <li>- To explain the research findings (literature search)</li> </ul>	<ul style="list-style-type: none"> <li>- Identification of key stakeholders, their functions and gaps</li> <li>- Developing good research questions and objective</li> <li>- Stakeholders' matrix developed</li> <li>- Collection of sufficient evidences</li> </ul>
<b>PRA tools- farm mapping</b>	<ul style="list-style-type: none"> <li>- To make the research participatory type</li> </ul>	<ul style="list-style-type: none"> <li>- Obtaining accurate results from the respondents</li> </ul>
<b>Survey/questionnaire</b>	<ul style="list-style-type: none"> <li>- To answer the first sub question of 'people'</li> </ul>	<ul style="list-style-type: none"> <li>- Understanding the challenges of labour conditions in the selected rose producing companies</li> </ul>
<b>Interview</b>	<ul style="list-style-type: none"> <li>- To answer the other sub-questions of the three P's</li> </ul>	<ul style="list-style-type: none"> <li>- Obtaining sufficient information about the challenges, current measures and feasible adaptations and changes</li> </ul>
<b>Observation</b>	<ul style="list-style-type: none"> <li>- To obtain accurate information on the four sub-questions of planet.</li> </ul>	<ul style="list-style-type: none"> <li>- Achieving better results (on planet) with picture evidences</li> </ul>

Source: Author's own construction (2019)

### 3.4. Research framework

Figure 4. Research framework



Source: Author's own construction (2019)

### 3.5. Data analysis

The qualitative data were analysed using ground theory analysis (*i.e. organizing the data in fragments, removing irrelevant labels/texts, comparing the text of different labels, grouping related labels into sub categories in a coherent way and relating all sub categories to the research dimension*).

Whereas quantitative data were subjected to Kruskal-Wallis and Chi-Square test. Sex, age and job categories were used to present the characteristics of respondents while the company type/origin (Ethiopia, Dutch and India-based) was used to categorise data into different groups. SWOT tool of analysis were employed to identify the strengths, weaknesses, opportunities and threats of stakeholders with regard to the environmental and social dimensions.

Table 3. Sources of information and data analysis methods for each sub-question

Research question	Source of information	Data analysis	What was achieved
Q1	Survey, interview & observation	Kruskal-Wallis and Chi-Square Test	challenges of labour conditions
Q2	Interview and Observation	Ground theory	current measures taken to ensure good labour conditions
Q3	Interview and observation	Ground theory	feasible and practical solutions to the challenges of labour conditions
Q4	Interview, secondary data and observation	Ground theory	Most urgent environmental challenges of the rose flower value chain
Q5	Interview, secondary data and observation	Ground theory	Current environmental protection measures taken by rose flower producing companies
Q6	Interview, secondary data and observation	Ground theory	Desirable changes, adaptations and inclusions that can improve the implementation of environmental protection measures

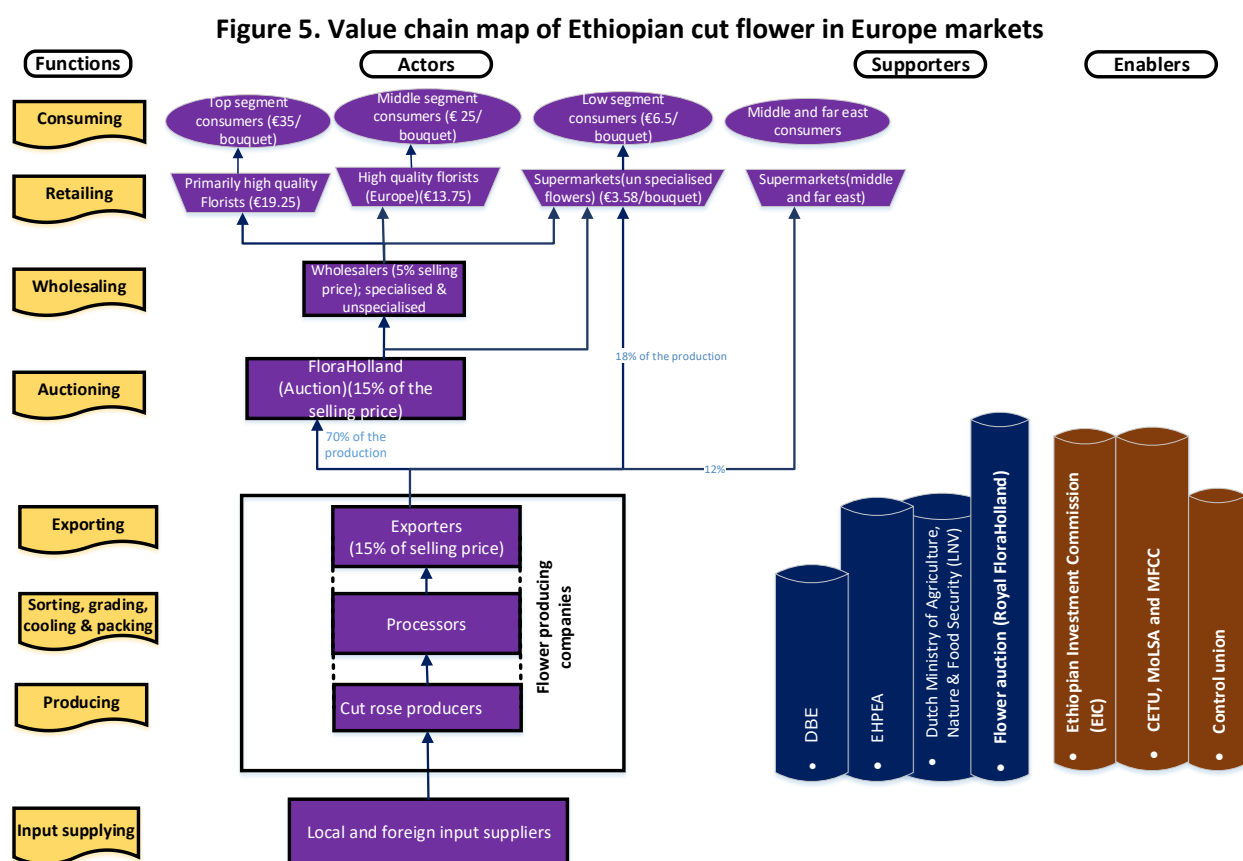
## 4. RESULTS

### 4.1. Stakeholders' Analyses to environmental and Social issues

#### 4.1.1. Chain map

Input suppliers, cut flower producing and exporting companies, Dutch auction (FloraHolland), wholesalers, supermarkets and florists, and consumers were identified as the key actors while EHPEA, whereas the Development Bank of Ethiopia, and Dutch Ministry of Agriculture, Nature and Food Security were identified as the supporters of the chain. The Ethiopian investment commission, Ministry of labour and social affairs, Environment, Forest and climate change, Confederation of Ethiopian Trade Union and certification bodies were identified as chain enablers.

A map showing the actors, supporters and enablers of cut flower value chain is given below (Figure 2).



Source: (Author's own construction, 2019)

Note: Even though the Dutch auction (Royal FloraHolland) does not own the product, it is here considered and included as an actor in the Ethiopian cut flower chain as almost 70% of the exports of cut flowers in Ethiopia (Key informant 10 and Dusk study) are passing throughout this marketing segment (Dusk study and key informant). The Royal FloraHolland, the biggest flower auction in the world, plays an important role in Ethiopian cut flower industry, and thus, very difficult to consider it as chain supporter.

## **A) Actors**

**1) Input suppliers:** Oleij and EHSC are the major local input suppliers. All rose flower producing companies studied were obtaining seedlings from oleij seedling and propagation company. Another domestic input supplier identified in this research is EHSC, a shared company of 30 horticulture growers and exporters. The company was buying suitable chemicals and fertilizers from multi-national company called 'Yara'; well-known company in Europe, where the main office is found in Norway. Thus, only registered agro-chemicals and fertilizers are imported. Recently, cargo services are facilitated by Ethiopian airlines not EHSC. Shortage of foreign currency was also identified as the main challenge for the company (Desk study and Appendix 4)

**2) Rose producers and exporters:** producing, processing and exporting of flowers are manipulated by growers. However, the growers faced different challenges while producing and exporting flowers. Limited market information, inability to get international certifications and fulfill the general and specific requirements of royal FloraHolland, poor handling practices in the airfreight, negative image of the society to the sector are the major challenges affecting rose growers in Ethiopia. Because of these reasons, Indian and Ethiopian-based rose growers were selling their products to middle and Far east (Desk study and Appendix 4). The detailed results of the four rose producing companies are given below (see section 4.2. to 4.4.)

**3) Royal FloraHolland:** Royal FloraHolland is the main flower market destinations of Ethiopian flowers. About 70% of Ethiopian flowers are passing through this auction. The countries supplying cut flowers to this big international auction are outside the European Union, where human rights, worker health and safety, and environmental protection are at risk. To reduce these issues, FloraHolland planned 90% of the products grown and traded sustainably by 2020 (Desk study and Appendix 4).

**4) Wholesalers:** Wholesalers buy flowers mostly from the auction market, and sell to the florists and supermarkets. Exporting, transporting/shipping, wholesaling /auctioning and retailing costs of cut flowers in Dutch auction are 20%, 15%, 20% and 45% of the final shop price, respectively. Both specialized and unspecialized rose flowers are traded by wholesalers (Desk study).

**5) Supermarkets and florists:** Supermarkets have three routes to buy; from wholesalers, auction and direct sales. Florists are the retailers responsible in retailing the medium and long-stem sized roses (specialized flowers) while supermarkets are retailing small stem sized roses (unspecialized flowers). Unspecialised rose flowers are those which fulfil only the general requirements of royal FloraHolland while specialised ones fulfil specific requirements besides general (Desk study).

**6) Consumers:** European consumers, nowadays, are concern about sustainability conditions of the flower growing, processing and trading. Roses in the consumer market are sold as in bouquets and single stems. In the Netherlands, the selling price of a bunch of 10 small roses in the supermarkets ranged from € 3 to € 10, whereas the selling price of a mono bunch of 15 bud medium-sized stem and a 15 bud long-stemmed red roses ranged from € 20 to € 30 and €30 to €40, respectively (Desk study). Thus, high price for sustainable products in Europe is demand-driven (Appendix 4)

## **B) Supporters**

**1) Ethiopian Horticulture Producer Exporters Association:** Ethiopian Horticulture Producer Exporters Association (EHPEA) is a not-for-profit organization meant to promote the interest of its members which are engaged in the production and export of flowers, vegetables, fruits, herbs, and cuttings. Currently, EHPEA registered members have reached 119. Policy advocacy, business promotion and information, and

capacity building to their members are the main tasks and responsibilities of the association. EHPEA also prepares platforms, where all stakeholders of the sector meet, discuss challenges, update progresses, exchange ideas and create a condition for collaborative engagement. Besides, it works to improve the relationships between farms and the surrounding community to maintain the sustainability of the sector (Desk study and Appendix 4).

**2) Development Bank of Ethiopia:** DBE offers medium and long term loans (up to 70% of the total investment) for development oriented projects in the government priority areas; commercial agriculture, agro-processing, manufacture industries, mining and extractive industries. However, bureaucratic procedures DBE was identified as a challenge for the sector (Desk study and Appendix 4).

**3) Dutch Ministry of Agriculture, Nature and Food Security (LNV):** engaged in capacity building program, provision of market information services and action plan for IPM as the sector is new for Ethiopia. IPM manuals are delivered to association and the farms (Desk study).

### **C) Chain influencers**

**1) Ethiopian Investment commission:** governmental organization with the mandate of promoting investment opportunities to foreign and domestic investors, issuing investment permits, trade registration and business licenses (Desk study and Appendix 4).

Before 20017, EHDA and EIC were a separate organisation having different responsibilities. EHDA was established in 2008 with the aim of regulating the volume of exported horticulture products, reporting the sector activities and achievements. However, this semi-autonomous organization was collapsed in 2017. Another organization called Ethiopian Horticulture and Investment Authority was established under ministry of Agriculture in 2017 with the responsibilities of providing license and land-lease, assessing the social and environmental impact of the sector and submitting the report to the regulatory body (Appendix 4).

The current government reform has brought also another structural changes *i.e.* EHIA was changed to Agriculture and Service Investment Projects Directorate in January, 2019 only to provide supporting and facilitation roles for agricultural investors (Appendix 4). Thus, absence of specific investment laws for the sector and structural instability was identified as a problem in this institution. Moreover, inefficient service delivery and bureaucratic procedures were identified as the problem for the sector.

**2) Ministry of labour and social affairs:** Checking and monetising employees and employers according to Council of Ministers Labour Proclamation No. 377/2003 is the responsibilities of minister of labour and social affairs; (1) ensuring good employers and employees relation so as to maintain industrial peace and the country's development, (2) guaranteeing workers and employers to form their association for solving labour disputes, (3) maintaining good labour conditions, occupational safety, health and work environment. However, minimum wage was not determined yet because of the reluctance of the government as it requires approval from the council of ministers (Desk study and Appendix 4).

**3) Environment, Forest and climate change commission:** are monetising and regulating the environmental issues of flower farms with respect to the compliance of Council of Ministers code of practice of the floriculture sector (Regulation number 207/2011). Assessing the flower farms regularly so as to (1) give feedbacks to them and (2) take measures whenever necessary are, therefore, the services of this organisation. However, measures were not taken yet on poorly performing flower industries due to the assumption that the whole sector will get paralysed as most flower industries do not fulfil the

minimum standards. Reluctance to take measures on poorly performing rose flower industries was identified as a problem for this organisation (Appendix 4).

**4) Confederation of Ethiopian Trade Union:** CETU is an organisation established by workers for the sake of collectively bargaining and exercising their rights, freedoms and responsibilities. The organisation has 9 industry federations and 1,300 workers' union. It has also more than 500,000 members. The workers' union in rose flower industries fall under Federation of Agriculture trade unions (Appendix 4). Effective labour union establishment and salary increment for its members are the major successes that this organisation achieved in the last two years. As a result, the labour that were contacted have good image to their association. In collaboration with Addis Ababa university, the minimum wage was analysed and a report submitted. However, there is no response until now. Thus, the influence of the government was mentioned as the main challenge not to exercise their rights and freedoms. Another challenge that CETU was facing is limited awareness of workers in the flower farms. Workers in some flower industries were refusing to pay money to the association.

#### 4.1.2. Product, Payment and Information Flow

Ethiopian cut rose producing companies have four lines of consumer segments; three of them are found in Europe and the other one is in the middle and far east.

**Product flow I:** Rose producers → FloraHolland → Wholesalers → Primarily high quality florists → top segment consumers

**Product flow II:** Rose producers → FloraHolland → Wholesalers → High quality florists → middle segment consumers

**Product flow III:** Rose producers → FloraHolland → Wholesalers → Supermarkets → low segment consumers

**Product flow IV:** Rose producers → FloraHolland → Supermarkets → low segment consumers

**Product flow V:** Rose producers → Supermarkets → low segment consumers

**Product flow VI:** Rose producers → Supermarkets → low segment consumers

Source (Desk study)

**Table 4. Product flows in the four cut rose producing companies**

Cut rose producing companies	Product flow
Ethio Agri-CEFT	III, IV, V and VI
ET Highland Flora	III, IV, V and VI
Dream Flowers	III, IV, V and VI
Ziway rose	I

Source (Key informant interview results, 2019)

The main reason why Ethio Agri-CEFT, ET Highland Flora and Dream Flowers using III, IV, V and VI is due to the fact that they don't have MPS A/BC, GAP, SQ, FFFP and Fairtrade certifications. Thus, these companies are selling unstructured cut roses in Europe, middle and Far East countries. From the interview results, however, Ziway roses was using Product flow I as it fulfilled MPS-GAP, SQ, FFFP and Fairtrade certifications. Only those flower companies who have these certifications (MPS-GAP, SQ, FFFP and Fairtrade certifications) can use the first product flow. Flower industries which have MPS-GAP, A/B/C and SQ certification can pass with product flow II. Those flower industries which fulfil the general criteria of VBN can have Product flow III or IV or V. The payment flows from consumers to rose producers while

information flows from rose producers to consumers and from consumers to producers (Key informant interview results).

