

Research Article

Challenges and opportunities for ecotourism development: A case study in dilla university botanical and ecotourism garden, South Ethiopia

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Abstract

Dilla University Botanical and Ecotourism Garden was established in 2017 for the purpose of biodiversity conservation and ecotourism in Dilla area. This study was conducted to determine the opportunities and challenges for ecotourism development in the garden. Respondents from Odaya kebele, and key informants from government offices, Saron lodge, Dilla University, local elders and youth unions were selected for this study. Data were collected through questionnaires, interviews, focused group discussions and field visits. The study of community attitude towards ecotourism and the garden indicated as the majority of respondents were familiar with ecotourism and support its implementation in the garden. In addition, the present study revealed flora and fauna, attractive landscape, cultural resources and rivers as the main ecotourism attractions in the garden while diversity of ecotourism attractions, the unique natural and agro-forestry ecosystems of the Gedeo Zone, presence of different cultural attractions and existence of Saron Lodge in proximity to the garden as the top four opportunities to promote ecotourism in the area. As to the result of this study, the low level community benefit, inadequate community participation, absence of ecotourism plan and unsustainable use of resources were the major challenges of ecotourism development in the garden. The study also identified absence of sufficient accommodation and lack of local guides as first and second facility problems in the garden. To address the different problems and implement an integrated ecotourism development approach, involving communities and enhancing their role has been recommended as the key component of ecotourism development in the area.

Introduction

Tourism is among the largest and rapidly growing industries in the world that contribute for community development through income generation and employment opportunities [1]. As to the World Wide Fund for nature (WWF), tourism accounts for over 10% of total employment and 11% of GDP globally. As a result, it has an increasing impact on people and nature [2]. However, the recent ethical issues regarding travel and tourism brought a platform for flourishing of ecotourism destinations. The increasing interest of visitors to support tourist destinations they discovered and the people and cultures they encounter on their travels led for prevalence of ecotourism areas [3].

Ecotourism is a form of tourism in which natural areas are the prime attractions. It is a responsible travel concerned with

conservation of the environment and benefit of the local people [2]. This made ecotourism to be a preferable tourism segment in visitor education, securing funds for conservation, directly benefiting local communities, promoting the empowerment of local people and promoting the protection of local cultures [4]. The popularity of ecotourism has been growing with its role in livelihood improvement, poverty alleviation and fostering environmental conservation in rural communities. It is more important to communities that fringe national parks and protected areas [5].

Ethiopia is one of the countries with vast array of resources including cultural, historical, archaeological and natural resources that are ideal for sustainable ecotourism venture [4,6]. Naturally, Ethiopia is home to diverse wildlife and consist a wide variety of ecosystems and habitats ranging from alpine moor lands to lowland savannahs. Of the total

wildlife resources, over 320 mammals (39 endemic), 918 birds (19 endemic), 240 reptiles (16 endemic), 71 amphibians (30 endemic) and 172 fishes (38 endemic), species are recorded in different ecosystems in Ethiopia [7]. The country is also known for its archaeological relevance (i.e origin of Lucy), historical sites in northern Ethiopia and diverse cultural resources in South Ethiopia. However, ecotourism has not been adequately developed and the ecotourism potentials are not extensively utilized for better economic benefits and local communities' development [8].

Dilla University Botanical and Ecotourism Garden (DUBEG) is one of the areas in Ethiopia with diverse ecotourism resources. This garden was established in 2017 with the support of Dilla University and stakeholders for the purpose of conservation, research, education and recreational values. Although the site comprises natural, biological and cultural

resources as ecotourism attractions, ecotourism remained underdeveloped and ways to develop the site as ecotourism attraction is yet to be implemented [9]. Similarly, no study was conducted on potential attractions, opportunities and challenges of ecotourism in the area [9]. Therefore, this study aimed at determining the opportunities and challenges of ecotourism development in Dilla University Botanical and Ecotourism Garden, in South Ethiopia.

