



To cite this article: Solomon Dessalegn Dibaba, *Regulation of Floriculture Production in Ethiopia: Focus on the Enforcement of the Right to Development and Environment in Batu Area*, *HARAMAYA LAW REVIEW* 12: 67-81 (2023)

REGULATION OF FLORICULTURE PRODUCTION IN ETHIOPIA: FOCUS ON THE ENFORCEMENT OF THE RIGHT TO DEVELOPMENT AND ENVIRONMENT IN BATU AREA

*Solomon Dessalegn Dibaba**

Abstract

The Ethiopian floriculture sector has steadily grown, providing economic development through job creation, expansion of infrastructure, and foreign exchange earnings. However, due to the growth of the industry, environmental impacts and concerns have emerged as the industry grows physically and monetarily. Thus, this research article assessed the enforcement of the right to development such as the right to improved living standards and the right of people to participate in the planning and implementation of development projects on one hand; and the adverse impacts of developmental projects on the environment. In order to critically analyse the implementation of the right to development and its environmental impacts qualitative research methods such as in-depth interviews, personal observations, focus group discussion (FGD), and expert opinions were used. The study employed a purposive sampling technique to select informants for the in-depth interview and expert opinions, and to organize FGD. Accordingly, the findings of the research proved that the sector plays too much role in enabling citizens at least to lead adequate standards of living, at least at its minimum levels. However, the level of participation of local community members in planning, implementation as well as in assessing the socio-environmental impacts of flower projects is at its very low levels. Based on the findings, there should be a special provision or procedure to be drawn up and implemented to ensure meaningful and effective participation. The country should learn from others for the betterment of her laws and regulatory frameworks for effective sustainable development and environmental protection. Mechanisms and procedures that enhance the coordination and cooperation of regulators should be adopted and implemented.

Key terms: Development, Environment, Floriculture Industry, Ethiopia, Laws

* Solomon Dessalegn Dibaba, he received his LL. B from Mekelle University, 2012 (G.C) and LL.M from Hawassa University, 2018 (G.C). He is currently, a Lecturer at Law, School of Law, College of Law and Governance, Oromia State University, Batu, Ethiopia, he can be reached at E-mail: solomondesalegn6@gmail.com.

I. INTRODUCTION

Currently, the government of Ethiopia gives policy precedence for the rapid and continuous economic development of the country. To this end, the government strives to attract foreign investors from all over the world by providing or creating various attractive incentives, opportunities, and favorable conditions for potential investors. Among others, the investment opened for foreigners in the agriculture sector has been the major one; particularly, horticulture and its major sub-areas of floriculture (flower growing). Therefore, flower growing investment is being the main attractive area for investors. To this end, thousands of hectares of arable and fertile land is being allotted.¹

The Ethiopian floriculture sector began in 1997 with just two flower farms, but has grown to more than 120 operational flower farms in the country today.² The rapid growth of the industry is due to a variety of factors such as mild climate, government support, proximity to the global market, ease of transportation, favorable investment laws and incentives, and an abundant and cheap labor force.³ Flower growing in Ethiopia came at a time when the country was emphasizing a shift from over-reliance on traditional cash crops to new and non-traditional cash crops.⁴ It is government's strategy to diversify its exports by identifying and promoting new crops on the international market for foreign exchange earnings.⁵ The interest of the government was to create employment opportunities for the rapidly growing population which the flower industry had positioned itself to offer.⁶

As the floriculture industry grows, it has positively impacted employment in Ethiopia, creating roughly 180, 000 jobs at the local level, making a large contribution to the improvement of livelihoods, food security, and reduction of poverty.⁷ The industry continues to grow physically and monetarily, however as it grows on such a large scale; there are concerns about potential environmental impacts such as water pollution from fertilizer and pesticide use.⁸ Floriculture develops as one of the booming sub-sectors in Ethiopia with extremely fast growth and successful diversification to non-traditional export products.⁹ As a means to realize the country's development endeavours the Ethiopian floriculture sector is growing at least by twenty (20) percent each year, making the nation the second largest African exporter of roses.¹⁰ Supported by government incentives, such as a five-year tax holiday, duty-free imports of machinery and easy access to bank loans and land have attracted investors.¹¹

Private investment in the Ethiopia floriculture industry has been rising and its contribution to the national economy has become significant in recent years. This industry, although only a decade old, has shown significant progress in generating high foreign income and creating huge employment opportunities. Presently, horticulture is the fifth foreign revenue earner to Ethiopia

¹ Tsegaye Abebe, Head of Ethiopia Horticulture Producers and Exporters Association (EHPEA, 2016)

² Gebreeysus, M. and Iizuka, M. *Discovery of Flower Industry in Ethiopia: Experimentation and Coordination* (Maastricht, 2010).

³ *Id.*, at 25.

⁴ *Id.*

⁵ *Id.*, at 30-32

⁶ *Id.*, at 35

⁷ Tewodros WN., *Promoting workers' right in the African Horticulture: Labor condition in the Ethiopian Horticulture industry* (2010), at 2.

⁸ *Id.*, at 3 - 5.

⁹ *Id.*, at 36.

¹⁰ *Supra* note 2.

¹¹ *Supra* note 7, at 37.

next to coffee, pulses and oil seeds, gold and chat.¹² With regard to foreign earning, the industry has generated, for example, 265.7 million USD in 2011/2012 fiscal year.¹³ This is exponential growth when we compare it to 28.5 million USD foreign earnings in the year 2004/2005.¹⁴ From this revenue exchange, floriculture has contributed to 212.56 million, which is 80% of the total foreign revenue earned. The industry has also created over thousands employment opportunities out of which 85% are women.¹⁵ This is a big potential not only in earning foreign exchange but also in diversifying exportable products and opening huge job opportunities.