#### 4.1.3. Average cost and selling price of Cut rose production in Ethiopia

Only average cost and selling price of cut rose was obtained from the association. However, other information was not given by companies for their confidentiality. The selling price of wholesalers, retailers and consumers are unknown. To obtain this information, the association and the FloraHolland consultancy services were asked. However, these organisations don't have relevant data for this information. Thus, it was not possible to calculate profit, gross margin, added value and shares for each rose flower industries without knowing the production and marketing cost and the selling price of the companies. Moreover, there were gaps in knowing the buying and selling prices of wholesalers, retailers and consumers. As a result, the average cost of production of rose with their selling price is given here below.

**Table 5. Average cost of cut rose in Ethiopia**

No	Description	Total cost ha <sup>-1</sup> (€)	Total cost m <sup>-2</sup> (€)
1	Land Preparation	3645.00	0.04
2	Application of Manure	405.00	0.00
3	Breaking of clods	4500.00	0.05
4	preparation of field layout	45.00	0.00
5	Digging of Pits	10125.00	0.10
6	Planting	1620.00	0.02
7	Weeding and top dressing	304.20	0.00
8	Application of pesticide	180.00	0.00
9	Application of irrigation water	405.00	0.00
10	Pruning	11520.00	0.12
11	Harvesting	14580.00	0.15
12	Guards (3 person days)	1944.00	0.19
13	Airfreight cost	131220.00	1.31
14	Other costs		8.70
	Total costs		10.68

Source (EHPEA)

**Table 6. Cost price, volume produced and selling price**

Cost m <sup>-2</sup> (€)	Average productivity m <sup>-2</sup> year <sup>-1</sup>	Cost price (Cost/output)	Average selling price per stem
€10.68	145 stems	7.37 Eurocent per stem	28.54 Eurocent

Source (EHPEA)

#### 4.1.4. SWOT Analyses of Stakeholders to environmental and social issues

SWOT analysis was made to identify the strengths, weaknesses, opportunities and threats of stakeholders in the rose value chain with regard to environmental and social issues in rose producing companies. The summary of the table is given below.



**Table 7. SWOT analyses of stakeholders towards environmental and social issues in the rose flower industries in Ethiopia**

<b>Stakeholders</b>	<b>Strengths</b>	<b>Weaknesses</b>	<b>Opportunities</b>	<b>Threats</b>
<b>EHSC</b>	<ul style="list-style-type: none"> <li>- Only registered agro-chemicals are imported</li> <li>- Timely supply fertilizers and pesticides</li> </ul>	<ul style="list-style-type: none"> <li>- Cargo services taken by Ethiopian airlines</li> <li>- Higher cost of inputs</li> </ul>	<ul style="list-style-type: none"> <li>- Growth of horticulture industries</li> </ul>	<ul style="list-style-type: none"> <li>- Shortage of currency</li> </ul>
<b>Rose producers</b>	<ul style="list-style-type: none"> <li>- Producing, processing &amp; exporting functions are manipulated by themselves so that it is not difficult to improve the sustainability of the sector</li> </ul>	<ul style="list-style-type: none"> <li>- Most rose producers not complying the minimum criteria</li> <li>- Less experience in market information and linkage</li> </ul>	<ul style="list-style-type: none"> <li>- Publicized Dutch auction market information</li> <li>- New market opportunities (middle &amp; Fareast)</li> </ul>	<ul style="list-style-type: none"> <li>- Negative image of the society</li> <li>- Intensive use of natural resources</li> </ul>
<b>FloraHolland</b>	<ul style="list-style-type: none"> <li>- Committed to trade sustainable products</li> </ul>	<ul style="list-style-type: none"> <li>- Lower selling price compared to direct market</li> </ul>	<ul style="list-style-type: none"> <li>- Shift of consumer demands to sustainable product in Europe</li> </ul>	<ul style="list-style-type: none"> <li>- Less concern on sustainable product in middle and far east consumers</li> </ul>
<b>Wholesalers</b>	<ul style="list-style-type: none"> <li>- Trade both specialised and unspecialised flower</li> </ul>	<ul style="list-style-type: none"> <li>- Bypassing of supermarkets</li> </ul>	<ul style="list-style-type: none"> <li>- The presence of Dutch auction</li> </ul>	<ul style="list-style-type: none"> <li>- Consumer preference</li> </ul>
<b>Retailers</b>	<ul style="list-style-type: none"> <li>- Key players &amp; price takers</li> </ul>	<ul style="list-style-type: none"> <li>- Fair trade issues</li> </ul>	<ul style="list-style-type: none"> <li>- Demand increment</li> </ul>	<ul style="list-style-type: none"> <li>- Critics from growers</li> </ul>
<b>European consumers</b>	<ul style="list-style-type: none"> <li>- Pay premium prices for sustainable product</li> </ul>	<ul style="list-style-type: none"> <li>-</li> </ul>	<ul style="list-style-type: none"> <li>- Presence of international standards and certifications</li> </ul>	<ul style="list-style-type: none"> <li>-</li> </ul>
<b>DBE</b>	<ul style="list-style-type: none"> <li>- Provide soft loans to flower investors</li> <li>- Concern on environment is</li> </ul>	<ul style="list-style-type: none"> <li>- Implementations lack practicality</li> </ul>	<ul style="list-style-type: none"> <li>-</li> </ul>	<ul style="list-style-type: none"> <li>- Cheating of customers</li> </ul>

	included as one of DBE values	<ul style="list-style-type: none"> <li>- Bureaucratic procedures for its services</li> <li>- DBE rules and regulations lack internationality</li> </ul>		
<b>EHPEA</b>	<ul style="list-style-type: none"> <li>- Exhibition; business promotion and information</li> <li>- Policy advocacy</li> <li>- Training/capacity building especially on the code of practices</li> </ul>	<ul style="list-style-type: none"> <li>- Little power to influence the members</li> <li>- Lack of commitment of their members to fulfil sustainability criteria</li> </ul>	<ul style="list-style-type: none"> <li>- Smooth relations with government and certification agents</li> </ul>	<ul style="list-style-type: none"> <li>- Some policy and regulation gaps</li> </ul>
<b>LNV</b>	<ul style="list-style-type: none"> <li>- Assisting EHPEA in developing the code of practices</li> <li>- Capacity building</li> </ul>			
<b>EFCCC</b>	<ul style="list-style-type: none"> <li>- Started to assess the status of flower farms with the code of practices</li> </ul>	<ul style="list-style-type: none"> <li>- Reluctant to take measure on poorly performing industries</li> </ul>	<ul style="list-style-type: none"> <li>- Floriculture sustainability initiative</li> </ul>	<ul style="list-style-type: none"> <li>- Government influence</li> </ul>
<b>MoLSA</b>	<ul style="list-style-type: none"> <li>- Working to maintain industrial peace</li> </ul>	<ul style="list-style-type: none"> <li>- Bureaucratic procedures</li> <li>- Reluctant to take measure</li> <li>- No minimum wage</li> </ul>	<ul style="list-style-type: none"> <li>- Presence of EFF and CETU</li> </ul>	<ul style="list-style-type: none"> <li>- Government influence</li> </ul>
<b>CETU</b>	<ul style="list-style-type: none"> <li>- Improvement in workers bargaining power</li> </ul>	<ul style="list-style-type: none"> <li>- Awareness creation problems in their members</li> <li>- Presence of companies without labour union</li> </ul>	<ul style="list-style-type: none"> <li>- National and international standards</li> </ul>	<ul style="list-style-type: none"> <li>- Government influence and reluctance</li> </ul>
<b>EIC</b>	<ul style="list-style-type: none"> <li>- Provide land to investors if there is social and</li> </ul>	<ul style="list-style-type: none"> <li>- Structural instability (e.g.</li> </ul>		

	environmental Impact Assessment	Collapse of EHDA) - Bureaucratic procedures		
<b>Certification agents</b>	- Improve sustainability	-	- Trading sustainable products has given due attention	-

Source (Desk study and interview results, 2019)

## 4.2. Survey results

### 4.2.1. Characteristics of respondents

From 80 respondents, 61 (76.25%) were females and 19 (23.75%) were males (Figure 6). Moreover, most respondents were found with the age group of 18-29 (72.50%) (Figure7). The majority respondents' level of education was found in category of elementary school (47.5%) followed by high school (28.75%), diploma (12.5%), bachelor degree (8.75%) and illiterate (2.5%) (Figure 8). Four assistant supervisors and four supervisors were also taken as respondents for this survey. See the summary of respondents below.

Figure 6. Gender ratio of the respondents

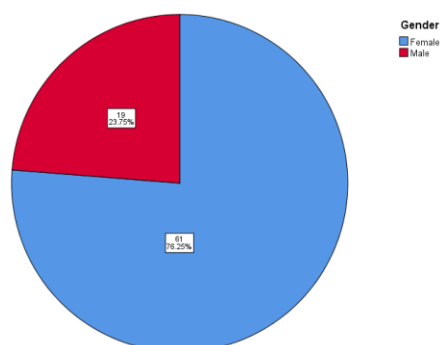


Figure 7. Age groups of the respondents

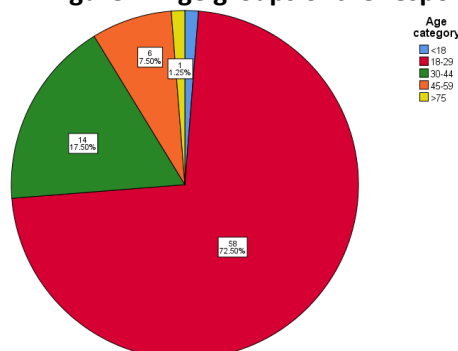


Figure 8. Respondents level of education

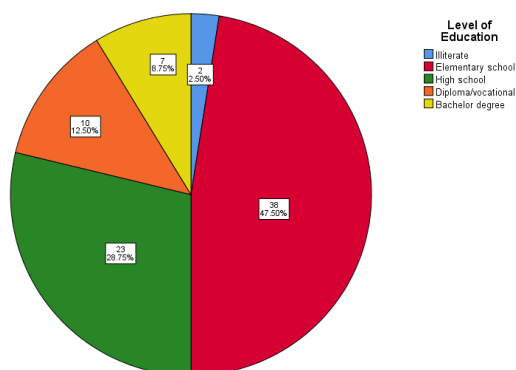
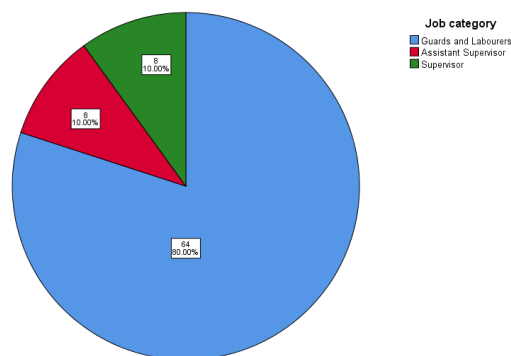


Figure 9. Respondents job category



#### 4.2.2. Basic salary for junior workers

There was significant difference on basic salary for junior workers (less than one-year experience) among the four flower producing companies;  $H(3) = 79.00$ ,  $p = 0.000$  as shown below in Appendix 1. Junior workers working in Ziway rose received the highest salary ( $> 1450$  Birr) while ET highland workers received the lowest ( $< 1450$  Birr) (Table 5).

**Table 8. Basic salary for Junior Workers among four rose producing companies**

		Basic salary for Junior workers			Total
		<1450 Birr	=1450 Birr	> 1450 Birr	
Company Name	Ethio Agri-CEFT	0	20	0	20
	ET Highland Flora	20	0	0	20
	Dream flower	0	20	0	20
	Ziway Rose	0	0	20	20
Total		20	40	20	80

(Survey result, 2019)

#### 4.2.3. Working hours and days

There were no significant differences on working hours per day, working days per week and resting days per week among the four flower companies;  $H(3) = 0.000$ ,  $=1.00$  (Appendix 1). All of the respondents answered eight as working hours per day, six as working days per week and one as resting day per week.

#### 4.2.4. Rate of overtime payment- 6am to 18pm

There was significant difference on rate of overtime payment- from 6 am to 18 pm among the four flower producing companies;  $H(3) = 79.00$ ,  $p = 0.00$  (Appendix 1). According to the respondents' result, Ethio-Agri-CEFT and Ziway rose gave the highest overtime payment rate -6am to 18pm ( $1.25 \times$  salary) to workers while lowest on ET Highland Flora and dream flowers (same as salary) (Table 6).

**Table 9. Rate of overtime payment- 6am to 18pm among the four rose producing companies**

		Rate of overtime payment- 6am to 18pm		Total
		same as salary	$1.25 \times$ salary	
Company Name	Ethio Agri-CEFT	0	20	20
	ET Highland Flora	20	0	20
	Dream flower	20	0	20
	Ziway Rose	0	20	20
Total		40	40	80

Source (Survey result, 2019)

#### 4.2.5. Rate of overtime payment- 18pm to 22pm

There was also significant difference on rate of overtime payment from 18 pm to 22 pm among the four flower producing companies;  $H(3) = 79.00$ ,  $P = 0.000$  (Appendix 1). Ethio-Agri-CEFT and Ziway rose ( $1.5 \times$  salary) gave higher over time payment rate from 18 to 22 pm compared to ET Highland Flora and Dream flower (same as salary) (Table 7).

**Table 10. Rate of overtime payment- 18pm to 22pm among the four rose producing companies**

		Rate of overtime payment- 18pm to 22pm			Total
		same as salary	1.25*salary	1.5*salary	
Company Name	Ethio Agri-CEFT	0	0	20	20
	ET Highland Flora	20	0	0	20
	Dream flower	20	0	0	20
	Ziway Rose	0	0	20	20
Total		40	0	40	80

Source (Survey result, 2019)

#### 4.2.6. Rate of overtime payment- 22pm to 6pm

There was significant difference on rate of overtime payment from 18 pm to 22 pm among the four rose flower producing companies;  $H(3) = 79.00$ ,  $P = 0.000$  (Appendix 1). Similar to the above overtime payment results, Ethio-Agri-CEFT and Ziway rose were paying the higher overtime payment rate ( $2 \times \text{salary}$ ) while ET Highland Flora were the lower (same as salary) (Table 8).

**Table 11. Rate of overtime payment- 22pm to 6am among the four rose producing companies**

		Rate of overtime payment- 22pm to 6am		Total
		same as salary	$2 \times \text{salary}$	
Company Name	Ethio Agri-CEFT	0	20	20
	ET Highland Flora	20	0	20
	Dream flower	20	0	20
	Ziway Rose	0	20	20
Total		40	40	80

Source (Survey result, 2019)

#### 4.2.7. Rate of overtime payment during holidays

There was significant difference on rate of overtime payment during holidays among the four rose flower producing companies;  $H(3) = 79.00$ ,  $P = 0.000$  (Appendix 2). Ethio-Agri-CEFT and Ziway rose were providing higher overtime rate during holidays ( $2.5 \times \text{salary}$ ) compared to ET Highland Flora and Dream Flower (Table 9).