Methodology

Description of study area

The study was conducted in Dilla University Botanical and Ecotourism Garden (Figure 1). It is 360 kms away from Addis Ababa, the capital of Ethiopia. The area is located in southern part of Ethiopia 1 km north-east of Dilla Town. The 2007 National census report indicated that the total population of

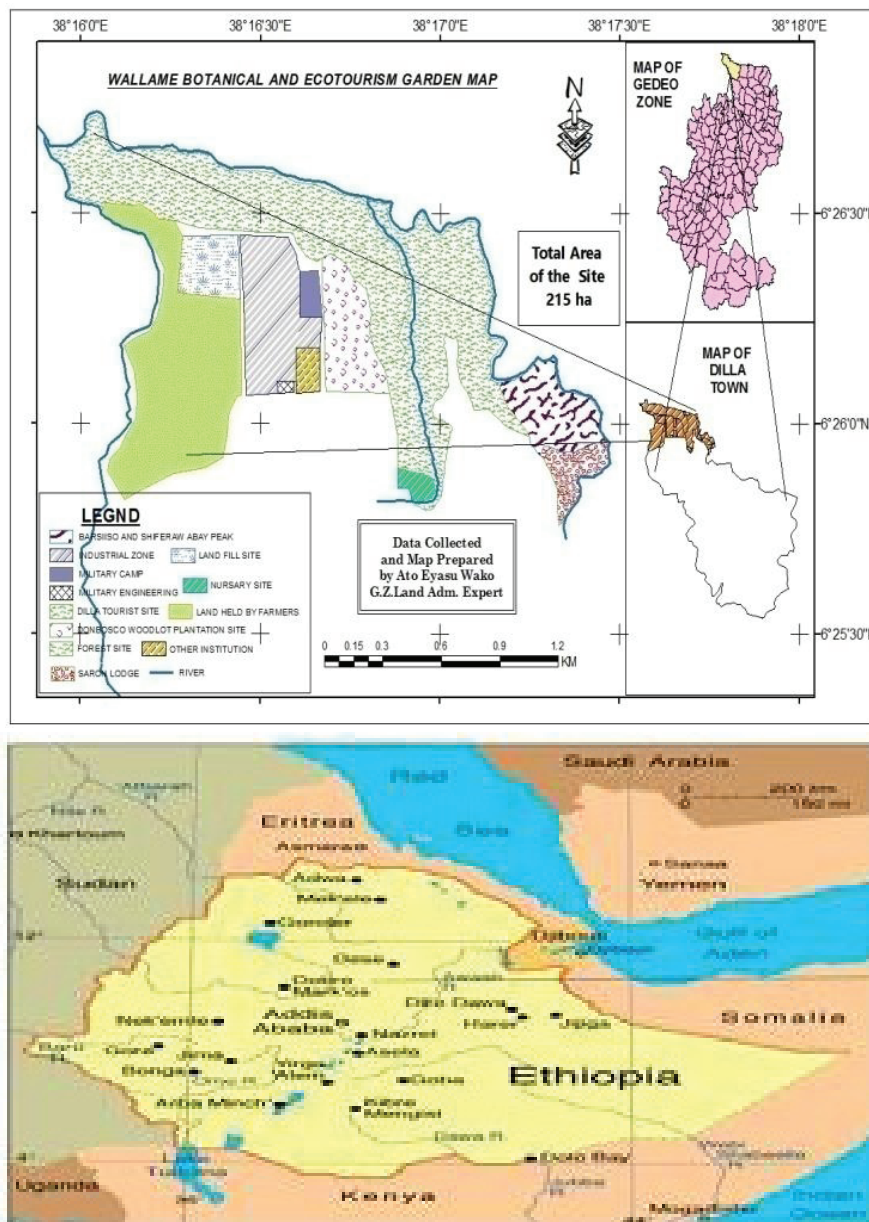


Figure 1: Map of the site (DUBEG).



Dilla Town was 59, 150 [10]. The climate of Dilla Town is hot and stable most of the year with the temperature variation between 24 and 30°C during day and between 16 to 20°C during night. The annual rainfall of Dilla Town is 1464 mm. The Wet season of Dilla is from June to October while the dry season is from October to June broken in February by short period called little rain.