When we are talking about such a great leap forward, the horticulture is earning such high revenue in only limited and insignificant area of land, given the immense potential of Ethiopia. The total area of horticulture in Ethiopia is almost about 12,552 hectares of land from which floriculture, 80% foreign revenue earner of the sector, is practiced on only 1442 hectares of land.¹⁶ This is only 11% of the developed horticulture land in the country. Keeping its fast pace, the horticulture sector in general had gained 245 million dollars, during the 2013/14 fiscal year.¹⁷ And there are around 120 foreign and local flower companies operating in Ethiopia.¹⁸ Out of the 120 investors, 73 invested through foreign direct investment (FDI), while 11 are joint ventures and 36 are local companies.¹⁹

Despite its economic role, the floriculture industry undesirably and adversely affects the natural environment, resulted from various contributing factors: firstly, excessive use of chemical inputs and disposal of waste residual are extremely hazardous for the local environment. According to the Ministry of Agriculture, Ethiopia's floriculture industry has been applying more than 300 types of chemical pesticides and fertilizers. But it is estimated that only 0.1% of the applied pesticides reaches the target pest, discharging 99.9% pollutants into the environment.²⁰ Secondly, the production and transportation of cut flowers emit greenhouse gases and hence affect the global environment. Flower production uses excessive energy, especially when cultivated under greenhouses, causing air pollution and global warming.²¹ Moreover, more than 90% of pesticides can be volatile, i.e. evaporates and contaminate the environment within a few days of application.²²

In this regard, though numbers of studies and researches were conducted by different scholars; their main focus was on the environmental, social and economic impact of the floriculture sector.²³ As far as the knowledge of this researcher is concerned, the regulation of floriculture production to present the gap between the existing regulatory framework and the practice on the ground has not been sufficiently studied and covered by prior researches. This paper assessed regulation of

¹² Ethiopia Horticulture Producers and Exporters Association (EHPEA, 2016).

¹³ *Id.*

¹⁴ *Id.*

¹⁵ *Id.*

¹⁶ *Id.*

¹⁷ Alem Woldegirma, Director general of Ethiopia Horticulture Development Agency (EHDA).

¹⁸ *Id.*

¹⁹ *Id.*

²⁰ Pimentel, D. *Amounts of Pesticides Reaching Target Pests: Environmental Impacts and Ethics*. (JOURNAL OF AGRICULTURAL AND ENVIRONMENTAL ETHICS, 1995) at 33-35.

²¹ *Id.*

²² Glotfelty and Schomburg, Volatilization of pesticides from soil in reactions and movements of organic chemicals in soil (Eds. BL 200).

²³ The majority of the literature on the floriculture industry has focused on the environmental impacts themselves (Hengsdijk and Jansen, 2006; Getu, 2009; Tamrat, 2011; Jansen and Harmsen, 2011).

floriculture production in Batu area and presented the gap between the existing regulatory framework and the practice on the ground.

The paper is organized into five major parts including the introductory part discussed above. The second part deals with socio-economic and environmental impact of the floriculture industry. The third part discusses international and national regulatory frameworks for environmental protection. The fourth part is confined to the practical applicability of relevant international and Ethiopian laws, concerning environmental impacts of the floriculture industry. Finally, the fifth part provides conclusion of the findings of the paper and recommendations.

II. SOCIO-ECONOMIC AND ENVIRONMENTAL IMPACT OF FLORICULTURE INDUSTRIES

A. Economic Bearings of Floriculture Industry

Almost all African countries based their economy on exporting of agricultural products. Many of them often rely largely on a single agricultural product (such as coffee, cocoa, cotton, tea) for generating foreign exchange revenue. Coffee which has the lion share of export commodities in Ethiopia have shown currently a slow world demand and downward trend in its real price. As a result, a need for diversification of agricultural exports into a higher value, non-traditional products after taking a lesson from other sub-Sahara countries like Kenya, Tanzania and others which have shifted their attentions into exporting non-traditional horticultural product (such as, cut flowers and plants, fresh and processed fruits and vegetables).²⁴ Floriculture is a new product to export and contains a huge potential to earn foreign exchange, the quality of flower which is exported by Ethiopia has currently seen the international market demand. It attracts several buyers around Europe and the USA, getting utmost consideration for exports presently in Ethiopia and one of the prospective products that is going to take over the position of coffee which is the major source of foreign exchange.²⁵ In March 2016, the president of the Ethiopian Horticulture Producers and Exporters Association (EHPEA) announced that the country earned over 114 million USD in revenue with months of period of time in 2016. The industry's foreign earning power is increasing at a considerable rate from time to time.

B. Social Significance of the Sector (Job Opportunity for Local Labor)

The industry has shown a growing trend in the past 5 years and its related labour force is increasing from time to time. Currently, the industry opened more than 50,000 employment opportunities directly and 150,000 employees indirectly, of which 70% of the total workforce are women, who had difficulties previously in possessing permanent jobs and also created in rural areas where there is a high rate of unemployment.²⁶ Basically, the total labour composition can be divided into three major groups i.e., managerial, technical, and manual. The labour part is provided by the local workforce and the capital intensive or high-skilled part is filled by imported skilled labours that have a high expertise in the field. These combinations give the local workforce the opportunity to gain experience and knowledge while working with new technology and experienced workers.²⁷

²⁴ David T. The bloom on the rose, looking into the floriculture industry environmental health perspectives (Volume 110, Number 5, 2002) at 240-247.