**Table 12. Rate of overtime payment during holidays among the four rose producing companies**

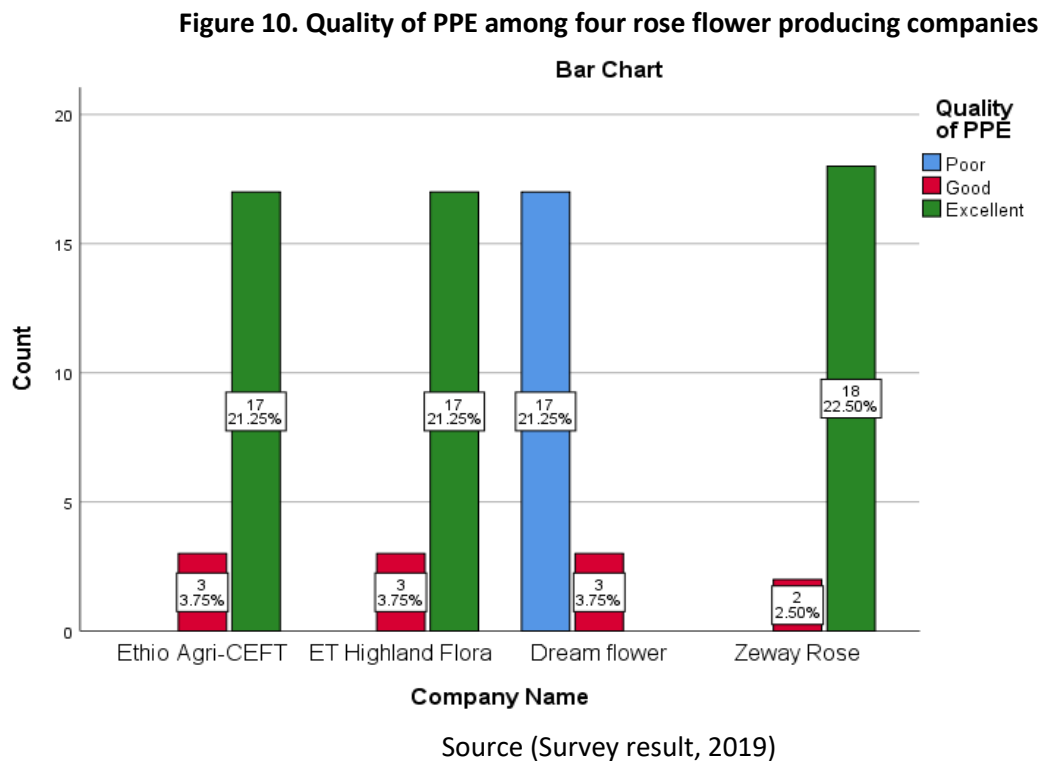
		Rate of overtime payment during holidays		Total
		$2 \times \text{salary}$	$2.5 \times \text{salary}$	
Company Name	Ethio Agri-CEFT	0	20	20
	ET Highland Flora	20	0	20
	Dream flower	20	0	20
	Ziway Rose	0	20	20
Total		40	40	80

Source (Survey result, 2019)

There was no significant difference on the effectiveness of workers' association among the four flower producing companies;  $H(2) = 3.913$ ,  $p = 0.141$  (Appendix 2)

#### 4.2.8. Quality of PPE

There was significant difference on quality of personal protective equipment among the four flower producing companies;  $H(3) = 59.927$ ,  $P = 0.000$  (Appendix 2). Eighteen respondents in Ziway rose and seventeen respondents in Ethio-Agri-CEFT and ET Highland flora responded the quality of personal protective equipment as excellent while seventeen respondents in dream flower answered as poor (Figure 10).

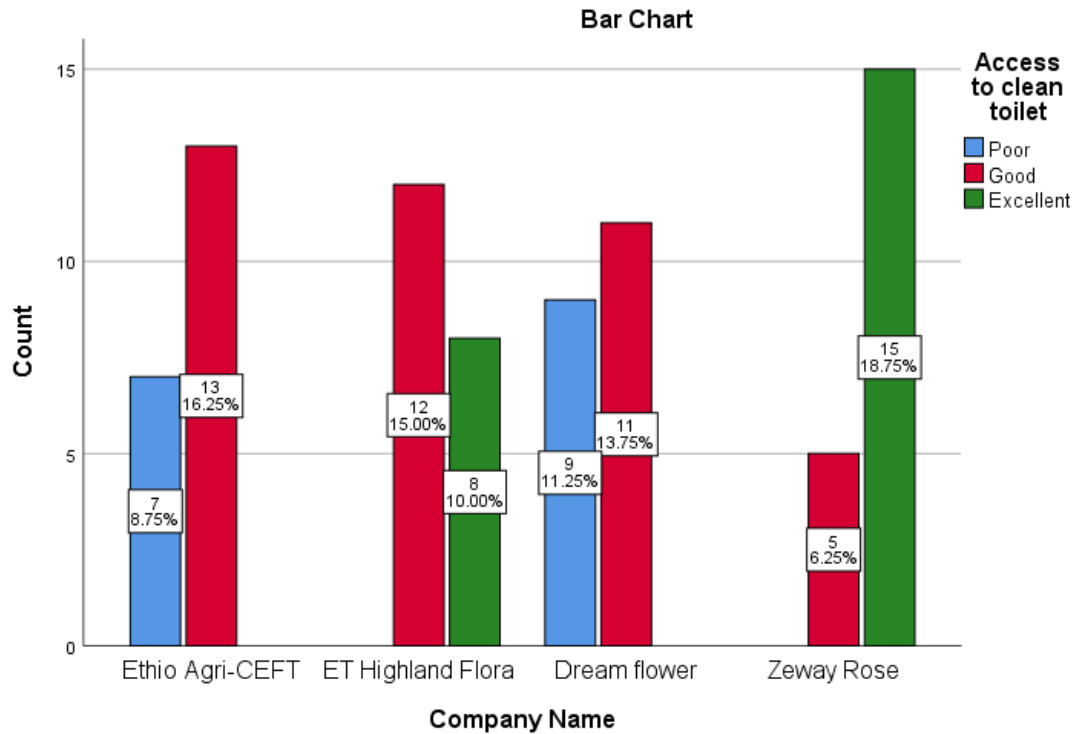


There was no significant difference on access to pure water for drinking among the four rose flower producing companies;  $H(3) = 2.836$ ,  $p = 0.418$  (Appendix 2).

#### 4.2.9. Cleanness of toilet and shower rooms

There was significant difference on cleanness of the toilet among the four rose flower producing companies;  $H(3) = 42.415$ ,  $p = 0.000$  (Appendix 2). Fifteen respondents in Ziway rose responded as excellent while nine respondents in Dream Flower answered as poor (Figure 11).

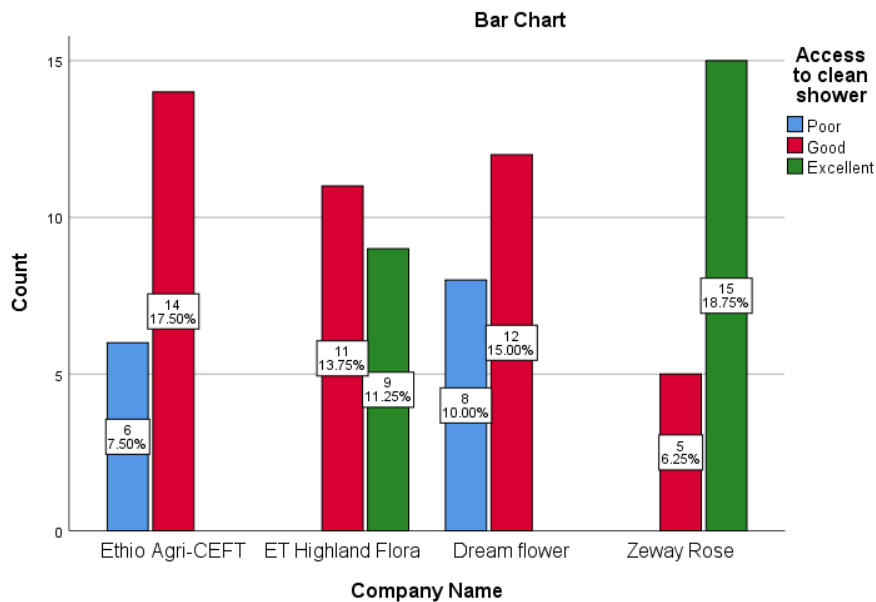
**Figure 11. Cleanness of the toilet among four rose flower producing companies**



Source (Survey result, 2019)

There was significant difference on access to clean shower among the four rose producing companies;  $H(3) = 41.808$ ,  $p = 0.000$  (Appendix 2). Most respondents (15) in Ziway rose responded the question as excellent while respondents in dream flowers responded as good and poor. The summary of the result is shown below (Figure 12).

**Figure 12. Access to clean shower among four rose flower producing companies**

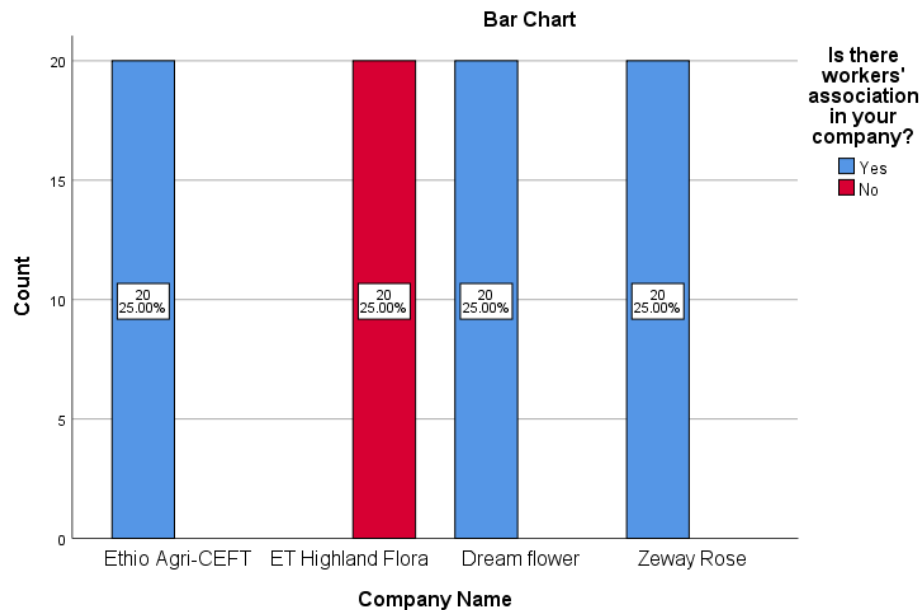


Source (Survey result, 2019)

#### 4.2.10. Presence of workers' association

There was significant difference on the existence of workers' association among the four flower producing companies;  $H(3) = 80.000$ ,  $p = 0.000$  (Appendix 3). Ethio-Agri-CEFT, dream flower and Ziway rose had workers' association while ET Highland Flora not. The summary of the result is shown in the figure 13 below.

**Figure 13. Respondents response for the survey question 'Is there workers' association in your company?' among the four rose flower producing industries**



Source (Survey result, 2019)

#### 4.3. Labour and social conditions

##### 4.3.1. Current measures to ensure good labour conditions

The complains of workers in the floriculture industry in the last two years has resulted the establishment of collective bargaining agreement as the labour law proclamation promotes and recognises this agreement. Thus, collective bargaining agreement was made between the employers and employees in most flower industries and agreed to pay 1450 Birr per month as minimum salary and 150 Birr per month as incentive for works who did their job effectively without absenteeism. Three rose flower industries (Ethio Agri CEFT, dream flowers and Ziway rose) had collective bargaining agreement with their workers. However, such agreement was not made in ET Highland flora due to the absence of labour union (Appendix 4).

All respondents from the survey result and key informants in the companies responded the equal treatment of workers irrespective of their ethnic, sex, political opinion and religion differences. The same responses were recorded in providing formal agreement/official letter to all employees. Every worker in the company had also 8 hours working per day and one resting day per week, which was in accordance with the national labour law proclamation (Survey result and Appendix 4).



**1) Ethio-Agri-CEFT:** - Ethio Agri-CEFT has made tremendous progresses for the improvement workers' issues (salary, working hours and days, resting days, health and safety issues, labour union, child labour issues and security of employment). For instance, the salary of labourers had raised from 1228 Birr to 1450 Birr. The overtime payment rate was also in line with labour proclamation of the country. In collaboration with confederation of Ethiopian Trade Union, effective labour union was also established. Recently, the workers got the opportunity to raise their issues. Moreover, Ethio-Agri-CEFT was supplying standardized personal protective equipment to the workers. Clear safety instructions and handling procedures of chemicals to the workers were also given (Survey result and Appendix 4).

As part of corporate social responsibilities, Ethio Agri-CEFT (1) had built 4.5 km asphalt road, drinking water services and public police offices; and (2) provided uniform to the students of pro-poor families (Appendix 4, FGD 1 and observation). In addition, the company created 460 job opportunities to the nearby community.

**Figure 14. Asphalt road (4.5 km) built by Ethio-Agri-CEFT to the community**



Source: (Author, 2019)

**2) ET Highland Flora:** - ET Highland Flora has taken different measures for the improvement of labour conditions. Similar to Ethio Agri-CEFT, the company was providing free and standardized personal protective equipment. New PPE were supplied to all workers in every six months to one-year interval (Appendix 4). Special attention was given for those workers who were working in crop protection, and their overall health status were going to be checked in every three months. While other workers had two times general health check-up services in a year. Moreover, toilets, showers and drinking water services for workers were also clean and safe though it was not comparable with Ziway rose (Survey result, Appendix 4 and observation).

**Figure 15. Workers medical treatment in ET Highland Flora clinic**



Source: (Author, 2019)

ET Highland Flora created job opportunities for 530 workers (Appendix 4). It also provided uniform for the students of pro-poor families, supplied electricity and drinking water services as part of corporate social responsibilities (Appendix 4, observation and FGD 2). Breakfast services to the workers were given (observation). In addition, ET Highland Flora had celebrated Annual Workers Festival on 04 August 2019. Higher officials of the Oromia Regional State, community representatives, Sebeta District administration officials, Elders, Representatives of the different religious groups, youth representatives and the author of this research were the invited guests of the festival. From 530 workers, 410 workers were received award from the owner (observation).

**Figure 16. Pictures showing some of the events of ET Highland Flora Annual Workers' Festival**



Source: (Author, 2019)

**3) Dream Flowers:** - Dream flowers took different measures to improve the working environment of workers in the company. The establishment of Labour union was one of the measures taken as to mention (Survey result and Appendix 4). The necessary safety instructions of chemicals for workers were provided as well. The company created 203 job opportunities to the society. Dream flowers was also providing drinking water for the communities (Appendix 4 and FGD 3). However, the Menagesha town administration started to construct new road around the farm. As a result, big ditch was created between the farm and the community who were using the water. The town administration promised to build the bridge; but still not.

**4) Ziway Rose:** Ziway rose was paying 1750, 1850 and 2000 Birr for workers with < 1-year, 1 to 5-years and >5-years work experiences, respectively. In addition, 120 and 240 Birr for transport and new year celebration, respectively were also paid to every worker (Survey result and Appendix 4).

The company covered all medical treatments of workers; both job related and non-job related (Key informant 4). Appropriate new PPE was provided to the workers with one-year interval (Survey result and Key informant 18). Drinking water, clean toilets, showers and washing facilities were available and properly installed. Special shower rooms were built for spray workers (Appendix 4 and observation).

**Figure 17. Special shower rooms for spray workers in Ziway rose**



Source: (Author, 2019)

Training to workers on how to keep their hygiene, safe use of condoms and control of sexually transmitted diseases were given by peer educators (Appendix 4). Moreover, four months' maternity leave and one-time breast feeding per day for about 6 months was permitted. All workers had 18 days' annual leave though the country's legislation only 14 days.

Ziway rose created employment opportunities for 1250 workers; and two recreational centres with television services for workers were built. The company was Fairtrade certified and thus, the certification agent was providing subsidised (40%) food services to workers on monthly basis *i.e.* wheat flour, maize and rice (Appendix 4).