Dilla university botanical and ecotourism garden

DUBEG project was established in 2017 for the purpose of conservation, research, education and recreational values. This project was initiated by Dilla University and different administrative bodies to promote ecotourism activities in the garden. The establishment of the garden as an ecotourism initiative helps to promote sustainable ecological preservation and contribute to biodiversity conservation in the region. The existence of the garden in proximity adds a natural beauty to the University and helps to strengthen relationship between the university and regional and zonal administrative bodies in the area [11]. As one of the main ecotourism attraction sites in Dilla area and its surroundings, the implementation of ecotourism in DUBEG contributes for further ecotourism development and biodiversity conservation activities in the area. Due to the existence of fauna, flora, rivers and stunning landscape, the site is better described as nature based tourism attraction. Besides this, the Garden comprises two main parts, the nursery site and the main garden. The internal part of the main garden has different components including scientific garden, recreational site, nursery site and science café which are used to enjoy the beauty of nature in the garden, undertake ecotourism activities such as fishing, produce indigenous and ornamental tree species and undertake scientific conferences and panels. The garden offers recreational opportunities for visitors, and culturally it has been used for ceremonies, wedding and different concerts. To consolidate these services and promote the ecotourism activities, cultural houses, guest houses, cafes, and routes that enable to undertake forest walk were established. These services are provided for visitors who are interested in site seeing, photographing and enjoying cultural resources [9].

The role of dilla university in the implementation of ecotourism in DUBEG

The initiation taken by Dilla University to undertake ecotourism in the garden is greatly appreciated. Different activities were undertaken by the university including working with nearby governmental bodies, securing land for conservation and ecotourism purpose, awareness creation campaigns, allocating fund to fulfill facilities, promoting scientific research, etc. The university has been preparing special events to promote volunteer services and enhance community awareness about the garden and ecotourism in the area. In addition, the University is working to integrate the garden with education and research activities undertaken by academicians in the University [9].

Sample

Prior to the actual ecotourism data collection, stakeholders such as agricultural and natural resource professionals, expertise and community elders were contacted to identify suitable respondents in the area. Then, 72 respondents were purposely selected from Odaya kebele based on their knowledge, livelihood and proximity to DUBEG. In addition, 20 key informants (15 males and 5 females) were selected from workers in Saron Lodge (4), staffs in Dilla University (6), biodiversity and natural resource experts in Gedo Zone (2), local elders in Odaya Kebele (4), an expert from culture and tourism office (1) and individuals from youth unions (3) in Odaya kebele. Key informants included in the focus group discussion were considered knowledgeable in their view of natural resource management and biodiversity conservation.

Method of data collection

This research was conducted from October 2018 to June 2019. The primary data were collected through questionnaires, interviews, field visits and focus group discussions. Questionnaires were administered to identify the different ecotourism potentials, distinguish opportunities and to identify challenges of ecotourism development in the area. Similarly, interviews and focus group discussions were made to determine the opportunities and challenges associated with botanical and ecotourism garden in the area. Field visits and photograph records were included to verify the result obtained from questionnaire and interview practically on the ground.

Data analysis

The quantitative data obtained from questionnaire were analyzed using descriptive statistical methods. Specifically, the ecotourism potentials in the area were analyzed following the approach of [12], in which the respondent's questionnaire were organized to ecotourism potentials and were measured by scales; where five was the highest and one was the lowest scale. Community attitude towards ecotourism and DUBEG, the opportunities and challenges of ecotourism in the area were analyzed and described using percentages. While the qualitative data obtained through interview and focus group discussions were analyzed in the form of descriptions. SWOT analysis technique was employed to identify (Strength, Weakness, Opportunities and Threats) of ecotourism development in DUBEG.

Result and discussion

Socio-demographic characteristics of respondents

From the 72 respondents selected in the area, 49 (68.06%) were males whereas 23 (31.94%) were females. The ages of respondents were ranked between 24 and 69 and the majority 45 (62.50%) were between 35 and 65. 24 (33.33%) were categorized in 24-34 while 3 (4.17%) were above 65 years of age. The occupation of respondents was characterized by 4 (5.56%) government employee, 51 (70.83%) farmers, 14 (19.44%) merchants and 3 (4.17%) were involved in other job categories.



The educational level of respondents was characterized by absence of formal education for majority 41 (56.94%) while the remaining 31(43.06 %) respondents have attended elementary and post elementary grades.