²⁵ *Id.*

²⁶ *Id.*, at 241 - 243.

²⁷ Taylor, B., Labor patterns in export floriculture: The case of Ethiopia flower industry (2010), at 25.

C. Environmental Impacts of the Floriculture Industry

The Ethiopian floriculture sector has steadily grown, providing economic development through job creation. However, due to the growth of the industry, environmental impacts and concerns have emerged as the industry grows physically and monetarily. With the expansion of the floriculture industry, there is a growing concern as to its adverse effect on the national environment. EHPEA) is aware of this concern and stated that, “When any new sector is introduced into a country there are inevitable concerns about the impact of the sector on the local environment...”²⁸ Environmentalists are raising many concerns in relation to the expansion of floriculture in Oromia such as the use of pesticides and chemical fertilizers, disposal of waste materials, and the protection of water bodies. According to environmentalists, the industry uses too much pesticides and chemical fertilizers which damage the environment. They believe that too much pesticide is getting into water bodies damaging the biodiversity and excessive chemicals are killing useful organisms in the soil. Environmentalists are also concerned that waste materials will damage the environment will get into the soil, water bodies, or be used by people and cause serious damage.²⁹

D. Waste Disposal Feature and Impact on Surrounding Environment

Floriculture activities produce different types of waste ranging from liquid to solid, hazardous to non-hazardous, and in effect require safe waste disposal and differentiated treatment. Empty chemical containers (fertilizers, pesticides) and their washing waters and obsolete chemicals are the major spheres of concern in addition to other agricultural wastes generated in the sector such as cut-off crop parts, unused soil, and waste water.³⁰ It has been proved that chemical containers, diseased plants, a residue of cut-flower, stems, and plastics are some of the major solid wastes. It is known that up to 500 tons of residues per hectare are generated from flower farms in a year. Liquid waste that cannot be reused or recycled should be collected and kept in impermeable containers or solar evaporation ponds. The waste residue should be transported off-site for safe disposal at a local, council-approved waste disposal area. However, the flower farms in Ethiopia have been heavily criticized for not having adequate means of waste management systems.³¹

III. AN OVERVIEW OF INTERNATIONAL AND NATIONAL REGULATORY FRAMEWORK FOR ENVIRONMENTAL PROTECTION

A. International Conventions and Treaties for Environmental Protection

Ethiopia is party to various global and regional conventions on environmental protection, including those related to the GEF focus areas of Biological Diversity, Climate Change, Combating Desertification, and Persistent Organic Pollutant.³²

Ethiopia ratified the UN Framework Convention for Climate Change (UNFCCC) in May 1994. By ratifying the UNFCCC, Ethiopia has demonstrated its concern about global climate change and its political will to fulfil the commitments under the Convention. Ethiopia has undertaken GHG inventory and also submitted its communication to the UNFCCC; COP. Ethiopia

²⁸ *Id.*

²⁹ *Supra* note 53 at 243.

³⁰ Tamirat Abiy, *Toxication in bits flower industry threatens rights to water in Ethiopia cut-flower production practices, the sector’s socio-economic contribution and environmental standards*. Addis Ababa, Ethiopia (2011)

³¹ *Id.*

³² Ethiopia Country Program Strategy 2006-2009, Small Grants Program July 2006 Addis Ababa, Ethiopia.

is also in the process of developing a National Adaptation Plan of Action. A GEF-assisted project to develop a national adaptation plan of action is also recently signed.³³

The Ethiopian policy to address climate change is an integral part of the Environment Policy of Ethiopia, which was approved by the Council of Ministers. This Policy provides a framework to Ethiopia's response to the issues of climate change with the spirit of the principle of common but differentiated responsibility, both as a member of the international community and as one of the potentially impacted nations. Ethiopia has also ratified the Kyoto Protocol to the UNFCCC in 2005.³⁴

United Nations Convention on Biological Diversity (UNCBD) was ratified in May 1994. By ratifying the convention, the Ethiopian government took the commitment to achieve the three objectives of CBD. Ethiopia is also a party to the Cartagena Protocol on Biosafety since 2003.³⁵ Biodiversity conservation is an integral part of the Environment Policy of Ethiopia. Based on the framework provision of the Ethiopian Environment Policy the Ethiopian Biodiversity Conservation Policy was also formulated. Both policies take account of principles and provisions in the UNCBD as well as other international agreements in the sector such as the trade with species according to CITES and regulate the conservation of protected species of flora and fauna, as well as the species used and traded.³⁶

Ethiopia is also a party to the UN Convention to Combat Desertification (UNCCD). The objective of the Convention is to combat desertification and mitigate the effects of droughts in countries experiencing serious drought and/or desertification, particularly in Africa. Ethiopia has ratified the Convention by Proclamation No. 80/1997.³⁷ Ethiopia is also a member of the Vienna Convention for the Protection of the Ozone Layer. The basic objective of the Convention is to combat the negative impact on the environment and human beings resulting from ozone depleting substances by reducing the amounts released and eventually banning their commercial use through Ethiopia- CPS 1 8 2/21/2009 internationally agreed measures. The Montreal Protocol entered into force in 1989 to facilitate the implementation of the Convention. Vienna Convention and Montreal Protocol were ratified in January 1996.³⁸