In collaboration with the four sister companies (Sher company, Hurberg rose, AQ rose), school, hospital and stadium were built for workers and nearby communities (Appendix 4, FGD 4 and Observation). Sher school consisted students from KG level up to preparatory. Half (50%) quota was given for pro-poor workers' children and the other half was given the pro-poor communities (Appendix 4). 6000 students were taught in the past 12 years. And the school received medals as top ranked school in East Shewa.

**Figure 18. Sher Ethiopia hospital and schools built by four sister companies of the Sher company**





Source: (Author, 2019)

In collaboration with IDH (NGO), the sister companies planted seedlings on 80 ha as part of protecting the lake (Appendix 4). Moreover, the sister companies participated in building the police office of the Batu district. In 2018, there was drought. During that time water was brought to the affected farmers. Moreover, the four companies also built 100 houses for communities who displaced from Ethio-Somali region (3.2 million birr). In last and this year, the four companies spent about 8.5 million Birr as part of fulfilling corporate social responsibilities.

#### 4.3.2. Challenges and problems in the labour conditions

The labour leaders pointed out that low salary as the main challenge workers in the four rose producing companies. Minimum wage was not determined in Ethiopia. As a result, different flower producing companies had different payment rates. However, the salary doesn't cover the daily expenses of workers. In line with this, key informant 17 (Appendix 4) explained the case with example; *'The price of 'Shiro'; unleavened bread with sauce in Menagesha town was around 25 Birr indicating that the payment cannot even cover breakfast and lunch'*.

Different key informants also mentioned that (1) hard to get new PPE when the old PPE accidentally damaged and (2) occasional chemical spraying while workers working in the greenhouse. The PPE of some workers may get damaged accidentally due to work-related reasons. During the time, the workers were suffering to get new PPE. Furthermore, clear safety instructions of chemicals to workers were given. In rare cases, however, chemicals sprayed while workers working in the greenhouse.

Interference of the top management bodies on the activities of labour union and the members was also mentioned as a problem to ensure good labour conditions (Appendix 4). Key informant (15) in Appendix 4 pointed the management body gave promotion to their relatives without the permission of labour union. *The workers during the time complained the activities of labour union.* In addition, key informant 17 in Appendix 4 stated the enforcement of employees by top managers to work on extra time without their willingness. *There was one female worker who faced such difficulty. Because of the enforcement, she started to work overtime during the night. One day, she got grievance by youngsters while returning home at night.* These points are given as examples, all companies studied have such complains.

The main challenge in Ethiopian rose flower industry is the negative image of the society to the sector (Interview results of farm managers of the four rose producing companies studied). *Despite its contribution in generating foreign currency and employment opportunity, the society has blind judgment and negative*

*impression on the chemicals used by the rose producers. Such mind-set and attitude of the people makes it difficult to communicate and collaborate with different stakeholders including the researchers as they are coming to the sector with that bad impressions and attitudes. This is, therefore, the biggest challenges that Ethio Agri-CEFT, ET Highland Flora, dream flowers and Ziway rose encountered while working for the improvement of labour conditions and social corporate responsibilities.*

They also mentioned inadequate support of the government as a challenge for their company while working for the improvement of labour conditions. *'The governmental sectors mostly coming to criticise rose producing companies rather than being part of it. Most rose producing companies are eager to improve the sustainability of the sector. However, regular support from governmental institutions are highly required.'*

**1) Ethio Agri-CEFT:** - Though Ethio Agri-CEFT PLC has made important progress in improving labour conditions, different challenges were identified. For example, the company faced difficulties in providing clean toilets and showers (Observation and Survey result).

**Figure 19. Sanitation problems of shower and toilet rooms in Ethio Agri-CEFT**



Source (Author, 2019)

Absence of free breakfast and lunch services in the company was also mentioned by Key informant 15 and FGD 1 as a challenge of labour conditions. Ethio Agri-CEFT was not providing food services to its workers. However, *workers working efficiency will be improved if the company provides breakfast and lunch services.*

**2) ET Highland Flora:** Key informant 16 mentioned the salary of junior workers was around 1150 Birr per month, which was lower compared to other flower producing companies (mostly greater than or equal to 1450). Overtime payment rate during day, night and holidays were also low and not in accordance with the legislation of the country (Survey result).

The company had legal framework to establish workers' association. As a result, workers' association was established previously. However, currently, the workers' association was stopped its activities due to the unwillingness of members to pay money and limited awareness creation activities on the importance of labour union (Survey result and Appendix 4). *The only fund source for trade unions in flower farms were the members. However, the members in some flower industries had refused to pay money for the trade union due to economical reason* (key informant 6). Key informant 2 explained the reason of ineffectiveness of previous labour union as *'most workers expected salary increment since after labour union*

*establishment. The labour union's activities and members' expectation were not balanced. As a result, the labour union failed to provide services to the members'.*

**3) Dream flowers:** Lower overtime payment rate, cleanness of shower and toilet rooms, poor quality of PPE and medication coverage issues were reflected as challenges of workers in dream flowers. The company was paying overtime according to their salary rate when workers work more than 8 hours per day (Survey result and Appendix 4), which was not in accordance with the labour proclamation of the country.

PPE of Dream flowers were of poor quality compared to other three flower producing companies sampled (Survey result and Appendix 4). *With this low quality PPE, the company was waiting more than one year for purchasing the new PPE though the legislation orders between 6 months to one-year interval* (Key informant 17 in Appendix 4). Toilets, showers and washing facilities also lacked cleanness and proper water installation system (Observation and Survey result). The company was covering only work-related health problems (chemical injury, cutting, falling down at work); it was not in accordance with the rules and regulations of the country (Appendix 4). Though there was an agreement with the district health centre, most workers pointed out as the main challenge for them since the health costs were not covered by the company. The participants in FGD 4 also mentioned the bad smell of chemicals during morning and evening time as societal problems.

**Figure 20. Toilet and shower rooms of Dream flower workers**



Source (Author, 2019)

The labour union leader mentioned that Dream flower was the weakest of all companies found in Menagesha with regard to free food services (breakfast and lunch). The company was not actively involved in corporate social responsibilities (Appendix 4 and FGD 3). Moreover, *the nearby community always heard workers complain on the company. As a result, the community caught bad/negative perception on the company* (Key informant 17 in Appendix 4). *The company started to build green houses on the empty spaces left on the farm. But, the community started conflict with the company. This clearly indicated that the company should take measure so as to obtain acceptance by the community. Otherwise, the workers of the company will get risk of unemployed if the conflict of the society with the company continues. Different community services as plan level were developed, but, there was gaps in implementing it.*

**4) Ziway rose:** - Ziway rose showed good performance with regard to labour conditions and corporate social responsibilities. However, there were some points reflected by the key informants as problems; Key informant 4 in Appendix 4 forwarded **inflation** as a main challenge in the improvement of labour

conditions. The company was providing salary increment on yearly basis (ranged from 10 to 30%). However, the inflation rate was increasing beyond their salary increment. This was one of the difficulty that the company was facing while working for the improvement of labour conditions.

Moreover, key informant 4 added the negative image of the society and unemployed youngsters were the challenges while working for the improvement of social corporate responsibilities. *Twelve persons from elders, youngsters and religious leaders were invited to visit the farms; (1) to obtain comments and critics from them, (2) to understand the intention of the nearby community and (3) to change the mind-set of the society towards the company. The company was communicating with this team once in a month. However, it was realised that changing the image of the society is not an easy task; requires longer time.*

*Political reformation was made in Ethiopia last year. With respect to such political reformation, youngster groups were formed. By looking this situation, the company decided to work with these groups. This year, 70 youngsters were working with the company (drinking water supply, transporting green waste to the outsourced company and supplying food services). Though significant achievements were made, the company faced different challenges to bring these youngsters as collaborators.*

#### **4.3.3. Feasible and desirable changes, adaptations and inclusions**

Labour union leaders suggested the government to establish a minimum wage, which can cover the living expenses of workers. The key informant from CETU also advised in the same way. Thus, focus shall be given in fixing the issues of minimum wage. Moreover, the companies should also consider minimum wage as their own issue.

*Supplying new PPE whenever necessary shall be the focus of four rose producing companies (Key informant 18). This was actually a silly problem that it can be solved. It is, therefore, necessary to provide new PPE in case the old PPE may get damaged due to work-related problems. In addition, adjustment of chemical spraying time.*

*The top management bodies should not influence the activities of workers and labour union as far as they are exercising their rights and freedoms according to the rules and regulations of the country (key informant 6, 15, 16, 17 and 18). Though they made tremendous progresses, the four rose flower producing companies should check whether the workers' freedoms and rights are fully respected or not.*

*Awareness creation of the sector by different stakeholders and preparation of open farm day shall always be conducted to change the negative image of the society (Appendix 4). Extrapolating the experiences of Ziway rose (inviting of different groups of the society to open farm day) to Ethio Agri-CEFT, ET Highland Flora and Dream flowers are highly essential (Author's reflection).*

Moreover, key informant 1, 2, 3 and 4 mentioned that *the governmental sectors should be part of the problem rather than criticizing the companies. Thus, preliminary research should be conducted by the government so as to develop strategies for the improvement of labour conditions. Incentives shall be prepared for best performing rose producing companies.*

**1) Ethio Agri-CEFT:** - The survey, observation and key informants result clearly dictates that Ethio Agri-CEFT should focus in providing clean toilets and showers for the workers. Plan to amend toilets and shower rooms shall be done ahead of time. Otherwise, safe working environment for the employees cannot be maintained. Another suggestion reflected was the essentiality of supplying food services



especially breakfast and lunch to the workers. Most workers were starting their work without taking breakfast (Appendix 4). In fact, the company has plan to build cafeteria for the workers.

**2) ET Highland Flora:** - Salary increment, overtime payment rate, awareness creation and community services are the major areas that ET Highland Flora should concentrate. The basic salary of junior workers was around 1150 Birr per month, which is lower than the other three rose flower industries (Survey result, FGD 3 and Appendix 4). The minimum salary for the sector is already determined, which is around 1450 Birr per month. Thus, ET Highland Flora shall at least increase the basic salary of junior workers from 1150 to 1450 Birr per month. Otherwise, workers will start complaining and blaming the company as the minimum salary for the sector was fixed.

Moreover, the overtime payment rate of workers was lower than Ethio Agri-CEFT and Ziway rose, and not in accordance with the country's labour proclamation (Survey result and Appendix 4). Therefore, attention shall be given for the implementations of rules and regulations of the country. Another measure that must be taken in ET Highland Flora was awareness creation about the importance of labour union and establishment of workers' association (Appendix 4). Once the awareness is created, then the next activities will be organising workers to form labour union.

**3) Dream flowers:** - Similar to ET Highland Flora, dream flowers is paying lower overtime payment rate (same as salary except the holiday). Thus, the company shall at least follow the rates of labour proclamation. There was also a problem in timely supply of PPE (key informant 17). Moreover, PPE was not of the right quality (Survey result) since the company was purchasing it from Ethiopia. Thus, the right quality of PPE with definite time interval (6 months to 1-year) should be supplied. Moreover, proper installation and maintenance of showers and toilets should be done as well.

Delay of salary payment was mentioned as the major challenge of workers in dream flowers (Appendix 4). For instance, the company paid the salary after 5 days' delay during data collection (July 2019). The key informant also described that sometimes a delay of 10 to 15 days in the salary payment has occurred. Thus, on-time salary payment requires due attention in the company. Moreover, dream flowers shall focus on corporate social responsibilities as the nearby community complaining the company (FGD 4 and Appendix 4). The company shall also focus in understanding the intentions of the community.

**4) Ziway Rose:** - Though the company was doing to change the negative image of the society, remarkable achievement was not made. Thus, strengthening the linkage of the company with the local community should be given due attention. It is necessary to continue inviting different groups of the community to the open farm days so as to show them what the company is doing and receive critics from them without reluctance.

**Table 13. Summary of the results of labour conditions among the four flower producing companies**

Labour conditions			
Company name	Measures taken	Challenges	Desirable inclusions, adaptations and changes
Common to all	<ul style="list-style-type: none"> <li>- Collective bargaining agreement except ET Highland Flora</li> <li>- Minimum sector salary (1450 Birr)</li> </ul>	<ul style="list-style-type: none"> <li>- Low salary and absence of minimum wage</li> <li>- Hard to get new PPE when the old one damaged accidentally</li> </ul>	<ul style="list-style-type: none"> <li>- Establishment of minimum wage which can cover the living expenses of workers</li> <li>- Supply new PPE to the workers whenever necessary</li> </ul>



	<ul style="list-style-type: none"> <li>- Incentive for workers who worked without absenteeism (150 Birr)</li> <li>- Equal treatment of works irrespective of their background, religion, ethnic origin</li> <li>- No problem with agreement letter</li> <li>- 8 hours of working per day and 6 days of working per week</li> </ul>	<ul style="list-style-type: none"> <li>- Occasional chemical spraying while workers found at work</li> <li>- Interference of top management bodies on the activities of labour union and its members (especially when they are exercising their rights)</li> <li>- Negative image of the society on the sector</li> <li>- Inadequate government support</li> <li>- Higher inflation rate of the country</li> </ul>	<ul style="list-style-type: none"> <li>- High cares to workers shall be given while spraying chemicals at all the time</li> <li>- Allowing labour union and its members to exercise their rights and freedoms</li> <li>- Conducting preliminary research to understand community critics on the sector and awareness creation activities (open farm days)</li> <li>- Adequate support of the government rather than criticising the sector</li> </ul>
Ethio Agri-CEFT	<ul style="list-style-type: none"> <li>- Overtime payment rate was in line with the country's labour proclamation</li> <li>- Establishment of effective labour union</li> <li>- Good quality of PPE</li> <li>- Clear safety instructions of chemicals to workers</li> <li>- 4.5 km asphalt road accesses, drinking water services, public police offices and job opportunities for 460 workers</li> </ul>	<ul style="list-style-type: none"> <li>- Poor quality of toilets and showers</li> <li>- Absence of free breakfast and lunch services since some workers were coming without eating breakfast and lunch</li> </ul>	<ul style="list-style-type: none"> <li>- Plan to amend toilets and shower rooms and washing facilities</li> <li>- Supplying of free food services (breakfast and lunch) shall be given due attention</li> </ul>
ET Highland Flora	<ul style="list-style-type: none"> <li>- Supply of standardised PPE with 6 months to one-year interval</li> <li>- Check-up of the health status of spray workers with three months' interval</li> <li>- Clean showers, toilets and washing facilities</li> <li>- Breakfast services to the workers</li> <li>- Uniform for the students of pro-poor families, water and electric services and job opportunity for 530 workers to the community</li> </ul>	<ul style="list-style-type: none"> <li>- Low salary; less than the sector minimum</li> <li>- Low overtime payment rate; not in accordance with the labour proclamation of the country</li> <li>- Absence of effective labour union</li> <li>- Limited awareness of workers about the importance of labour union as there was members refusal to pay money to the labour union</li> </ul>	<ul style="list-style-type: none"> <li>- Salary increment to workers (at least the sector minimum salary)</li> <li>- Overtime payment shall be based on the labour proclamation of the country</li> <li>- Awareness creation activities of members on the importance of forming labour union</li> <li>- Establishment of effective labour union</li> </ul>
Dream Flowers	<ul style="list-style-type: none"> <li>- Establishment of effective labour union</li> <li>- Clear safety instruction of chemicals to workers</li> </ul>	<ul style="list-style-type: none"> <li>- Lower overtime payment rate</li> <li>- Poor quality of shower and toilet rooms</li> <li>- Poor quality of PPE</li> <li>- Medication coverage issues</li> </ul>	<ul style="list-style-type: none"> <li>- Following the overtime payment rates of the country</li> <li>- Plan to amend toilets, showers and washing facilities</li> </ul>