Views of the local community towards ecotourism and its implementation in Dilla University Botanical and Ecotourism Garden

From the result obtained in the study area, the attitude of communities towards ecotourism and the garden indicated as the majority have knowhow of ecotourism, and the importance of ecotourism in resource conservation and local economic benefit. In relation to this, this study has revealed community support of ecotourism program implementation in the garden. Conversely, it has been stated as there are low-level community participation in the garden management and insufficient garden protection activities undertaken in the area (Table 1).

According to this study, majority of respondents were familiar with ecotourism and they support ecotourism implementation in the garden. This is similar with the study undertaken by [13], in Tiwai Island Wildlife Sanctuary, in Sierra Leone, in which most of the respondents supported conservation of the site and development of ecotourism in the Sanctuary. Similarly, the respondents indicated the role of ecotourism in community benefit and resource conservation. This might be due to the moderate awareness creation activity undertaken by Dilla University. Trainings and awareness creation programs enhance the attitude of community towards ecotourism and its different values [14]. In the area, the demand to visit natural sites including the DUBEG is increasing. This is associated with increasing urbanization, lifestyle style change and increasing awareness towards nature based experience from community side and emphasis given to ecotourism development by management bodies including Dilla University [9]. In addition, majority of the respondents disagreed with the influence of ecotourism on community and their resource use, community involvement in the management of the garden and adequate protection of the garden and its resources. The community complains with regard to deprive of resource access has not been strongly seen in the current study most likely due to the ecotourism project is at its beginning stage. When ecotourism projects develop and prevent improper land uses such as agriculture in the areas, the local communities perceive the loss of access to these lands as a limitation of their source of livelihood [15]. Residents who depend on natural resources are likely to hold negative attitude toward ecotourism development unless they are adequately benefited from ecotourism [16]. To promote the protection of the garden and enhance the role of community in the ecotourism initiative, it is crucial to ensure community participation in the management of the garden and create local livelihood opportunities associated with ecotourism in the area [17].

Ecotourism potentials of the site

The study conducted in DUBEG indicated the presence of diverse ecotourism potentials in the area (Table 2). Of the different resources, flora and fauna were mentioned as the main

Table 1: Community attitude towards ecotourism and DUBEG.

Statement	Yes		No	
	N	%	N	%
Familiar with the concept of ecotourism	61	84.72	11	15.28
Ecotourism contributes for local economic benefit	46	63.89	26	36.11
Ecotourism promotes resource conservation	58	80.56	14	19.44
There is an increasing demand to visit the garden	42	58.33	30	41.67
Support ecotourism implementation in the garden	54	75	18	25
Ecotourism development in the garden affects the community	28	38.89	44	61.11
There is adequate community involvement in the management of the garden	12	16.67	60	83.33
There is intensive protection for the garden and its resources	22	30.56	50	69.44

N: Number of respondents; %: Percentage

Table 2: Potential attractions of ecotourism in Dilla University botanical and ecotourism garden.

Attractions	N	Minimum	Maximum	Mean
Fauna and flora	72	3	5	4.63889
Nursery site comprising (i.e. indigenous, aromatic, medicinal plant species)	72	1	5	3.56944
Rivers	72	2	5	3.98611
Cultural resources (i.e. materials, houses)	72	2	5	4.06944
Attractive landscape	72	2	5	4.15278
Engravings	72	1	4	2.21127
Valleys and caves	72	1	5	3.70833
Geological feature	72	1	4	2.86111
Others	72	1	3	1.84722

N: Number of respondents

ecotourism attractions of the site. Attractive landscape of the area was the second major ecotourism attraction while cultural resource was the third attraction potential having crucial role in ecotourism development in the area. Rivers, valleys and caves, nursery site, geological feature and engravings are other important ecotourism attractions of the area (Figure 2).