In the year 2002, Ethiopia fully accepted and ratified the Stockholm Convention designed to ban the use of *persistent organic pollutants (POPS)*. The Environmental Protection Authority has the full mandate to implement the Convention at the national level. A project to develop an appropriate system for the realization of the objectives of the Convention in Ethiopia is in progress.³⁹

B. Ethiopia Environmental Policy and Legal Regime

Over the past few years, there has been a growing perception and commitment towards an improved natural resources management and environmental protection regime in the country. Consequently, in order to address the environmental problems towards achieving sustainable development mechanism of environmental protection adopted by Ethiopia.⁴⁰ The Constitution of

³³ *Id.*

³⁴ *Id.*

³⁵ *Id.*

³⁶ *Id.*

³⁷ *Id.*

³⁸ *Id.*

³⁹ *Id.*

⁴⁰ The Federal Democratic Republic of Ethiopia Environmental Protection Authority, (The 3rd National Report on The Implementation of the UNCCD/NAP In Ethiopia, Addis Ababa, 2004).

The Federal Democratic Republic of Ethiopia, (Proclamation No.1/1995) with a large environmental scope has defined the environmental values to be preserved and protected. The Constitution contains provisions, which recognize the importance of environmental protection and the need for its proper management. These provisions are a major springboard for subsequent legislations in environmental management, as well as for mainstreaming environmental sustainability in the political, social, and economic development sectors.⁴¹ The Constitution under Articles 44 and 92 proclaims that all citizens shall have a right to live in a clean and healthy environment. Government and citizens shall have a duty to protect the environment. The design and implementation of programs and projects shall not damage or destroy the environment.⁴²

The Constitution of Ethiopia also incorporates a number of other provisions relevant to the protection, sustainable use, and improvement of the environmental resources of the country. The incorporation of these important provisions into the supreme law of the land uplifted environmental concerns to the level of fundamental human rights.⁴³ Currently, we find a legal basis for national environmental law in our FDRE Constitution.

For example, the Constitution reads the following;⁴⁴

1. All persons have the right to clean and healthy environment.
2. All persons who have been displaced or whose livelihoods have been adversely affected as a result of state programs have the right to commensurate monetary or alternative means of compensation, including relocation with adequate state assistance.

Similarly, Article 92 of the Constitution further provides that:⁴⁵

1. The government shall endeavour to ensure that all Ethiopians live in a clean and healthy environment.
2. The design and implementation of programs and projects of development shall not damage or destroy the environment.
3. People have the right to full consultation and to the expression of views in planning and implementation of environmental policies and projects that affect them directly.
4. The government and citizens have the duty to protect the environment.

In this context, with a view to further amplifying the Constitutional provisions on environmental protection, the Environmental Policy and the Conservation Strategy of Ethiopia have been prepared. These policy and strategy documents recognized and addressed environmental issues in a holistic manner, and were adopted as well as approved on 2 April 1997.⁴⁶ The Policy, constitutes eleven-sectorial and eleven cross-sectorial policy elements. Its overall policy goal is “to improve and enhance the health and quality of life of all Ethiopians, and to promote sustainable social and economic development through the sound management and use of natural, human-made and cultural resources and the environment as a whole, so as to meet the needs of the present generation without compromising the ability of future generations to meet their own needs. “The primary need in preparing national policy and strategy documents on environmental matters was aimed to determine the objectives and strategies which contributes to ensure respect for environmental

⁴¹ *Id.*

⁴² *Id.*

⁴³ *Id.*

⁴⁴ CONSTITUTION, Proclamation No 1/1995, FED. NEGARIT GAZETA, 1st Year No.1, 1995 (here after FDRE CONSTITUTION), Art. 44.

⁴⁵ *Id.*, at Art. 92.

⁴⁶ *Id.*

imperatives, by taking into account the prevailing economic, social, and cultural situations of the country.⁴⁷

EPE emphasizes the need for arresting land degradation. The policy's section on Soil Husbandry and Sustainable Agriculture, Forest Wood Land and Tree Resource, Genetic Species and Ecosystem Biodiversity, Water Resource, Energy and Mineral Resource address the issue of combating desertification.⁴⁸

IV. RESULTS AND DISCUSSION

Oromia region, which is found in the southern part of the country, is the floriculture hub of Ethiopia.⁴⁹ Over 95% of the total flower production comes from Oromia regional state.⁵⁰ The region has well-developed infrastructure and logistical facilities in and surrounding the national capital, in addition to favourable climate, fertile soil and trainable and disciplined work force.⁵¹ The study area is Oromia region, East Shewa, Adami Tullu Jiddo Kombolcha Woreda in and around Batu area. Batu town is found on the Addis Ababa-Hawassa Road at 163 km distance from the capital. Its temperature is between 22 and 27 °C, and its soil type is leptosol; which is suitable for shallow root plants. The major source of water is Lake Batu fed by Meki and Katar rivers but there is also ground water potential.⁵² There are around five flower farms in the study area, including the major flower farms in Ethiopia. Sher Ethiopia P.L.C, Herburg rose P.L.C, AQ Rose P.L.C, Ziway Rose P.L.C, and Braam Rose P.L.C.