	<ul style="list-style-type: none"> <li>- Created 203 job opportunities for the community</li> </ul>	<ul style="list-style-type: none"> <li>- Delay in paying the salary of workers</li> <li>- Complain of workers on company's medical treatment coverage, not full</li> <li>- Little and/or no involvement in corporate social responsibilities</li> <li>- Gaps in implements planned community services</li> </ul>	<ul style="list-style-type: none"> <li>- Supply of the right quality of PPE with definite time interval</li> <li>- On-time payment of the salary of workers</li> <li>- Full medical coverage of workers</li> <li>- Active involvement in corporate social responsibilities shall be taken as points to consider</li> </ul>
Ziway Rose	<ul style="list-style-type: none"> <li>- Attractive salary (greater than the sector minimum)</li> <li>- Medical services to both job and non-job related services</li> <li>- Clean showers and toilets</li> <li>- Built-up of special shower rooms for spray workers</li> <li>- Training on Hygiene, STD and safe use of condoms</li> <li>- 18 day's annual leave though the legislation allows only 14 days</li> <li>- Two recreational services and 40% subsidised food services by Fairtrade to the workers</li> <li>- Hospital, school and stadium</li> <li>- Public police offices</li> <li>- Planting to protect the lake from pollution</li> </ul>	<ul style="list-style-type: none"> <li>- Difficulty of changing the mind-set of the local community though the company showed remarkable progress in full filling the corporate social responsibilities</li> </ul>	<ul style="list-style-type: none"> <li>- Continue to give awareness of the different groups of the community without reluctance as changing community perception is a gradual process</li> </ul>

Source (Survey result, observation and Appendix 4)

## 4.4. Environmental issues

### 4.4.1. Current environmental protection measures

All the four rose producing companies studied were using both organic and inorganic fertilizers. The green wastes were used as a source to make compost. Moreover, integrated (cultural, mechanical and chemical methods) pest control techniques were also implemented. Sanitation, removing host plant, adjusting the temperature of greenhouse (ventilation), proper soil fertilisation and adjusting plant density were the major cultural pest management practices commonly implemented in the farm besides chemical methods. Crop scouting team was established to control pests at early stage. In addition, the companies were using class II (rarely), III and IV chemicals. The source of water for Ethio Agri-CEFT, ET Highland Flora and dream flowers were groundwater while the lake was in Ziway rose. The source of energy for Ethio Agri CEFT, ET Highland Flora, dream flowers and Ziway rose were electric power and fuels. Fuel energy sources were used when there was no electric power (Desk study, Appendix 4 and observation).

**1) Ethio Agri-CEFT:** To fasten the decomposition process of green wastes, Ethio Agri-CEFT bought chopping machine. In addition, the company was also using earthworms to prepare liquid fertilizers called *T-composting* as shown in figure 17 and 18 below (Appendix 4 and observation).

**Figure 21. Green waste and chopping machine of Ethio Agri-CEFT**



Source (Author, 2019)

**Figure 22. Liquid fertilizers extracted from T-composting in Ethio Agri-CEFT**



Source (Author, 2019)

Since the source of water for Ethio Agri-CEFT was groundwater, four reservoirs were built. Water consumption of the company was recorded and documented. As part of wise water utilisation practices, the company had installed drip irrigation in all of the greenhouses (Desk study, Appendix 4 and observation).

The company has waste separation categories for organic and inorganic wastes. Green wastes were collected to prepare compost while other wastes such as chemical containers were collected and burnt in the incinerator (Appendix 4 and observation). The company had also built two wetland treatment areas, which were used to treat waste water. Moreover, the waste removal routes were not connected with water bodies (Figure 19).

**Figure 23. Solid and liquid waste treatment methods of Ethio Agri-CEFT**



Source (Author, 2019)

The company has established social dialogue committee to discuss and work with social and environmental related activities such as cleaning the town and villages and planting of the trees. However, its participation and involvement on environment-related activities is nonsufficient and active. Key informant 1 (Appendix 4) mentioned the company had plan to plant trees if the district government provides the land.

**2) ET Highland Flora:** - Similar to Ethio Agri-CEFT, ET-Highland Flora bought chopping machine to fasten the decomposition process of green wastes (Appendix 4 and observation). Because Middle East the current main market destinations, the water and energy consumption trends of the company were recorded, but not reported. However, drip irrigation system in all of the greenhouses was installed as means of wise water utilisation practices as shown in the figure 20 below.

**Figure 24. Drip irrigation of ET Highland Flora**



Source (Author, 2019)

Both liquid and solid wastes were treated and/or collected separately, *i.e.* the company had waste separation categories. Incinerator was also built to burn and dispose empty chemical containers and/or used personal protective equipment (observation). In collaboration with EHPEA, an exemplary waste water treatment area was built (Figure 21). The farm's liquid waste treatment process encompasses sedimentation tank, primary holding tank, vertical flow bed, gravel bed hydroponics as well as six-layer ponds. Thus, waste removal routes were not connected with drinking water, ground water and surface water.



**Figure 25. Wetland area of ET Highland Flora**



Source (EHPEA, 2019a)

**3) Dream flowers:** - Dream flower has identified and selected the composting area (see the figure 22) However, the company does not have the chopping machine. As a result, the decomposition process took long time (Appendix 4 and observation). Furthermore, the composting area was built near to the entry point of the company (observation). This may affect the health of workers *i.e.* there was insufficient planning while selecting the area for composting. Incinerator was also built to burn empty chemical/pesticide containers. However, the size was small and had no cover as shown in figure 22 below.

**Figure 26. Composting area and incinerator of dream flowers**



Source (Author, 2019)

The company has a counter, which is used to record the consumption of water for irrigation. Drip irrigation system was installed in all greenhouses, however, rain water harvesting reservoirs and/or structures were not built. The consumption trends of energy were recorded and documented. However, the energy consumption was not reported to the concerned bodies (Appendix 4).

Soak away pit method of waste water treatment (a mixture of charcoal, sands and saw dust) were employed by the company (Appendix 4 and observation). The key informant mentioned that the company decided to build wetland as part of protecting the environment. However, building wetland requires budget, skills and knowledge. Planning may not result the accomplishment of activities unless budget is allocated.

**Figure 27. Water reservoir and soak away pit method of waste water treatment in dream flowers**



Source (Author, 2019)

Different seedlings had sown by the company as per the district government request. However, the company didn't actively participate in environment related community services.

**4) Ziway rose:** The green wastes were collected and sold to the outsourced company (Appendix 4). According to the operational manager interview, the company was doing soil analysis three times (Holland, Kenya and Ethiopia) in a year. To improve the physical properties of the soil, the company was using both organic and inorganic fertilizers (Dusk study, Appendix 4 and observation). These fertilizers were observed in the company's fertilizer store. The most important part of Ziway rose, here, is the nutrient amount of the organic fertilizer is known (Figure 24).

**Figure 28. Organic fertiliser in the fertiliser store of Ziway rose**



Source (Author, 2019)

One of the issue that always associated with rose producing companies is the proper use of pesticides. Integrated pest control strategies were implemented based on the report of the scouting team. Pesticide spraying was usually done after 16:00 o'clock so as to have a minimum of 12 hours' difference before and after spraying. The company were often using chemicals which can degrade with 4 to 6 hours range; but rarely chemicals which can degrade within 12 hours were used (Appendix 4).

Key informant 4 (Appendix 4) mentioned that the company had the plan to use the ground water in the future instead of the lake as the source of water for the company. Similar to the other flower companies studied, Ziway rose has installed drip irrigation system as part of effective water utilisations (observation).



Moreover, water and energy consumption trends of the company were recorded and documented though not reported to concerned bodies (Appendix 4 and Desk study).

The farm has a closed system, zero discharge of waste water (Appendix 4 and observation). They use the wetland to treat the waste water and the treated water is re-used for irrigation purposes (Appendix 4, Desk study and observation). At the beginning, the farm was using soak away pit method of liquid waste treatment; but they have replaced it by the use of the wetland areas (Appendix 4 and observation) (Figure 25). Key informant 4 added that if new technology is coming in the future, then the company will adjust itself to adapt and follow that new situation.

**Figure 29. Wetland and its water tank of Ziway rose**



Source (Author, 2019)

In addition, incinerator was built to remove and burn empty chemical containers and/or expired PPE (observation). It was properly built and had cover as shown in the figure 26 below.

**Figure 30. Incinerator of Ziway rose**



Source (Author, 2019)

In collaboration with IDH (NGO), the sister companies planted seedlings on 80 ha as part of protecting the lake. As a result, in the last four years, the company had the best CV and certifications (Appendix 4 and Desk study).

#### **4.4.2. Most urgent and relevant environmental challenges**

Water, pesticide and fertiliser consumption trends and methods of the farm were recorded and documented. However, the companies were not reporting to concerned bodies. Reporting the trends and methods is very crucial to take measures whenever necessary (Desk study).

Most flower producing companies including Ethio Agri-CEFT, ET Highland Flora, Dream flowers and Ziway rose have no effective environment organisational structure unlike labour union. Environmental issues of the companies will not be tackled by EFCCC only unless effective organisational structure is established in the sector. In addition, the companies have not exploited their full potential in effectively utilising the water resources *i.e.* rain water harvesting structures were not built (Author's reflection).

**1) Ethio Agri-CEFT:** Ethio Agri-CEFT started its work without studying and submitting environmental impact assessment to the commission. As a result, the company faced difficulties in preparing environmental protection plan as the country's environmental protection law orders to prepare the plan. Before February 2019, the company was using soak away pit method of waste water treatment (Desk study). As a result, EFCC gave feedbacks on the negative sides of soak away pit to the company. Currently, Ethio Agri-CEFT is constructing two wetland area (Appendix 4). However, the wetland areas were not of the standard quality (observation). Unlike ET Highland Flora, it lacked vertical flow bed and different compartments. Moreover, Ethio Agri-CEFT do not actively participate in environment related community services such as planting of trees and greening of the town.

Though most of the companies did not fulfil the compliance of Council of Ministers code of practice of the floriculture sector (Regulation number 207/2011) for the minimum Bronze level criteria, the Ethiopian flower producing companies were categorized into three ranks (Low, medium and high) when comparing amongst each other (Desk study). Based on this ranking, Ethio Agri-CEFT was found as medium level rank. Thus, improvements are required to reach the higher rank.

**2) ET Highland Flora:** Even though ET Highland Flora has showed impressive progresses in protecting the environment, some challenges were remaining critical to the industry. The company didn't put its maximum efforts in wise utilisation of water resources (Author's reflection). Another environmental challenge in ET-Highland Flora was little and/or no environment related community services (Appendix 4). As the sector intensively utilizes water, environment related corporate social responsibility is highly required *i.e.* natural resources will get depleted if not properly managed. However, the company hasn't developed plan in environment related community services.

**3) Dream Flowers:** The environmental impact assessment of the farm was not prepared before establishment (Desk study). Moreover, due to the absence of clear environmental policy and organisational structure to safeguard the environment, environment handling activities were not properly documented and recorded. The company was also using soak away pit as means of waste water treatment. However, this method of waste water treatment may create pollution on the ground water (Appendix 4). Some chemicals may percolate and contaminate the ground water. To reduce such effects, the government and EHPEA gave directions to build standardized wetland area.

Furthermore, Dream flowers was facing similar challenges to Ethio Agri-CEFT with regard to environment related community services *i.e.* the farm was not highly involved in environment related community services. The bad smell of chemicals during morning and night was also mentioned by the participants of FGD 3. In addition, Dream flowers was received medium level rank according to EFCC commission ranking; indicating that many improvements are required to reach higher level rank (Desk study).



**4) Ziway rose:** Though the company made important progress, the farm doesn't conduct research about the effectiveness of the current technology, i.e. wetland (Desk study). As a result, the governmental institutions and other stakeholders were facing challenges in justifying how much the company was reducing environmental pollution, *i.e.* workers', social and animal health. There was no report which clearly indicates by how much rate the company was reducing environmental pollution. These situations may create mistrust and rumour with the local community (Desk study). For instance, during FGD 4 the participants raised the existence of health and safety issues of workers, death of fish, livestock and bees as well as water pollution in Ziway lake.

#### **4.4.3. Feasible and desirable changes, adaptations and inclusions**

Effective organisational structure for labour was already established. However, most flower producing companies including the four rose flower producing companies have no effective environment-based organizational structure (Author's reflection). Thus, similar to labour union, institutional structures to safeguard environment in the company shall be established. Environment, forest and climate change commission shall facilitate the establishment of such organisational structures. Moreover, the consumption trends of chemicals, pesticides and fertilizers should be reported timely to the concerned bodies (Desk study).

**1) Ethio Agri-CEFT:** EFCCC suggested to prepare and submit environmental impact assessment and environmental protection plan (Desk study). Moreover, proper expertise is required to build the wetland as the establishment of such waste water treatment is relatively new for Ethiopian flower industries (Appendix 4). Thus, experiences shall be taken from ET Highland Flora and Ziway rose to construct proper wetland area in the company (Author's idea). Furthermore, most of the community services delivered were not related with environmental protection measures. Thus, focus shall also be given in fulfilling environment related social corporate responsibilities, which can compensate the burdens *e.g.*, planting of trees (Appendix 4).

**2) ET Highland Flora:** Wise use of natural resources are highly recommended to ET Highland Flora and other flower companies rather than only focusing on the ground water. For instance, during rainy season, appreciable amount of water can be conserved by building rain water harvesting structures. In addition, the company shall be engaged in environment related corporate social responsibilities (Appendix 4) besides non-environment related community services.

**3) Dream flower:** EFCCC advised the farm to establish environment related organisational structures, construct proper waste water treatments, proper handling of chemicals with experts and material safety data sheet (Desk study). EFCCC also mentioned that the company should (1) establish social and environmental committee to understand and answer the critics of the society and (2) be collaborative with governmental institutions who will work on social and environmental issues. Therefore, focus should be given in environment related community services.

Moreover, there is a necessity of replacing soak way pit method of waste water treatment with the recent technology of waste treatment called wetland (Desk study, Appendix 4). Communities complain shall also be considered (Author's reflection).

**4) Ziway rose:** The company should conduct the evaluation of the technologies so as to know how much they effectively reduce environmental pollution (workers', social and environmental health). Thus, to change the mind-set and build trust with the society and to convince different governmental and non-

governmental sectors, evaluation of the recent technologies is necessary. Other water sources such as rain water harvesting and ground water shall be utilised as part of protecting the environment (Desk study and Appendix 4).