Ecotourism is important to experience the pristine natural and cultural areas while conserving the environment and supporting the life of surrounding communities. The ecotourism resources in the area are combinations of biological, cultural and physical features with substantial role for ecotourism development on the site. Biologically, anubis baboon, *colobus guereza*, rodents and various birds are among the faunal species in the Garden. Similarly, *Croton macrostachyus*, *Grevillea robusta*, *Cordia africana*, *Syzigium guaeise* and grasses are among the flora groups providing ecosystem service in the site. This indicates the importance of wild fauna and flora as essential components of ecotourism development in different areas [18]. Wildlife based tourism enhances the income of the country through involvement in wildlife dependent recreation [7]. The next ecotourism attraction identified in the area was existence scenic landscape which is vital for view of landscape features as an ecotourism activity in the garden. Landscapes and associated biodiversity are among major attraction



a) Valleys and associated landscape



b) A river in front of the garden



c) Cultural houses in the garden



d) Forest and garden within the site



e) Geographical features and landscape pattern in the garden

Figure 2: The ecotourism potentials in Dilla University botanical and ecotourism garden (Photo by: Authors, 2019).

development in the area. This is in-line with the study of [20], in the Menz Guassa area, in Ethiopia, in which cultural resources are important ecotourism attractions but with less attention has been given for development. As to the discussion with key informants, these biological, cultural and natural resources have a considerable role for ecotourism development in the area.

Beside this, attractions such as rivers, valleys and caves, nursery site, geological feature and engravings are resources that can serve as ecotourism attraction in the area. Rivers are not only water sources for countries, but they provide recreational and ecotourism opportunities in recreational areas [21]. Valleys and caves are crucial ecotourism potentials in combination with other environmental sources [12,22]. The nursery site that encompass indigenous, aromatic and medicinal plants support ecotourism in that it enables to sustain floras for continuous ecotourism development and visited as a site for aromatic and medicinal plant researches. Botanical gardens that comprise nurseries have a great role in safeguarding different plant species, enable to conduct plant research, promote recreation and conservation, etc [23]. The combination of these resources are crucial for ecotourism activities such as photographing, sightseeing, forest walk, wildlife viewing, sport fishing, camping, and appreciating cultural resources. The development of these potential attractions contributes for ecotourism and improves the livelihoods of the local community in different manner. As ecotourism has become a way to experience wildlife, ecosystems and culture through protecting and conserving the natural environment, implementing the programs that promote sustainable conservation, ecotourism and community benefit (i.e. lodging, eco-friendly tour operators, etc) is crucial in this regard [3].

Opportunities for developing ecotourism in Dilla University botanical and ecotourism garden

The opportunities for developing ecotourism in DUBEG garden are given in (Table 3). As to the study, diversity of attractions was found to be the main opportunity for ecotourism development. The garden harbors wildlife species, physical landscape and cultural resources valuable as attraction

Table 3: Opportunities for ecotourism development in Dilla University botanical and ecotourism garden.

Opportunities	Count	%
Diversity of ecotourism attractions	20	27.78
Existence of natural and agro-forestry ecosystems with known organic coffee	12	16.67
Presence of different cultural attractions	11	15.28
Existence of lodge at nearby (Saron Lodge)	9	12.5
Good perception of community towards conservation	5	6.94
Availability of ample labor force in the area	3	4.17
Presence of academic institution (Dilla University)	4	5.55
Growing infrastructural and economic activities in Dilla Town	3	4.17
Presence of ecotourism support policies	5	6.94

#: Percentage

potentials in protected areas offer [19]. Cultural resource which was mentioned as the third potential is one of the important components of ecotourism attraction potentials in the area. Cultural resources (i.e. local product and souvenir producing, local house making style, attending and watching cultural and public festivals, local food and coffee drinks, festivities such as the Deraro New Year celebration, etc are crucial for ecotourism

potentials. The second important opportunity identified in the area was existence of natural and agro-forestry ecosystems which are the distinct attribute of the area. Existence of cultural attractions and presence of lodge are also among the opportunities to facilitate ecotourism development in the site.