Sher floriculture was established on June 1st 2005. It covers 700 hectares of land.⁵³ At the national level Sher floriculture has built a good image of the country, as it generates a big amount of hard currency from export (1 million Euros per month), it offers huge employment opportunities for more than 15,000 persons (65%-70% of whom are women), it also pays huge amount of money in the form of taxes and other expenses (more than 5 million per month).⁵⁴ Sher Ethiopia P.L.C is the largest flower farm of the world that produces different types of flowers and it covers 65% of the total exports.⁵⁵ Sher Ethiopia is the most important supplier of flower for Europe through direct sale-long long-term contracts with the European market.⁵⁶ The other floriculture industries, i.e., Herburg Rose P.L.C, AQ Rose P.L.C, Ziway Rose P.L.C, and Braam Rose P.L.C were established following the establishment of Sher floriculture industry, and they work with the Sher floriculture industry taking greenhouse through lease contract.⁵⁷

To obtain adequate information regarding development contribution of flower sector and its impact on the environment, this study employed the qualitative approach. In the process of explicating the theories supporting the environmental impact of floriculture, reliance is made on exposition based on literature review. More importantly, empirical data from floriculture farms via

⁴⁷ Glotfelty and Schomburg, 1989., Volatilization of pesticides from soil in Reactions and Movements of Organic Chemicals in Soil, Soil Science Society of America Special Publication, (Eds. BL 200).

⁴⁸ *Id.*

⁴⁹ Shay shone consultancy: Hands on investment guide Oromia regional state Ethiopia, Horticulture floriculture and dairy (published and commissioned by Embassy of the Kingdom of the Netherlands, Addis Ababa 2015, at 13 - 15.

⁵⁰ *Id.*

⁵¹ *Id.*

⁵² <http://dbpedia.org/resource/ziway> accessed on 25 November 2022.

⁵³ Sher- Ethiopia- Kemal -12 (May 2016) at 3.

⁵⁴ *Id.*, at 4-5

⁵⁵ *Id.*

⁵⁶ *Id.*

⁵⁷ *Id.*, at 10.

in-depth interviews, personal observations, focus group discussion (FGD), and expert opinions were an integral part of the discussion. As a part of desk research, the researcher reviewed a number of documents pertinent to the flower industry from national, regional, and international perspectives. The approach helped the researcher to obtain information generated based on peoples' experiences, perceptions, and attitudes towards the flower industry.

The data collected was mainly qualitative, and it was collected through stake holders' consultation and interviews. Primary data was mainly collected through FGD and in-depth face to face interviews with different stakeholder respondents. The different stakeholder respondents were workers in flower farms with different levels of responsibilities; such as farm managers, chemical spray department heads and workers, public relation officers, irrigation department, administration staff, green house and cold store workers, medical personnel, and the like. And in such a way data was collected from more than fifty workers. The study also gathered information from other stakeholders, such as local community members, representatives of farmers, and pastoralists, residents of the town, woreda and regional environmental protection officers, city municipality officers, and the like. Additionally, the researcher's personal observation (i.e., participatory and non-participatory) and experience provide for important source of information; as he has been living in flower growing areas for more than ten years, and works with growers for four years. Therefore, significant place was given for information gathered through observation. All the data were carefully analysed by the researcher. The findings of this study are confined to the practical applicability of relevant Ethiopian laws, with regards to environmental impacts of floriculture industry. To this end, the researcher selected two of the prominent environmental harms or impacts of flower growers; related with water (i.e., those impacts of the sector connected with water consumption, and pollution of the same) and hazardous waste disposal mechanisms.

A. Floriculture Industry and its Impact on Water

Literature and experiences taken from other countries indicate that; the floriculture industry due to its nature consumes a high amount of water for production of flowers. For instance, floriculture industry uses water intensively as compared to the common vegetable production. Depending on the farm area, the climate change and water using mechanisms, flower Farm Company's daily water consumption is varying. Studies also proved that greenhouses require water for irrigation, cooling, pesticides application, root-zone media preparation, and clean-up. A one-hectare greenhouse has the potential to use between 120,000-16, 000 litres per day.⁵⁸ The majority of this water is used for irrigation and its rate of use is dependent on the level of solar radiation, greenhouse shading, air movement in the greenhouse, types of plants grown, irrigation system design, and the degree of leaching employed. Moreover, too much use of water leads to conflict with the local community, as was the case in the Batu and Bulbula areas. It may also lead to depletion of water from its natural reservoir.⁵⁹

In Ethiopia, even if there is law on the amount of water to be used by the sector. This study proved that water management law is not being strictly applied in the flower industry. Similarly, neither water treatment nor recycling is well adopted. And due to intensive utilization of water resources without considering the coming consequences it led to reduction of the water level. Particularly, in this study, it has been proved that due to the activity of the growers, rivers, lakes, and their tribunals in the area have been losing their natural capacity. Since many flower farms are

⁵⁸ Abayneh Tilahun (2013), Environmental impact of floriculture industry in Bishoftu town: A need for strategic environmental assessment, Addis Ababa University, Faculty of Technology.

⁵⁹ *Id.*

concentrated around Rift Valley Rivers and lakes, so as to take their positional advantage to proximate themselves to the capital city, Addis Ababa, in which the main cargo flight service is located; mainly lakes and rivers around Rift Valley area are more vulnerable to such problems.

At this junction, it is pertinent to mention that, one of the major concerns of environmentalists within the flower industry is its impact on water consumption in relation to the region where it operates. Recent research showed that there is a loose of natural capacity in river Awash. Since most farms follow the bank of the Awash River valley or its tributaries and around the Great Rift Valley Lakes to construct their farm sites, the river and lakes are exposed to open air irrigation and this results to a high level of evaporation.⁶⁰ In this region particularly, there are a lot of local farmers who are dependent on such waters for their crop cultivation, cattle breeding, and personal consumption. And, the reduction of water level of those lakes and rivers on which their life is dependent led to frustration and instability, putting their future livelihood in danger.