**Table 14. Summary of the results of environmental issues among the four rose flower producing companies**

	Environmental protection measures		
Company name	Measures taken	Challenges	Desirable inclusions, adaptations and changes
Common to all	<ul style="list-style-type: none"> <li>- Application of organic &amp; inorganic fertilisers</li> <li>- Application of integrated pest control techniques</li> <li>- Electric power as source of energy, and rarely fuels</li> <li>- Installation of drip irrigation system</li> <li>- Recording and documenting of water and energy consumption</li> <li>- Waste removal routes: - not directly connected to water bodies</li> <li>- Presence of incinerator</li> </ul>	<ul style="list-style-type: none"> <li>- Water, pesticide and fertiliser consumption trends were not reported</li> <li>- Absence of effective organisational structure unlike the labour union</li> <li>- Gaps in utilising the full potential of companies (rain water harvesting)</li> <li>- No research on the effectiveness of current technologies (wetland and incinerator)</li> </ul>	<ul style="list-style-type: none"> <li>- Establishment of effective environment related organisational structure</li> <li>- Recording and reporting the consumption trends of chemicals, pesticides and fertilizers</li> <li>- Motivating rose producers for wise use of water resources like rain water harvesting</li> <li>- Evaluation of the recent technology</li> </ul>
Ethio Agri-CEFT	<ul style="list-style-type: none"> <li>- Presence of chopping machine for green waste</li> <li>- Groundwater as water source</li> <li>- Presence of wetland</li> <li>- Establishment of social and environmental dialogue committee</li> <li>- Water recycling</li> </ul>	<ul style="list-style-type: none"> <li>- Established without environment impact assessment and environmental protection plan</li> <li>- Wetland lacked vertical flow bed and different compartments</li> <li>- Not actively participated in environment-related corporate social responsibilities</li> </ul>	<ul style="list-style-type: none"> <li>- prepare and submit environmental impact assessment and environmental protection plan</li> <li>- Experience sharing from ET Highland Flora and Ziway rose (wetland area construction)</li> <li>- Focus shall be given environment-related corporate social responsibilities</li> </ul>
ET Highland Flora	<ul style="list-style-type: none"> <li>- Presence of chopping machine for green waste</li> <li>- Ground water as water source</li> <li>- Presence of exemplary wetland</li> <li>- Water recycling</li> </ul>	<ul style="list-style-type: none"> <li>- Little and/or no involvement on environment-related corporate social responsibilities</li> </ul>	<ul style="list-style-type: none"> <li>- Focus shall be given environment-related corporate social responsibilities</li> </ul>
Dream Flowers	<ul style="list-style-type: none"> <li>- Groundwater as water source</li> <li>- Presence of soak away pit</li> </ul>	<ul style="list-style-type: none"> <li>- Established without environment impact assessment and Environment protection plan</li> <li>- Environmental protection activities were not properly documented</li> </ul>	<ul style="list-style-type: none"> <li>- construct proper waste water treatments</li> <li>- proper handling of chemicals with experts</li> <li>- replacing soak way pit method by wetland</li> <li>- community's complain shall be considered</li> </ul>

		<ul style="list-style-type: none"> <li>- No wetland</li> <li>- Less involvement in environment-related corporate social responsibilities</li> </ul>	
Ziway Rose	<ul style="list-style-type: none"> <li>- Presence of linkage with the outsourced company for the green wastes</li> <li>- Soil analysis test</li> <li>- Water recycling</li> <li>- Planting of seedlings as part of protecting the lake</li> </ul>	<ul style="list-style-type: none"> <li>- Use of lake as water source</li> </ul>	<ul style="list-style-type: none"> <li>- Using rain water harvesting and ground water as source of supplementary irrigation; if possible as full irrigation</li> </ul>

Source (Survey result, observation and Appendix 4)

## 5. REFLECTIONS AND DISCUSSION

### 5.1. Reflections

#### 5.1.1. Reflections on the research

My flight from Amsterdam Schiphol to Bole international airport was June 24, 2019. I arrived 25 June 2019 in the mid night to Addis. After taking of two-days' rest, I went to the office of EHPEA so as to amend the proposal and make appointment with the five flower producing companies. Amendment on the choice of two companies out of five was made by EHPEA. Euro Flora was replaced by Dream flowers (Hansa group) while Enyi Ethio-rose was replaced by ET Highland Flora after thorough discussion with EHPEA. The reasons of choice change were (1) the former recently changed its production from rose to other vegetables and (2) later was not effective and out of production. The amendment of the proposal was communicated to the supervisor though it was not timely done; due to political crisis happened in the country.

The EHPEA training department took the assignment to arrange and fix the time and date of data collection with those flower producing companies. Immediately after a few hours, I dialled on him so as to know the response of those chosen flower producing companies. During that time, he told me the willingness of Ethio Agri-CEFT, ET Highland Flora and Hansa (Dream flowers). Then, I asked whether shall I wait you or get contact with them directly. He advised me to make contact with the farm managers before data collection as the time I had was one and half month. I went Holeta and Addis Alem on 27 June 2019 as a result of his advice. I contacted Ethio Agri-CEFT farm manager, Hansa (dream flower) and Linssen rose Plc owner. I got positive response from Ethio Agri-CEFT and Hansa (dream flowers) companies while Linssen roses plc was not interested on the research. In the next day (June 28, I went to Sebeta to make appointment with the company as the willingness was already communicated with EHPEA.

Appointment was made with Ethio Agri-CEFT, ET Highland Flora and Dream flowers (Hansa) on 02, 04 and 12 July 2019, respectively to collect the data for the research. Before data collection, I got informal information since I created contacts with persons for sake of obtaining correct data. Data's were collected accordingly.

After collecting the data of the three flower farms, I went again to the EHPEA office so as to help me in making appointment with AQ roses. However, the EHPEA training department head told me that AQ roses

doesn't replied our email. They gave me the address of Ziway and AQ roses and told me 'we will email the request to Ziway rose also'. Then after, I immediately dialled to both of these farms. The response from both were positive. However, the farm manger in AQ rose was outside the farm as he was taking exams for his education. As a result, I decided to make face to face contact, and I went to Ziway on 09 July 2019 and stayed three days for data collection. Ziway rose invited to collect the data for the research. I took two days to collect the data; one-day for surveying and one-day for observation and interviewing. The remaining one-day was allocated to take informal data collection so as to prove whether the collected data were correct or not. Observation was made by using motorbike of the company.

I was assuming Ziway rose, AQ roses, Herburg roses and Sher company as independent companies found in different sites as I visited Ziway town for the first time. However, I found these companies as sister companies located in same site. From different sources of information, Ziway roses, AQ roses and Herburg roses mostly had the same management systems. Thus, I decided to choose another Dutch-based flower farms. I went back to Addis Ababa on 11 July 2019 and made usual contact and discussion with EHPEA. I asked the association to connect me one Dutch-based company as per my proposal requires two Dutch based rose producing companies. Then, the association was trying their best so as to connect me with Friendship. I went three times to Debre Zeit so as to collect data from these companies, but not successful.

The production manager Friendship was always telling me she was in meeting. Then after, the association made contact with Oleij and the company agreed orally with the association in order to allow me for data collection. I went on the next day and the production manager of the company was Kenyan in citizen. I met him and communicated with the aim of the research. After listening my speech with regard to the aim of research, he basically told me that he will only allow me to conduct interview with him. Immediately I decided to conduct interview with him to take it as evidence. As usual, first, I requested his permission to allow me a record of his interview, but he was not interested. Then, by telling I can use my notebook, I apologised him. He ordered me to ask the question what I want and then he wrote it by himself. I did interview based on his willingness, and the evidence is available in my hand.

Moreover, the four flower producing companies were not interested to tell production and marketing cost and their selling prices since these are company's secret information. They immediately telling me that either they don't have detail information to the profit or company's secret information during my first speech with the aim of the research. I was telling to them 'we require this information for only educational purposes' but they were not interested to provide the information. I tried different options to get this information. For example, I dialled to the owners of dream flowers and ET Highland Flora, but they were telling me 'we are in meeting and farm; please call later'. I was getting the same kind of response. I communicated the case to the association. As a result, the association gave the average selling prices of rose and production costs. But, the information was not enough. Thus, I collected the qualitative data from the key informants what I can.

Another point that I want to reflect is the bureaucratic procedures of DBE, Ministry of Labour and Social Affairs and EIC. These governmental institutions asked me to rewrite the letter to their organisation name instead of saying 'to whom it may concern'. For instance, I went four times in DBE and three times MoLSA and EIC to conduct interview. However, through negotiation, the problem was solved.

Fast services were obtained from EHSC, CETU, EFCCC, FloraHolland, Control union, EHPEA and the four flower producing companies. Despite the sensitivity of the sector, Ethio Agri-CEFT, ET Highland Flora, Dream Flowers and Ziway roses gave permission to conduct the research. It is, therefore, my duties and responsibilities to honour and heartily recognise their cooperation for the accomplishment of the

research. Acknowledging and respecting these companies is very important to change the mind-set of flower industries towards the researcher as most of them fear researchers.

From the proposal, I planned to conduct only twelve key informants including the companies. However, I realised some key stakeholders were missing in my proposal. As a result, 7 key informants from labour union leaders, CETU, MoLSA and EFCCC were included. Moreover, during data collection I also noticed the essentiality of making FGD. Thus, four focus group discussion were also done. Totally, I went two times in Ziway roses and three times for the other three rose flower producing companies to conduct these activities.

**Lessons taken from this research:** In conclusion, from this research I learnt the following lessons; (1) conducting research with unfamiliar organisation is very difficult and challenging. Before writing proposal, I have no detailed information about the sector. I considered like other sectors such as tomato and onion. However, in reality, I found it as very sensitive areas due to political ties with the government. (2) Never get discourage-keep going by what you have; During my data collection, I faced so many challenges as I described above. I never discouraged by the challenges I faced. Instead, I used my maximum effort as much as possible to get the relevant data. (3) The importance of commitment in work: I never wasted my time for other activities rather I was asking different key informants even during weekend time. I realised all these activities showed significant progresses on my research. (4) The importance of understanding your key informants, respondents and FGD participants. Some participants in FGD 3 were aggressive, but I don't have such expectations before. The research aim was told by the facilitator while me I was looking as participant for better participation. However, the participants were looking me as spy, the issue was solved easily. Understanding your target group is very essential. (5) The importance of inquiring the target groups based on their interest. (6) Always show smile faces to your respondents'/target groups; (7) How to collect data with such unfamiliar and sensitive sectors. Currently, I understood how data in such sensitive sectors can be collected. The most important thing is forming link with relevant key persons. These are some of the points that I learnt from this research.

### 5.1.2. Reflections as a researcher

**Explaining the aim of the research to reduce the over-estimation of respondents:** To reduce over-estimation of workers, the aim of the research was presented precisely to them since the major reason that Linssen company was not interested on the research was worker's estimation for salary and overtime payment. Workers were requested to draw farm map before surveying so as to make the research participatory type. When the drawer explains his/her drawing to the workers, then they become happy and interact with their colleagues. Most of them were laughing about the poor drawing. I realised this as an important mechanism of making the research participatory type *i.e.* workers will approach easily to the researcher when PRA tools are used.

**Commitment to the research and confidentiality of the respondents:** I was eager to find the facts and thus, informal data were taken before and after data collection. I had many picture, audio and video records. For the confidentiality of the respondents, I didn't show them in the document and any social medias. Only pictures which cannot harm workers are presented in the paper. Some informal respondents (dream flowers and ET Highland Flora) were not interested to take a picture of them. Anyways, during data collection, I was looking the interest of respondents. I had good relations with labour union leaders and I found them perfect key informants for labour related data as they were working for both the employees and company.

For example, the labour union of dream flowers mentioned to me that the society had bad perception towards our company. He added 'if the company is not providing community services like others, then the community will cause damage to our company'. The community tried this activity a few months ago when the company started to build new green house. We will lose our jobs if the society damages the company. After listening all these, I decided to conduct FGD with nearby community. I decided also to use labour union leaders in Ethio Agri-CEFT and dream flowers to select the participants as I had good relations with them. They arranged to me the local communities easily and I made FGD to these rose flower companies. However, in Ziway, a researcher in Batu District Agriculture Bureau had arranged the FGD. He is a dedicated person and had good linkage with the society. In ET Highland Flora, an active worker was used to arrange the FGD since there was no workers' association in the company. Most activities were accomplished through dialling to them.

Before starting my data collection, I agreed to visit my family (my mother). However, due to bureaucratic procedures of some governmental institutions, I requested my family to visit after one and half month. My generous family accepted the request *i.e.* to focus on my research. Thus, I sacrificed a lot to obtain relevant data despite the challenges I faced.

**Neutrality of the researcher:** Biasness is the feature that always cannot go with my personality. Let me explain with example. I had got the opportunity to visit ET Highland Flora during workers' celebration and festival. In fact, I was the one who asked the top manager to join the festival after I heard the information from my informal key informant. Then, I went with my brother to see the celebration and take evidences from it. As to my evaluation, the celebration was so attractive and have lot of fun, which was beyond our estimation. Me and my brother have also enjoyed the food and music services in the festival. Then, as a fun, my brother was telling me that take this company as good. I laughed by his saying. After that, I immediately told him I am striving for the facts, not the food and music services delivered. I also told for myself '*to focus on the facts*'.

Moreover, Ziway rose helped me also a lot while conducting observation, interviewing and surveying. The operational manger ordered the supervisor to show me all the facilities of Ziway rose by their own motorbike since it was not possible to visit all the facilities of the farm by foot *i.e.* the company has 42 ha rose flower farm. I gave my heartily blessings to the top managers for their support and willingness to the research. This activity was in the second day of my stay in Ziway. However, in the evening I heard many rumours from the society on the company. I started searching facts from the different sources since my job was finding facts not rumours. I went in one of Batu district administration office (confidentiality of the respondent) so as to get information whether the rumours were correct or not. However, he was telling me the problems of Sher company, not Ziway roses. He started by explaining how Sher company was established. He mentioned how the late prime minister made fault. Then, I realised the hate and negative image he had. The transcript was already prepared but not considered in the research. Instead, another informal key informant in the company were taken; mentioned that the industry has zero discharge, but, in some cases, wastes may reach if there is heavy rain. Thus, as to my point of view, we the researchers and experts shall depend on facts, not rumours.

**Lessons learnt as a researcher:** Over all, from this research, I learnt how to (1) become a neutral researcher, (2) make the research participatory type, (3) collect data with difficult situations, (4) explain the aim of research to respondents and key informants, (5) treat respondents and key informants based on their interests. Moreover, I also took lessons on how to interact with different organisations with their long bureaucratic procedures. Even though I faced different challenges, this research has developed my overall confidence especially on my interaction skills.

## 5.2. Stakeholder analyses

EHSC was importing only registered chemicals and fertilisers from well-known company called Yara. Inputs were supplied timely to the rose producing companies. However, due to the inefficiency of logistics and shortage of foreign currency, the chemicals and fertilizers were relatively higher. Cargo services and/or postharvest handling practices in the airfreight were taken by Ethiopian airlines. Previously, this services were delivered by EHSC. As a result, flower industries were suffering on the poor performance of Ethiopian airlines as the workers in the cargo services have gaps in post-harvesting handling practices; which result rejection from the auction (royal Flora Holland). Similar report was also produced by EHSC (2009).

Production, sorting, packaging, transporting to the cargo services and exporting functions were manipulated by rose flower industries; demonstrating that there is vertical integration in the rose flower sector in Ethiopia. This is a good opportunity to improve the sustainability of the sector since many functions are done by rose flower industries, *i.e.* when some of the key players become active for the implementations of the code of practices, it is easier to improve the sustainability of the sector. Despite this fact, most rose flower producing companies in Ethiopia do not fulfil the minimum criteria of the code of practices since the code of practices was developed after flower industries establishment. This is in line with EFCCC (2019) report who mentioned that most of flower industries do not comply the council of ministers' floriculture code of practices.

FloraHolland currently planned to have sustainable trade relations with growers as the main producers of rose flower to Dutch auction are found in developing countries, which have problems of sustainability issues. To tackle such problems, the FloraHolland have developed general and specific requirements which can help and benefit sustainable rose producers. The commitment of Royal FloraHolland to trade sustainable products is also mentioned by EHPEA (2018). However, rose producers which cannot fulfil the criteria of FloraHolland were moving to middle and Far East as their market destinations.

Wholesalers buy specialised and unspecialised rose flowers from the auction and sell to florists and supermarkets, respectively. Firdissa (2011), Tylor (2011) and CBI (2016) also reported the channels of cut roses in the same way. Trading of unspecialised flowers showed increment in recent times. As a result, the supermarkets are getting more benefit as they buy flowers when the growers are in trouble to sell the product. Moreover, the European consumers are aware of sustainable products and paying premium prices for it. But, emphasis on sustainable product in middle and far east consumers is not of much concern.

Environmental concern is one of the assets or values of DBE besides soft loans (up to 70% of the total investment). However, DBE lack practicality in implementation and associated with long bureaucratic procedures as previously some investors got soft loans without social and environmental impact assessment.