The presence of different opportunities is crucial to develop ecotourism sites effectively for community benefit and sustainable conservation of resources. In the study area, diversity of attraction was the main opportunity for ecotourism development. This is similar to other ecotourism destinations in Ethiopia namely Wonchi and Borena Saynet National Park in which diversity of attractions is the major opportunity of ecotourism development in the areas [24,25]. Similarly, in different parts of Ethiopia, the existence of abundant cultural, historical and natural tourism resources have been an opportunity for ecotourism development [26]. The Gedeo zone comprises distinct natural and agro-ecosystems in Ethiopia that is mostly managed through indigenous management practices. The resource and management practice derives the attention of visitors if effective and integrative ecotourism strategies are implemented. A growing economic, cultural and environmental benefit has been observed associated with indigenous resources based ecotourism as in case of many Mayan communities [27]. Since the success of ecotourism and its role in biodiversity conservation requires active participation of stakeholders, the involvement and empowerment of local population is extremely crucial [28].

The different cultural attractions (i.e. festivities, Castles) in the area are also opportunities that aid ecotourism development in the area. As ecotourism is a purposeful travel to experience natural and cultural areas while promoting the conservation of cultural resources, the availability of potential cultural attractions leads to enhancement of visitor experience and elongate their length of stay [29]. Existence of Saron Lodge at the nearby of the garden is an important opportunity for ecotourism development since it helps to fulfill visitors facility need and requirements (i.e. accommodation, food, water, etc) and support communities through various ecotourism based job opportunities (Figure 3). Eco-lodges provide a wide range of services from accommodation to service facilities and provide income source for communities through job opportunity and provision of cultural artifacts. As a result, their existence at nearby area of ecotourism sites is very essential [30].

Good perception of community towards conservation and existence of ecotourism support policies promote ecotourism and facilitate its implementation. Similarly, existence of academic institution helps to address shortage of skilled manpower in ecotourism sector and promotes the implementation of ecotourism in scientific and effective ways in the area. The expansion of academic institutions have a positive impact on ecotourism development because it helps to produce skilled manpower, such as supply of tourism consultant professionals, develops the capacity of workers by providing training facilities and promote ecotourism by solving



Figure 3: Saron lodge and its surrounding in Dilla Town (Photo by: Authors, 2019).

shortage of trained institutions, etc [4]. Moreover, availability of labor force and infrastructural development in nearby Dilla Town are decisive to promote ecotourism because they help to enhance ecotourism facilities and service provision. The interviewed key informants in the area indicated the presence of these opportunities for ecotourism development in the garden and the need to adequately implement the program.

Challenges of ecotourism development in Dilla university botanical and ecotourism garden

Of the various challenges of ecotourism identified in the area, inadequate benefit sharing for communities was the main challenge followed by inadequate community participation in the planning and management of ecotourism in the garden. Lack of ecotourism plan and strategy was the third main challenge that prohibits the effective implementation of ecotourism in the area. Unsustainable and improper resource use, lack of ample promotion and marketing for the site, insufficient infrastructure and tourist facility, awareness problem and inadequate skilled manpower in ecotourism are other challenges hindering ecotourism development in the garden (Table 4).

According to this study, lack of adequate benefit was mentioned as a challenge for ecotourism development in the area. As one pillar and goal of ecotourism is creating alternative income and livelihood opportunities for communities, enhancing economic benefit for local people is an essential element. To be sustainable, ecotourism is required to create job opportunities for local communities in a wide range of areas such as guides, drivers, permanent jobs, casual jobs, etc [31]. For long term success of conservation efforts and ecotourism development, mutually supportive relationships between communities and nearby conservation areas are critical to address socioeconomic problems and ensure community development [32]. In relation

**Table 4:** Challenges of ecotourism in Dilla University botanical and ecotourism garden.

Challenges	NR	P
Lack of ecotourism plan and strategy for the area	9	12.5
Lack of ample promotion and marketing	6	8.33
Awareness problem	5	6.94
Inadequate community participation	13	18.06
Insufficient benefit sharing approaches for the surrounding communities	17	23.61
Lack of ample skilled man power in ecotourism	4	5.56
Insufficient collaboration among stakeholders	3	4.17
Absence of adequate infrastructure and tourist facility	6	8.33
Unsustainable and improper resource use (i.e. deforestation, farm expansion, mining)	7	9.72
Others (i.e. inadequate finance)	2	2.78

NR: Respondents; P: Percentage

to this, inadequate community participation was the second main challenge for ecotourism development in the garden. Ecotourism development initiative of the garden is mainly led by Dilla University and there have been limitations in community involvement in ecotourism program. As successful ecotourism venture needs active participation of local people, due emphasis should be given for their involvement in the area. Conservation of wildlife and natural resource activities that do not involve local communities can not yield much fruits. Exclusion of host communities from ecotourism development also hampers the sustainable management of natural and cultural resources and socio-economic well-being local communities [5]. Community participation is the heart of ecotourism and its success depends on the participation and cooperation local communities. Ecotourism initiatives that don't adequately involve communities due to top-down approach, awareness, mobilization and that do not match with local desire and capacity will be unsuccessful and destructed [2,31].