Considering flower industries in Oromia Regional State as a reference, respondents and gathered facts indicate the existence of several conflicts of varying severity between the concerned local people in the study areas, and flower farm investors, who are responsible for the resulted harm against the formers. Even though, there is a clear procedure in Ethiopian legislations and EPHEA about how much water a single farm should use per area; the water levels of lakes and rivers have been dropping from time to time; and no meaningful full action is being implemented to tackle this problem. For instance, due to the high consumption of water from Lake Batu by Sher Ethiopia flower farm (which is the largest flower farm in the world); the local farmers and pastoralists found in the downstream areas have repeatedly expressed their anger as the amount of water in Bulbula River, that comes from Batu Lake has been decreasing from time to time, and now it reaches to its final step of losing a single drop of water. And, the river is almost nil in this drought season.

In order to prove the existence as well as the intensity of the problem related to water scarcity against downstream farmers; which is alleged to have been caused by flower growers in Batu area, an interview was held with the representatives of local farmers and pastoralists at 25th of April 2022 E.C in Bulbula area, namely: Mr. Mustefa Ahmed and Mr. Dedefo respectively. According to the results obtained from the interview, the local farmers have been facing a severe problem due to lack of water from the river which has been decreasing from time to time; but nowadays it has reached to the level that they could not get water for various purposes as they used to. And, the angry downstreamers totally blame Sher Ethiopia and other flower growers for these problems.

In this regard, it seems proper to mention the actual problem faced by the residents of Batu town and its vicinities due to pollution of water. To sort out the existing problems of water pollution, which is believed to have been caused by five large flower farms in Batu area, namely: Sher Ethiopia, AQ Roses, Her burg Roses, Ziway Roses and Braam Roses. The researcher organized FGD, and face-to-face interviews from May 5 to 6 2022, with twenty randomly selected residents of the Town about their perception of the resulted pollution of drinking water. Questions forwarded to the above-mentioned discussants and interviewees include among others: as to how they proved that the water has been polluted? What actions they have been taking to save their health from the alleged problem? Accordingly, the response of those residents gathered through FGD and interviews indicates that; the pollution of water can easily be identified from the test and color of the distributed water through pipelines. Furthermore, all of the above-mentioned respondents told the researcher that they had a chance to directly observe through their way to church while hazardous liquid wastes of growers being directly released to the lake Batu.

⁶⁰ *Id.*

Additionally, they explained that the existing death of fishes; the prevalence of infectious diseases caused by polluted water; like typhus, typhoid and *jardiya* in the area in buttressed by the widely distributed tension among residents made them accept the fact that the water has been polluted.

With regard to measures, they have been taking so far in order to protect their health from the consequences of polluted water, the respondents explained that, fearing the health impact resulting from water pollution, not only them but also thousands of the town's residents are forced to find other alternatives of safe and healthy water to drink. Including the researcher, workers of flower growers, government officials and many other residents use water that comes from Bulbula area, which is twenty-five kilometres from Batu, with extra cost of more than twenty-five birr per twenty liters for transportation and other costs. They further expressed that many private shops and other individuals started to sell water that is fetched from other safe areas to residents of the town. Moreover, an effort was made to identify what has been done to solve the existing water-related problems by the concerned government officials. Accordingly, as per responses gathered from the interviewed government officials namely; Mr. Oshone Gemmechu, representative of the town's Mayor and Mr. Aman Teffo, administrator of the woreda; their respective offices understand the existing water-related problems caused by pollution and reduction of water capacity. They add that as an individual resident of the town, they also share similar problems with other residents. Furthermore, these officials explained that accepting this fact, the regional government and the town's administration have been implementing a drinking water project by pumping water from an area that is thirty kilometres away from the town. In this regard, the concerned authorities of the town whom the researcher interviewed revealed that though the project was started before three years, it is not yet completed and still residents pay extra money to fulfil their household water consumption.

Therefore, the researcher believes that water scarcity as well as pollution combined can affect the environment and social sustainability. Societies who depend on rivers and lakes for their livelihood might become frustrated, which may lead them to migrate to another place in search of better water resources. Moreover, sometimes local farmers confront with commercial farms and, as a result conflict might arise. A way of resolving such kind of problem is minimal, and there is no clear way for participating stakeholders how to manage the water resources. And it seems that local communities continue to suffer from such problems. And the findings of this study indicate that flower growers are actually causing damage to the environment in general, and pollution and scarcity of water in particular. As a result, the local communities have been suffering seriously from a shortage of clean water. This being so, however, no meaningful action or measures were taken so far to rectify such problems.

B. Floriculture Industry and Waste Disposal Mechanism

As has been indicated in the literature review part of this study, floriculture activities produce different types of waste ranging from liquid to solid, hazardous to non-hazardous, and in effect require safe waste disposal and differentiated treatment. Empty chemical containers (fertilizers, pesticides) and their washing waters and obsolete chemicals are the major spheres of concern in addition to which other agricultural wastes such as cut-off crop parts, unused soil, and waste water generated by the sector.