EHPEA is a non-profit organisation developed to reflect and represent the interest of their members. Currently, the association has 119 registered members from the horticulture sector. Arranging exhibition, capacity building and reflecting the members' interests for governmental and non-governmental organisation. Thus, recently, the association was delivering different trainings to their members especially on the code practices. However, most of their members are not sustainable producers. Furthermore, the association has no power to influence their members for the fulfilment of code of practices. The Dutch Ministry of Agriculture, Nature and Food Security has close association in Ethiopian floriculture industry. It provides assistance services to EHPEA in developing the code of practices, capacity building to different

stakeholders, IPM manuals and field tour visits in the Netherlands and Kenya for private public partnership.

EFCCC monitors whether flower industries comply the minimum standards of the code of practices of councils of ministers on floriculture or not. Because Ethiopia was new for the sector, most floriculture industries established without preparing social and environmental impact assessment. As a result, most of them do not fulfil the criteria. This regulatory body was reluctant to take measures on those poorly performing industries due to the assumption that the whole sector will get paralysed if measures are taken. However, recently, EFCCC started assessing the flower industries whether they comply the minimum standards or not. Thus, ranks were given to flowers as low, medium and high levels.

MoLSA is an institution working to maintain industrial peace between employers and their employees. However, in reality, reluctance to take measure is the main problem of this sector besides bureaucratic procedures. The author of this research also faced to get relevant information from the organisation because of their long and irrelevant procedures. Moreover, minimum wage was not fixed yet.

CETU is a workers' organisation established for exercising workers right and freedoms. Currently, the organisation has 1300 workers' union and 500,000 members. Impressive achievements were made especially for the last two years. This association has 9 federations. From these, agriculture federation is one of them. All labour unions in the flower farm belongs to this federation. The source of fund for the organisation is only the members. As a result, some of the workers in the floriculture industry refused to pay money to the union. Moreover, there is a government influence when the trade union tries to exercise their rights and freedoms.

EIC is responsible in providing the land and investment permission provided that the investor has verified social and environmental impact assessment. However, investment permission was given to some flower industries without submitting social and environmental impact assessment and plan.

Control Union is the main certifying agent found in the floriculture industry. Before the flower industries get audited by this organisation, first internal auditing was performed by EHPEA. Thus, control union will be invited when the EHPEA invited the auditees to audit their members. Thus, it is an important sector for the improvement of social and labour conditions.

### **5.3. Labour and social conditions**

The four rose flower producing companies studied showed significant progresses in improving labour conditions. To solve the employee and employer disputes, collective bargaining agreement has established in Ethio Agri-CEFT, dream flowers and Ziway roses. Development of minimum sector salary (1450 Birr) is also another important measures taken by the above mentioned rose flower industries. Working hours and days were implemented according to Ethiopia's labour proclamation.

Ziway rose and Ethio Agri-CEFT relatively showed good performance in improving labour conditions. Proclamation based overtime rate, establishment of effective labour union and good progresses in social corporate responsibilities were some of the achievements these two companies as to mention. For instance, Ethio Agri-CEFT has built 4.5 km asphalt road access while Ziway rose in collaboration the other sister companies have built schools, stadium and hospitals to the workers. The salary of workers in Ziway rose is also greater than the minimum sector salary (1750 Birr or higher). Special shower rooms were built and training on sexual transmitted diseases were given. Though Ethio Agri-CEFT has made important



progresses in improving labour conditions, poor quality of toilets and showers are the challenges associated with the company.

While ET Highland Flora and dream flowers relatively showed poor performance in improving labour conditions; indicating that improvements are needed. For example, these two companies were paying low overtime payment rate compared to Ziway Rose and Ethio Agri-CEFT, and in accordance with labour proclamation. Moreover, low salary (less than the sector minimum), absence of effective labour union and limited awareness of workers about the importance of labour union are also another challenges existed in ET Highland Flora. Whereas poor quality of PPE, workers' medication coverage issues, delay in paying the salary of workers, little and/or no involvement gaps in implementing planned in corporate social responsibilities are the major gaps observed and assessed in dream flowers. However, supply of good quality PPE, clean showers and toilets, and breakfast services in ET Highland Flora and establishment of effective labour union in dream flowers are the important measures taken to improve labour conditions.

#### **5.4. Environmental protection**

Similar to labour conditions, the four rose producing companies studied showed good efforts in protecting the environment. Integrated fertilisation and pest control tactics, recording and documenting of water and energy consumption, installation of drip irrigation as part of wise use of water and presence of incinerator (to burn chemical containers and expired PPE) were some of the remarkable achievements gained in the four flower industries (Ethio Agri-CEFT, ET Highland Flora, dream flowers and Ziway rose) in Ethiopia.

ET Highland Flora and Ziway rose relatively showed good performance in protecting the environment. For instance, exemplary wetland technology with all the necessary compartments were built by ET Highland. While Ziway rose has built a mechanism to recycle the waste water and actively participated in protecting the land by planting the seedlings in collaboration with IDH. However, there were some problems that were associated with these two companies. The effectiveness of the current technologies was not evaluated.

Ethio Agri-CEFT and dream flowers were established and started their work without preparing and submitting environment impact assessment and environment protection plan. As a result, these companies faced difficulties in preparing environmental protection plan. They were not actively involvement in environment related community services as well. Dream flowers was using soak away pit method of water treatment instead of wetland method. Moreover, water, pesticide and fertiliser consumption trends were not reported, absence of effective organisational structure unlike the labour union and gaps in utilising the full potential of companies (rain water harvesting) were the major challenges that the four rose flower producing companies facing.

### **6. CONCLUSION AND PRACTICAL RECOMMENDATIONS**

The problems of social and environmental issues of the four rose flower producing companies are identified and discussed in chapter 5. Feasible and desirable adaptations, changes and inclusions are developed for those issues in the result section. Moreover, from the stakeholder analyses, the key players to improve the environmental and social conditions of the four rose producing companies are also identified (rose producing companies, EHPEA, EFCCC, MoLSA and CETU). The specific tasks of each

stakeholder, which can help the three rose producing companies to comply EHPEA code of practices and gain competitive market advantage, are summarised below.

**Role of researcher:** The key stakeholders will be contacted by the researcher to communicate the research results and the report will be submitted to EHPEA, MoLSA, EFCCC and CETU.

**EHPEA:** To implement the desirable changes and inclusions, first the four rose producers should be aware of the problems they had. Hence, EHPEA provide awareness creation to its members about the findings as the association has training department.

**Government (EFCCC and MoLSA):** Before criticising the flower industries, the government shall conduct a preliminary research about the problems of the sector to come up with effective solutions. All problems of flower industries are not only created by them rather also by the reluctance of the governmental sectors during establishment has contributed to the difficulties in improving the environmental and social conditions in the floriculture industry. Thus, adequate support of the government is necessary so as to improve labour and environmental issues.

**MoLSA:** Minimum wage in Ethiopia was not fixed. As a temporal solution, the floriculture industry has developed minimum sector salary. This could not be a permanent solution for the sector unless determined. Still, the workers are complaining the minimum sector salary. Thus, MoLSA should take responsibility to fix wage, which can cover the living expenses of workers.

**CETU:** Workers in ET Highland Flora have gaps in knowing the importance of labour union. Previously labour union was formed, but members refused to pay money because of economical reason. Thus, labour union doesn't exist in ET Highland Flora. CETU in collaboration with the company shall facilitate awareness creation activities on the importance of forming labour union besides establishing effective labour union.

**EFCCC:** Unlike labour conditions, there is no effective environment related organisational structure in flower industries. Recently, labour conditions showed notable progress because of the establishment of effective labour union. Establishment of such organisational structure on the environmental issues is highly essential. Another environmental challenge of the rose sector is the heavy consumption of water. Thus, wise use of water resources should be maintained. If there is no efficient utilisation of water, then once up on a time it would become societal problem. Thus, as a governmental sector, EFCCC should motivate and support rose producers to construct rain water harvesting structures whenever possible.

**Common to all four rose producing companies:** To gain competitive advantage and premium price in Netherlands, the four rose flower industries shall focus the following recommendations into practice. The negative image of the society to the sector is the main challenge for the sector. This reflected from the focus group discussion and key informant interviewees. Hence, conducting preliminary research to understand community critics on the sector and awareness creation activities (open farm days) shall be the focus areas for all of the four rose producing companies. Moreover, (1) supply new PPE to the workers whenever necessary, (2) high cares to workers while spraying chemicals, (3) allowing labour union and its members to exercise their rights and freedoms should also be given due attention. Recording and reporting the consumption trends of chemicals, pesticides and fertilizers and evaluation of the recent technologies are also another areas of focus.

**Ethio Agri-CEFT:** To establish good working environment to the workers' toilet and shower amendment is necessary. Hence, the company should develop plan to amend toilets and shower rooms, washing

facilities and special shower rooms for spray workers. Supplying of free food services (breakfast and lunch) shall be considered as part of corporate social responsibilities. In addition, preparing and submitting environmental impact assessment and environmental protection plan, experience sharing from ET Highland Flora and Ziway rose in constructing wetland area and environment-related corporate social responsibilities are the major areas which needs improvement.

**ET Highland Flora:** - This company has good progress on environment issues. However, social issues remained critical. The salary and overtime payment of workers is below sector minimum salary and labour proclamation of the country, respectively. Thus, salary increment to workers (at least the sector minimum salary) and overtime payment rate shall be based on the labour proclamation of the country. Focus shall also be given on environment-related corporate social responsibilities

**Dream flowers:** The overtime payment rate of the company was below the labour proclamation. Furthermore, there was salary payment delay. Hence, following the overtime payment rates of the country and on-time payment of the salary of workers should be given emphasis. Similar to Ethio Agri-CEFT, there were problems on access to clean toilet and shower room. Plan to amend toilets, showers and washing facilities shall be one of the areas which needs improvement. Supply of the right quality of PPE with definite time interval, full medical coverage of workers and active involvement in corporate social responsibilities are other labor and social conditions to consider. Replacing soak way pit method by wetland, proper handling of chemicals with experts and communities complain shall also be considered

**Ziway rose:** Continue to give awareness of the different groups of the community without tiredness as changing community perception is a gradual process. Using rain water harvesting and ground water as source of supplementary irrigation; if possible as full irrigation

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## APPENDIX

### Appendix 1. Kruskal-Wallis Test of basic salary, working hours per day, working days per week and rate of overtime payment among the four rose flower producing companies

Test Statistics <sup>a,b</sup>							
	Basic salary for Junior workers	Working hours per day	Working days per week	Resting day per week	Rate of overtime payment- 6am to 18pm	Rate of overtime payment- 18pm to 22pm	Rate of overtime payment- 22pm to 6am
Kruskal-Wallis H	79.000	.000	.000	.000	79.000	78.073	79.000
df	3	3	3	3	3	3	3
Asymp. Sig.	.000	1.000	1.000	1.000	.000	.000	.000
a. Kruskal Wallis Test							
b. Grouping Variable: Company Name							

### Appendix 2. Kruskal-Wallis Test of effectiveness of workers' association, quality of PPE, access to pure water for drinking, cleanness of the toilet and cleanness of the shower among the four rose flower producing companies

Test Statistics <sup>a,b</sup>						
	Rate of overtime payment during holidays	Rate the effectiveness of the workers association	Quality of PPE	Access to pure water for drinking	Access to clean toilet	Access to clean shower
Kruskal-Wallis H	79.000	3.913	59.927	2.836	42.415	41.808
df	3	2	3	3	3	3
Asymp. Sig.	.000	.141	.000	.418	.000	.000
a. Kruskal Wallis Test						
b. Grouping Variable: Company Name						

### Appendix 3. Chi-Square test on the existence of workers' association among the four rose flower producing companies

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	80.000 <sup>a</sup>	3	.000
Likelihood Ratio	89.974	3	.000
Linear-by-Linear Association	5.267	1	.022
N of Valid Cases	80		
a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 5.00.			

### Appendix 4. Summary of the key informants

No	Name of the key informant	Position	Organisation	Location
1	Leul Debas	Farm Manager	Ethio-Agri-CEFT	Holeta
2.	Wondewossen Legesse	Deputy Farm Manager	ET Highland Flora	Sebeta
3.	Ashenafi Tesfaye	Farm Manager	Dream Flowers	Menagesha
5.	Ermiyas Solomon	Operational Manager	Ziway Rose	Ziway rose
6.	Tariku Zemedkun	General Manager	EHSC	Addis Ababa

7.	Asnake Demisie	Advisor and Secretariat officer of the President	CETU	Addis Ababa
8.	Frew Abebe	Communication and information Director	DBE	Addis Ababa
9.	Mekonnen Solomon	Agriculture and Service Investment Projects Directorate Director	EIC	Addis Ababa
10.	Kassahun Tsegaye	Senior Expert for Development Institutions Monetising Compliance and Regulation	EFCCC	Addis Ababa
11.	Lucas Eshetu	Account manager	Flora Holland Consultancy services	Addis Ababa
12.	Kalkidan Wubie	Certifier and Coordinator	Control Union Ethiopia Inspection & Certification Plc	Addis Ababa
13.	Mikyas Bekele	Training Department Head	EHPEA	Addis Ababa
14.	Anonymous	Anonymous	MoLSA	Addis Ababa
15.	Adane Getnet	Labour union leader	Ethio-Agri-CEFT	Holeta
16.	Anonymous	Worker	ET Highland Flora	Sebeta
17.	Kidir Hussien	Labour Union leader	Dream Flowers	Menagesha
18.	Abebe	Labour Union Leader	Ziway Rose	Ziway

## Appendix 5. The content of EHPEA Code of Practices

The EHPEA Code of Practice consists of three levels of excellence allowing Ethiopian flower and ornamental plant farms to be rewarded at each stage of their process towards developing more sustainable management practices within the chain. Each level will be recognised by EHPEA through a certificate. Farm managers can use this certificate for internal and external communication purposes. Specific topics and requirements are presented for each level.

### 1. Bronze Level

The Bronze Level is the minimum level Ethiopian flower and ornamental plant farms should meet to be able to export their produce.

#### Objective:

Compliance with the requirements of the Bronze Level requires that Ethiopian farmers have a basic management system in place that ensures the planning, monitoring and evaluations of key sustainability issues. Farms must also implement safe working practices and comply with the Law of the Land.

#### Compliance requirements:

Compliance at Bronze Level ensures that the farm:

- Measures, documents and evaluates every month its performance on water consumption, pesticides use, fertilizers use, waste management and energy consumption
- Uses the information from the monthly performance evaluation to take the required corrective actions in order to remain between the sector wide defined range

- Has put a basic farm auditing system in place that allows the periodical evaluation of all issues that are relevant to the Bronze Level. This system should allow the farm to register for MPS A/B/C certification
- Has assessed risks related to environment and occupational health and safety and has put in place suitable mitigating actions in accordance with the EIA procedure  
Note: In the future new businesses will be required to complete an EIA before starting the development of a farm site
- Does not 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 and MOARD Regulations and Lists of Permitted products
- Implements safe pesticides use and storage: a pest control planning and monitoring system is put in place, the pesticides and fertilizers storage complies with local recognized safety and health conditions
- Ensures that Personnel related to pest control activities are trained about the risks of handling pesticides and the correct use of personnel protective devices and washing facilities. Re-entry times and a general emergency and emergency procedure are put in place at farm level. All personnel are trained in the general accident and emergency procedures
- Has its personnel enrolled in a general training and awareness building programme on sustainability issues at the workplace.
- Has put a personnel management system in place that ensures safe working conditions
- Has put in place human resource management systems for staff briefing, issues on work contracts and disciplinary and grievance procedures which are in compliance with the Country labour legislation

## 2. Silver Level

Farms wishing to achieve compliance at Silver level are required to show compliance with all requirements at the Bronze Level prior to or at the time of being audited for the Silver Level.

**Objective:** The Silver Level enables the Ethiopian flower and ornamental plant farms to meet national and international legal compliance, and basic sustainable flower cultivation practices demanded by the European retail sector.