Ecotourism is a promising method to promote conservation and local development if it is implemented with appropriate plans and adequate strategies [32]. However, the study made in the area indicated absence of sufficient plan and strategy to promote and develop ecotourism in the garden. Strategies involving ecotourism potentials, ecotourism activities, objectives, visitors rule, etc are crucial to promote ecotourism and meet the demands of conservation and local development in the area [32]. Formulating ecotourism development strategies that is attached to and benefits the local communities is vital for effectiveness of ecotourism in natural areas. Establishing strategies that comprise specific locations where ecotourism is undertaken, proper seasons to undertake ecotourism activities, mechanisms to appropriately implement the ecotourism venture, beneficiaries from ecotourism development in the area, rules and regulations for visitors and rights and responsibilities of various stakeholders are crucial for successful ecotourism development in the future [33]. When developing ecotourism in natural area, careful planning and improved knowledge about the resources are

crucial to facilitate its implementation in a better manner [12]. Unsustainable and improper resource use is another growing challenge for ecotourism development in the area. During our field visit in the garden, we could observe unsustainable resource uses such as farm land expansion; deforestation and intensive stone mining that disrupt biodiversity and natural resources of the area. This is in line with the study of [4], in Alemsaga forest, in Ethiopian in which most of natural resources are highly affected by human induced challenges. Proper use of natural resources in and around conservation areas supports ecotourism and helps to obtain financial sources for better conservation and community development activities [31]. Similarly, inadequate promotion and marketing and absence of adequate infrastructure and tourist facility were mentioned as challenges of ecotourism in the area. The study by [33], in Ofla Woreda in Ethiopia, indicated similar result in terms of promotion and advertisement in which lack of ample promotion and marketing was the challenge affecting ecotourism activities in the area. Advertisement and promotions carried out in ecotourism areas are vital to enhance visitor experience and contribute for product development. The infrastructure and visitor facilities of the garden are in the process of construction, but need to be intensified and well developed. Infrastructure play a crucial role in ecotourism development, but many destinations in Ethiopia do not harbor adequate infrastructure facilities and absence of these ecotourism facilities hinders the successful development in the country [2].

The area is also characterized by ecotourism challenges such as awareness problem, absence of adequate skilled manpower in ecotourism, limited collaboration among stakeholders and financial problems. In Ethiopia, the concept of ecotourism has not been prevailed in many parts of the country and gaps are observed in the appropriate implementation of the program. This desires to enhance to concept through training, awareness creation mechanisms and working with communities and stakeholders. The limited skilled human power in the sector has been the cause for inadequate awareness of ecotourism and affects ecotourism development in many parts of Ethiopia. This is the case in Alatish National Park, in Ethiopia, in which shortage of skilled human power challenges ecotourism development in the area [29]. The garden lacks adequate stakeholders' collaboration to promote ecotourism development. Successful ecotourism ventures are those that enhance the involvement and collaboration of different stakeholders. The collaboration of stakeholders is vital to get assistance from donor agencies that enable to succeed ecotourism development and natural resource conservation [4,31]. Although mentioned as the least by respondents, other challenges such as financial shortages can affect ecotourism in the area. Accessing reasonable finance is the challenge for the developing countries and this again affects the implementation ecotourism project in different aspects [2]. Moreover, according to Berhanu [29], inadequate finance hinders the management and conservation of resources and challenges the effort to fulfill equipments crucial for ecotourism such as accommodation, food, water, the latest GPS, video-cameras, etc.