In this regard, the existing standards as stipulated in various laws clearly prohibit polluting the environment. For example, the Water Resource Management Proclamation prohibits disposing waste into any water body unless one gets a permit from the appropriate authority. Public Health Proclamation only allows the disposal of waste in a specially designated place and in a manner

that does not affect public health, and allows the disposal of solid, liquid, or any other waste in a manner which does not contaminate the environment or affect public health. Additionally, Article 6 of the Environmental Pollution Control Proclamation No 300/2002 clearly provides for the formulation of practicable environmental standards based on scientific and environmental principles. And, such standards are related, among others, to the discharge of effluents into water bodies and sewage systems; and waste management standards by specifying the levels allowed and the methods to be used in the generation, handling, storage, treatment, transport, and disposal of the various types of wastes.

On the other hand, even if there are standards for flower production, the findings of this study indicate that the growers do not adhere to such standards. Due to this, environmental problems could easily be observed in the study areas, many of which are related to poor and below standard waste disposal and management practices by flower growers. For instance; in most of the flower growers waste is not properly managed. In this regard, during his field visit to collect information, the researcher observed the fact that the growers in the area directly release their liquid wastes into the lake, which is very dangerous to the aquatic life, human and animal health, and the environment.

According to the response gathered from the interview held with Mr. Getachew Sembeta Bureau head of Fish Research Institute at Batu town, few years ago Lake Batu was known for its high production of various species of fish. But, since the establishment of flower farms around the lake, production has been decreasing. He also adds that their institution conducted a number of researches on the lake, and almost all findings indicate that the lake is highly polluted, and has become dangerous to many species of aquatic life as well as to human and animal health. A similar result was obtained from the response of Mr. Mekonen Dedefo, who is a resident of Batu town and a well-known supplier of fish products to the local and Addis Ababa markets. He explained that since the establishment of flower companies around the lake, the amount of product has been decreasing. In addition to their poor liquid waste disposal manners, the growers also dispose of solid waste in a manner that causes damage to environment through the disposal of empty chemical containers (fertilizers, pesticides) plastics, cartons, and obsolete chemicals and burning by ferns to the open air unsafely and recklessly. And only a few of the flower companies burn the solid wastes with in incinerators at higher temperature (800°C-1000°C).

Moreover, the writer directly observed the burning area which is not in accordance with the standard of disposing of chemicals; most of which are even very dangerous and prohibited at the national as well as international levels. The environmental consequence of such activities is not properly calculated due to lack of a means to calculate the amount of environmental degradation in monetary terms and hold the growers liable for the harm. Even though the activities are known by regulators, they only order the companies to correct the manner of disposing of wastes without making them liable for the harms they cause in the past. Based on the given recommendation, almost all of the representatives of the interviewed growers have started to take corrective measures towards safe and environmentally friendly mechanisms of waste disposal and management. The other problem created by the companies in the study areas is related to the manner of dumping agricultural waste or green wastes such as remaining parts of flowers, unwanted leaves and stem. Such wastes are removed and collected before the flower is prepared for packing. Only a few companies utilized this green waste as a form of compost for their own organic fertilizer need. Most of the growers either dump it as it is or burn it in open air irresponsibly.

In this regard, the companies dump hundreds of tons of flower cut-offs each day in the place where there are many inhabitants' due to this a hill of waste is created in the areas. The other

problem is that this waste is stinky and causes different diseases. On the other hand, many cattle died by eating the flower's flower waste. For example; in Batu five cows and three oxen were dead before two years by eating highly polluted parts of the unsafely dumped flower cut offs. Despite their economic losses, the owners left without compensation by the company which is responsible for the death of their cattle. This can be evidenced by the response to interview held with Mr. Kemal, who is public relations officer of Sher Ethiopia; he admitted the existing environmental problem related to poor waste disposal and management. He revealed that his company for the past ten years, followed improper means of disposing of all types of wastes. The liquid waste was directly released to Lake Batu; the solid waste was directly burned in the land leased from private farmers; and they used to dump all the flower cut-offs and residues to the farmland around the town. Currently, however, the company is forced by national and international regulators to take immediate measures to correct its existing unethical and dangerous practice of waste disposal.

And, now due to pressures from various stakeholders; the company utilizes environmentally friendly techniques and technologies of waste management with higher cost. For example; green wastes are used as compost, while most of the other solid waste are sold for a company that produces various materials from wastes, and reused for different purposes; and the remaining waste is burned appropriately. Wet land system is also started in Sher Ethiopia; the system is used to recycle all water from irrigation units, vacuum houses, grading, cold store, and showers. This enables to minimize the discharge of water to the Lake and keep the water pure and clean. It is also important to reduce the high amount of water pumped from Lake Batu. This improvement is however not true with the remaining flower growers in the region, which continue undergoing the traditional and unsafe mechanisms of waste disposal. Even though it is an appropriate measure to reduce future environmental problems; companies were not held liable for their acts that caused pollution and degradation of the environment.

C. Actual Contribution of the Sector in Realizing Right to Development

Under this section, the findings mention the contribution of the sector in realizing two of the most important components of the right to development i.e. the right to an adequate standard of living, and the right of citizens to participation in decisions that affect their environment. In realizing the constitutional as well as the internationally recognized right of citizens to an adequate standard of living, the sector takes plays its own roles. To put it in other words, through fulfilling the basic needs of thousands of workers and their family members; the flower sector is considered to have a significant contribution. It is also in line with and in support of governmental aspirations for development. In this regard, members of local communities, as well as workers of the sector, are seen to lead improved standard of living in comparison with that they used to lead before the establishment of the sector. Most of the interviewed workers, members of the local communities, and revenue collecting officials of the government, agreed as to improvement of their lives and governmental income, respectively. And these seem why the Ethiopian government gives priority to the sector in comparison with other sectors of investment. Therefore, though the right to adequate standard of living is perceived to be different in different levels of development of countries; and, since, its level as well as realization depends on the country's level of development; it could not be the same for citizens of the developed and developing countries. Having this in mind, no one can deny the fact that the sector contributes very well to making the aspiration a reality.