### Compliance requirements:

Compliance at Silver Level ensures that the management system put in place at farm level complies with the following requirements in addition to those specified at Bronze Level:

- The farm has put a professional auditing system in place that allows the periodical evaluation of the sustainable management practices.
- Ensures farm compliance with Ethiopian laws and regulations regarding:
  - **Sustainable site management:** adjustments have been made to ensure sustainable site management; sustainable soil and substrate management practices have been put in place.
  - **Safe pesticides use and storage:** a pest control planning and monitoring system is put in place, the pesticides and fertilizers storage complies with international recognized safety and health conditions.
  - **Sustainable water use:** farm water use is measured and practices are put in place to ensure the sustainable consumption of available water sources

- **Safe waste management:** a sustainable waste management system is put in place that complies with national legislation and MPS A/B/C requirements,
  - **Occupational health:** there is a medical service in place either inside of the farm or in cooperation with local service providers.
  - **Labour conditions:** a personnel management is put in place that guarantees its compliance with Ethiopian laws on minimum wage and the right to organize and collective bargaining.
  - Ensures market compliance with requirements related to:
    - **Sustainable post-harvest practices**
    - **Accepted pesticides residue levels**
    - **Safe pesticides and fertilizers storage**
  - The farm has put a management system in place that allows the data collection, reporting and evaluation of its sustainable management performance, and has put a procedure in place to take its required corrective measures.
  - The farm has put a complaint procedure in place for visitors and other stakeholders and has installed a procedure to take the required actions to respond.
  - The farm has a procedure in place for involving all levels of farm staff as appropriate in the development and implementation of procedures that lead to code compliance.
- On reaching the Silver Level, the farm should be able to obtain MPS GAP/ EUREP GAP certification

### 3. Gold Level

Farms wishing to achieve compliance at Gold Level are required to show compliance with all requirements at the Bronze and Silver Levels prior to or at the time of being audited for the Gold level.

**Objective:** The Gold Level enables the Ethiopian flower and ornamental plant farms to meet good sustainable flower cultivation practices demanded by the European retail sector and niche markets.

**Compliance requirements:** Compliance at Gold Level ensures that management systems put in place at the farm comply with the following requirements in addition to those specified at the Bronze and Silver levels:

- The farm has put a system in place that enables the complete concept of Integrated Pest Management.
- The farm introduced biological crop management systems that enable a significant reduction of Agrochemical use.
- The farm has installed an international recognized sustainable waste management system.
- The farm has put a personnel management system in place, based on internationally recognized fair labour conditions, as indicated by the ILO conventions.
- The farm plans, monitors and evaluates activities that improve nature conservation and support community development in the direct surroundings of the farm. On reaching the Gold level the farm should be able to obtain MPS SQ/ FFP certification.

## Appendix 6. Survey questions and checklists

### SURVEY QUESTIONNAIRE FOR WORKERS

***Please tick (✓) the appropriate box***

1. Town: Menagesha ☐ Holeta ☐ Sebeta ☐ Ziway ☐
2. Company name

3. Sex: Female ☐ Male ☐
4. Age:  
 (<18) ☐ (18-29) ☐ (30-44) ☐ (45-59) ☐ (60-74) ☐ (>75) ☐
5. Level of Education:  
 Illiterate ☐ High School ☐ Bachelor Degree ☐ PhD ☐  
 Elementary ☐ Diploma ☐ Master Degree ☐
6. Job category  
 General Manager ☐ Supervisor ☐ Guard & other workers ☐  
 Manager ☐ Assistant supervisor ☐
7. Work experience
8. Basic salary for basic workers
9. How many  
 a) hours you are working per day?   
 b) days you are working per week?   
 c) days you are resting per week?
10. Is your employer pays overtime to their employees? Yes ☐ No ☐
11. If yes, what is the rate of payment when employees did overtime:  
 a) between 8 am to 17:00 pm?  
 same as salary ☐ 1.5 \* salary ☐ 2.5 \* salary ☐  
 1.25 \* salary ☐ 2 \* salary ☐ other (specify) \_\_\_\_\_  
 b) between 17 to 22pm?  
 same as salary ☐ 1.5 \* salary ☐ 2.5 \* salary ☐  
 1.25 \* salary ☐ 2 \* salary ☐ other (specify) \_\_\_\_\_  
 c) between 22pm to 8am?  
 same as salary ☐ 1.5 \* salary ☐ 2.5 \* salary ☐  
 1.25 \* salary ☐ 2 \* salary ☐ other (specify) \_\_\_\_\_  
 d) during weekend?  
 same as salary ☐ 1.5 \* salary ☐ 2.5 \* salary ☐  
 1.25 \* salary ☐ 2 \* salary ☐ other (specify) \_\_\_\_\_  
 e) during holidays?  
 same as salary ☐ 1.5 \* salary ☐ 2.5 \* salary ☐  
 1.25 \* salary ☐ 2 \* salary ☐ other (specify) \_\_\_\_\_
12. Is there workers' association in your company? Yes ☐ No ☐
13. If yes, rate the effectiveness of the association?  
 Very effective ☐ Effective ☐ Not effective ☐

14.If no, please mention the reason(s)?

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15.Is the company providing:

- a) free protective clothing? Yes ☐ No ☐
- b) water for drinking? Yes ☐ No ☐
- c) toilets for their workers? Yes ☐ No ☐
- d) washing facilities? Yes ☐ No ☐
- e) clear safety instructions of chemicals? Yes ☐ No ☐

16.Is the company treating workers equally irrespective of:

- a) ethnic origin? Yes ☐ No ☐
- b) sexual orientation? Yes ☐ No ☐
- c) political opinion? Yes ☐ No ☐
- d) religion? Yes ☐ No ☐

17.Have you received a contract/agreement letter from your employer?

Yes ☐ No ☐

18.What community services that your company provide to the workers?

(multiple answers is possible)

Scholarship ☐ Free health services ☐

Free food services ☐ Others (Specify) \_\_\_\_\_

19.What community services that your company provide to the nearby society?

(multiple answers is possible)

Schools ☐ Health centre ☐

Road ☐ Others (specify) \_\_\_\_\_

### **CHECKLISTS FOR INTERVIEWEES (ROSE FLOWER PRODUCERS, EHPEA, EHDA, EIA, DBE AND ROYAL FLORAHOLLAND)**

1. Name of the of the interviewee
2. Roles and responsibilities of the organisation
3. Concern to people, planet and profit

#### **People**

4. Challenges of labour conditions

- a) Minimum wages
    - Wages of your employees according to national standard
  - b) Working hours, resting days and overtime payment
    - Labour law proclamation (Federal Negarit Gazeta, 2004)
  - c) Freedom of association and collective bargaining
    - Existence of legal framework in your company
    - Existence of the association and its effectiveness
  - d) Health and safety of workers
    - free and appropriate protective clothing
    - drinking water, provide clean toilets, showers & washing facilities
    - ventilation, water supply and cooking facilities
    - risk assessment of chemicals to workers
    - clear safety instructions of chemicals
  - e) Equality of treatment
    - Ethnic origin
    - Sexual orientation
    - Political opinion
    - Religion
  - f) Security of employment
    - Formal agreement (official letter) to all employees (including daily labours)
  - g) Child labour issues
5. Current measures taken to improve labour conditions in your organisation
  6. Problems encountered during the implementation process
  7. Feasible and desirable adaptations, changes and inclusions

## **Planet**

8. Challenges
  - a) Soil fertilisation methods
    - organic, inorganic or both
  - b) Pest control techniques
    - IPM, Pesticides, Cultural
    - Knowhow about WHO prohibited chemicals
  - c) Water consumption and conservation
    - Recording and reporting of consumptive use of water
    - Wise water utilisation practices (drip irrigation)
    - Surface water depletion issues
  - d) Energy source and consumption
    - Renewable (solar & wind) vs. non-renewable (fuels & natural gases)

- Recording and reporting of energy consumption
- e) Waste management system:
  - Waste separation categories
  - Cares given while disposing waste chemicals and their containers
  - Waste recycling activities – organic waste
  - Waste water treatment- reuse
  - Waste removal routes
    - drinking water, springs, ground water
    - surface water, rivers, dikes and lakes
- f) Environment related community services
  - planting of trees
  - others
- 9. Current measures taken by your organisation
- 10. Problems in the implementation process
- 11. Feasible and desirable adaptations, changes and inclusions

## **CHECKLIST TO CONTROL UNION**

1. Name of the of the interviewee
2. Roles and responsibilities of the organisation
3. Concern on sustainability

### **People**

4. Challenges of labour conditions encountered in rose flower producing companies
  - a) Minimum wages
  - b) Working hours, resting days and overtime payment
  - c) Freedom of association and collective bargaining
  - d) Health and safety of workers
  - e) Equality of treatment
  - f) Security of employment
  - g) Child labour issues
  - h) Others
5. Current measures taken to improve labour conditions by your company
6. Problems encountered during the implementation process
7. Feasible and desirable adaptations, changes and inclusions

### **Planet**

8. Most urgent environmental challenges you faced
  - a) Soil fertilisation methods
  - b) Pest control techniques



- c) Water consumption and conservation
  - d) Energy source and consumption
  - e) Waste management system
  - f) Others
9. Current measures taken
  10. Problems in the implementation process
  11. Feasible and desirable adaptations, changes and inclusions

## **Appendix 7. Results on profit**

### **A) Current measures taken to ensure profitability**

**1) Ethio Agri-CEFT:** - Key informant 1 mentioned that the company has its own standard to measure the productivity of roses. It was considered as good by the company when the productivity was greater than 105 stems per m<sup>2</sup>. According to this measurement, the productivity greater than the reference point (around 115 per m<sup>2</sup>) and thus found in a good position. Moreover, there was no as such post-harvesting handling problem in the farm. The company was also producing 13 varieties of roses with 11 colours (Key informant 1). Rose colours and varieties were grown based on the demands of consumers (key informant 1 and Ethio Agri-CEFT (2013)).

The award of EHPEA certificate on the code of practices was another achievement of the Ethio Agri-CEFT (Key informant 1). The company was taking different measures (improved workers handling, wetland, preparation of compost and liquid natural fertilizers) to receive MPS A/B/C, MPS GAP, FFFP and Fairtrade certifications (Key informant 1 and observation). Middle east became preferable place for the company as the selling price was better than the auction in the Netherlands (Key informant 1).

**2) ET Highland Flora:** - The company showed productivity improvement from year to year. For example, the productivity of this year (2018/9) (160 stems per m<sup>2</sup>) was higher than last year (2017/8) (135 stems per m<sup>2</sup>). The post-harvest loss trends of the company were not recorded (Key informant 2). However, were two reasons of post-harvest losses in the pack house; (1) the rose stem size may not full fill the market standards and (2) absence of market; most serious problem. The company was producing eighteen varieties of roses with seven types of colours based on consumer demands and preferences. To reduce the cost of loading and unloading in the auction, ET highland Flora were using Middle and Far East markets as its product destinations. Formerly, the company was producing to one Holland supermarket called rose portal. However, due to low selling price, the contract agreement was stopped with the supermarket.

**3) Dream flowers:** Dream flowers took different measures to improve its profitability. For example, the company was purchasing low quality PPE from Ethiopia so as to reduce the production cost. EHSC and Oleij were also the fertilizer and seedling sources of the company, respectively (Key informant 3). However, air freight and labour costs were the higher costs incurred by the company. Middle and far east (Japan, Qatar and Dubai) were the preferred market destinations (Key informant 3 and 17) of the company as these market places didn't require certifications. Dream flowers with the other four sister companies in Holeta and Menagesha were producing around 50 varieties of roses.

**4) Ziway rose:** - The productivity of intermediate roses on average is around 250-285 stems per m<sup>2</sup>, but the company was producing more than 300 stems per m<sup>2</sup> due to the favourable climate and selection of varieties (productivity, resistance to pests, market demand and shelf life). The company

was producing around 17 varieties of rose. The post-harvest losses per year was around 2%. Thus, the company showed good progress on productivity increment. Because the owner is Dutch-based and had a lot experience from the parent and grandparent, market linkage and knowledge was not a problem for the company. The company had contract agreement with the buyers.

Price fluctuations greatly affect the profitability of the company. Attractive selling price of rose mostly recorded from January to May since valentine day, women's day and mother's day are celebrated with these months' range. While the low price usually recorded between June to December.

## **B) Challenges of profitability issues**

Key informant 1, 2, 3 and 4 described the **poor coordination of stakeholders** in rose value chain. There was regular electric cut-out. The companies during that time were forced to use fuels. Fuels are costlier than electric power and thus, results increased production cost. This was a simple challenge that the concerned body (ELPA) could tackle it, but remaining the main problem for the rose flower producing companies. **Poor postharvest handling in the airfreight** (product loss and shelf life shortening due to poor handling practices workers in the airfreight) were mentioned as a problem for the companies.

**1) Ethio Agri-CEFT:** - Higher input and airfreight cost, low selling price in the auction, absence of the necessary certifications, poor market linkage and knowledge were the major points raised by the key informant as challenges of the company in line with profit. The production cost of the company was high as most inputs were importing from abroad (Key informant 1 and 5). Because the production and marketing cost was greater than selling price in the auction, Ethio Agri-CEFT, at the time of data collection, was finding market from the middle and far east. The buyers in the auction during the time was paying 0.05 Euro cent per stem while the airfreight cost was 0.06 Euro cent. As a result, the company chosen to sell its product to the middle east buyers or throw it as postharvest losses.

**2) ET Highland Flora:** - Absence of stable market, input and airfreight cost, market linkage and information gaps and absence of essential certifications were mentioned as profitability issues in ET Highland Flora. Similar to Ethio Agri-CEFT, ET Highland Flora lack MPS A/B/C, MPS GAP, MPS SQ, FFFP and Fairtrade certifications (checked through online). However, the company had silver level certification from the association (Key informant 2). Most inputs were importing from abroad mainly Kenya except the packaging materials. Hence, the source of inputs made the production cost of the company higher while the airfreight cost made the marketing cost higher.

**3) Dream Flowers:** - No record of productivity and production losses, absence of stable market and certifications were the major points reflected by key informant 3 as challenges of profitability issues of the company. The productivity of the roses was not documented and thus not known (key informant 3). The two ways of post-harvest losses in the company also mentioned; (1) when the flowers were not satisfying the criteria and (2) when there was absence of market. Dream flowers hasn't MPS-A/B/C, MPS GAP, MPS-SQ, FFFP and Fairtrade certifications (checked through online). However, Key informant 3 mentioned the achievement of bronze certifications from the association.

**4) Ziway rose:** The company owner knows very well; not only how to produce but also how to sell. The father and grandfather of the owner were flower producer i.e. the owner was the third generation rose flower producer. Thus, there was no doubt on the profitability of the company. Fulfilling the required standards are the main means of increasing the profitability of the sector (Key informant 4).

However, almost all of PPE and fertilizers were imported from abroad. Even, cartoons for packaging were importing from Dubai and India. This resulted the input cost higher.

### **C) Feasible and desirable changes, adaptations and inclusions**

To create good market linkage and information, different exhibitions shall be arranged and prepared by governmental and non-governmental institutions. Previously, the EHDA was involved in promoting and linking the growers with markets (Key informant 8). However, this organisation was collapsed by the recent government reforms. Different exhibitions were arranged by the association but not enough *i.e.* maximum efforts shall be utilised.

Improving the postharvest handling problems in the airfreight should be one of the focus areas so as to ensure the profitability of the companies (Key informant 1, 5 and 10). Thus, the Ethiopian airlines should give emphasis on postharvest handling activities of its workers while delivering the services. Furthermore, fulfilling international standards and certification, correcting the electric cut-out and improving the logistic efficiency for timely supply of inputs shall be given due attention.