Ecotourism facility problems in Dilla University botanical and ecotourism garden

Based on our study in Dilla University botanical and ecotourism garden, we identified different facility shortages that affect ecotourism development in the site. The main ecotourism facility problem in the area is absence of accommodation services followed by lack of local guides that can advertise the area. Ecotourism facilities such as accommodation (i.e. hotels, lodging) with food availability, water supply system and waste disposal facilities are essential components of ecotourism crucial to meet visitors need. Although some physical works are underway in the garden, less attention has been given for guiding activity in the area. Hence, empowering local guides is crucial for better promotion of the site and creating related jobs for local youth in the garden. The presence of well developed human capacity such as qualified guides is important for any ecotourism development initiatives [34-36]. Absence of ecotourism information and shortages of equipments and materials for ecotourism activities are facility problems hindering the development of ecotourism in the garden. For successful ecotourism development, materials, equipments and information for visitors, etc are vital and without these resources ecotourism implementation will not be adequately achieved [2]. There are also limitations of ecotourism facilities like transportation, communications (i.e internet), electricity, cleaning and care services (Washing), etc. In order to attract tourists to an ecotourism destination and maximize the length of stay of visitors, basic tourist infrastructures and services like transportation, communication, healthcare services are very essential and help to obtain required benefit from ecotourism [19,24].

Strengths, Weaknesses, Opportunities and Threats for ecotourism development in Dilla University botanical and ecotourism garden.

The authors identified the strong and weak sides from the internal environment (interior factors) and the opportunities and threats from the outside environment (exterior factors) for ecotourism development in Dilla University botanical and ecotourism garden (Table 5). This was undertaken based on interview with key informants, field visits made in the garden and discussion with experts in natural resource management and biodiversity conservation.

Conclusion

Dilla University botanical and ecotourism garden is a recently established garden to promote biodiversity conservation and ecotourism in Dilla area. The current study indicated as the community are aware of ecotourism and support its implementation in the garden. In relation to this, this study revealed that flora and fauna, attractive landscape, cultural resources and rivers as the main ecotourism attractions in the garden whereas diversity of ecotourism attractions, the unique natural and agro-forestry ecosystems of Gedeo Zone, presence of different cultural attractions and existence of Saron lodge in proximity to the garden are the major opportunities that help to promote ecotourism in the area. Conversely, low level community benefit, inadequate community participation, absence of ecotourism plan and unsustainable use of resources are the main challenges affecting ecotourism development in the garden. In addition, absence of accommodation with food and water, lack of local guides and absence of ecotourism information for visitors are the ecotourism facility problems in the area. As to this study, gaps have been identified in community participation and collaboration with stake holders in running the ecotourism initiative. Hence, we suggest the involvement and beneficiary of community for successful ecotourism implementation in the area.

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Table 5: SWOT analysis for ecotourism development in Dilla University botanical and ecotourism garden.

Internal environments	
<p>Strengths</p> <ul style="list-style-type: none"> ✓ Working for sustainable conservation of resource ✓ Working with governmental bodies to promote conservation of the site ✓ Promoting research activities on the site ✓ Implementing ex-situ form of conservation on the site ✓ Awareness creation activities and exhibitions to promote the site ✓ The presence of long term vision to ensure the sustainable conservation of the site ✓ Efforts to enhance multi dimensional benefit of the area 	<p>Weaknesses</p> <ul style="list-style-type: none"> ✓ Inadequate tourist facility ✓ Lack of technical know-how and weak promotional activity ✓ Absence of adequate direct economic benefit for communities ✓ Inability to create alternative job opportunities related to ecotourism in the area ✓ Inadequate activities to reduce community dependence on wood based energy sources ✓ Lack of ample information on the types of ecotourism activities that can be implemented in the area ✓ Absence of ecotourism plan for the area
External environments	
<p>Opportunities</p> <ul style="list-style-type: none"> ✓ Good political support for conservation and ecotourism ✓ The country's plan to establish green and climate resilient economy ✓ The good attitude of community towards conservation ✓ Good ability to form organizational linkage 	<p>Threats</p> <ul style="list-style-type: none"> ✓ High population growth leading to resource destruction ✓ The high dependence of locals on natural resources ✓ Poverty ✓ Unsustainable resource use in the area



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