Proceeding to the other very important aspect of the right to development, which is related with the right of local people to participate in the planning as well as the implementation of development projects in general; and the flower sector in focus, the obtained result of this study reveals an opposite reality compared to the above stated component of right to development. Various scholars as well as the writer of this research believe that, participation plays a pivotal role in the implementation of the right to development. Hence, it can be considered as one essential element of the right to development. From this standpoint, the inclusion of this concept in the Federal Democratic Republic of Ethiopia Constitution reflects the expression of the sovereignty of the people and that the form, quality, democratic nature, and effectiveness of the participatory process, mechanisms and institutions are the central and essential indicators of progress for the realization of the right to development in the Ethiopian context as well. In addition to this, participation enhances the productive capacity of the people and it is an indispensable input in the realization of the right to development. The right to participate involves participation at every stage of a development project. For instance, recognition of decentralized decision-making implementation process enables citizens to participate in the overall development activities of the country. Apart from this, in order to maintain development for the benefit of the public at large, there should be a clear procedure from the very beginning when any development project is in place.

Apart from what has been stated theoretically, the existing reality tells different story. For instance, in the implementation of flower projects in Oromia Regional State, the authorities repeatedly fail to consult with members of the local community where the intended plan is going to be implemented. There is no sufficient room to participate farmers whose land is going to be taken for investment projects. In this regard, representatives of farmers, whose land was taken over for the expansion of Sher floriculture around Batu, explained to the researcher that, no one has properly participated in the decision made to expropriate their land. The only thing conducted by concerned officials was to warn them not to impede the project as it was intended for their own development. And anyone against the project is considered to be against development. Another social crisis that flower farms cause is land holding problem. Initially land is owned in the country by the state with the right to evict the land owner with the appropriate compensation. Nowadays local farmers give up their lands to floriculture industries either in exchange of a land which lacks infrastructure and unfertile, or they were convinced or forced to sell their lands with compensation. As the farmers lack the knowledge on how to manage the given compensation to handle their future lives, they spent it for unusual purposes and soon they will become unemployed and incomeless. Therefore, based on the result obtained from conducted interviews with local communities, experts of the Bureau, and stakeholders; it could be deduced that there is no genuine public participation in the plan and implementation of flower projects; the environmental impact assessment study report and review of the study report.

V. CONCLUSION

The floriculture investment, particularly its flower growing sub-sector is fast growing in Ethiopia. Economically, the floriculture industry is playing a vital role and contributes a lot for the realization of the country's development endeavours by creating direct and indirect job opportunities for more than hundreds of thousands of jobless citizens. It also contributes in raising tax and non-tax revenues of government; paying millions of dollars to Ethiopian Air Lines for transporting their products; building infrastructures; and contributing for other development projects.

But, on the other side, the industry has its own environmental, social and health impacts. This is mainly due to the inputs that the industry utilizes; such as fertilizers, chemicals, intensive use of surface and ground water, and the conversion of wetlands and farmlands for flower industries, and the waste disposal to the water bodies. The rivers and lakes around the flower farms are highly exposed to direct effluents of fertilizer wastes from flower farms, and the water quality of the river is changed and the

eutrophication process is taking place, which caused severe consequences to ecology of Lake Batu and other tributary rivers. With regard to developmental and environmental rights, the FDRE Constitution as well as many international instruments make clear that citizens have rights to an adequate standard of living, the right to actively participate in the planning and implementations of developmental projects; and to live in a clean and healthy environment. Then, in relation to apprehending two of the most imperative components of right to development, this research proved that, the sector plays too much role in enabling citizens at least to lead adequate standards of living, at least at its minimum levels. However, the level of participation of local community members in planning, implementation as well as in assessing the socio-environmental impacts of flower projects is at its very low levels. The research has assessed the process by which popular engagement should be implemented to promote participation.

Recommendations

This study's analysis is devoted to identifying the current relationship between the country's development programs and the adverse environmental impacts of floriculture industry in Batu area. This relationship is important for safeguarding the local community's constitutionally protected rights to sustainable development, a clean and healthy environment. Thus, based on the key findings of this study, the following recommendations are forwarded: The existing legal standards need to be properly implemented and the country should learn from others for the betterment of its laws and regulatory frameworks to realize sustainable development. For instance, other countries control environmental hazards of the sector through obliging the sector to utilize environmentally friendly techniques of production, like having vegetation buffer in place before the wastewater is discharged to the river to improve the discharged water quality. Environmental Impact Assessment (EIA) should be properly supervised, followed up and regulation by the Ethiopian Environmental Protection Authority (EPA) must take place with much more efficiency. In order to enhance the participation of local people: there should be special provisions or procedure to be drawn up and implemented to ensure meaningful and effective participation. For instance, consensus building and agreement seeking that require consistence of participants that work together.

Government officials and the general public should be encouraged to attend seminars, workshops, and discussions to increase their understanding of the sector's contributions and effects. Hence, raising awareness among professionals and officials is essential to enhancing the system's actual use and fostering a more favourable and sustainable environment.

To reduce the adverse impact of the sector on air, water, soil, deforestation and etc., mechanisms and procedures that enhance the coordination and cooperation of regulators should be adopted and implemented; their offices should also be strengthened and organized with man power and technology.

* * * * *