

Ecotourism Potentials, Challenges and Prospects of Maze National Park, South West Ethiopia

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Abstract

The study was carried out in Maze National Park in the South West Ethiopia to identify the opportunities, challenges and prospects for sustainable ecotourism in the Park. The study employed survey design using exploratory indepth interview, focus group discussion and participant's observation. Data was collected from primary and secondary sources. Interviews indicated wildlife, savanna plains, landscape, bilbo hot spring, wonja stone cave, religious trees and rivers were the major ecotourism potentials of the park. Focus group discussions revealed population pressure, wildlife death and migration, conflict of interest, poor political commitment and climate change as major challenges for ecotourism in Maze National Park. Among others, organizing staff profile, community participation and benefit sharing, adequate budget allocation, improved livestock production, building water points, harvesting timber and non-timber products and infrastructure development were identified to be the main prospects of the park. Therefore, the results of the present study underpins that sustainable ecotourism in Maze National Park will be realized if the immense potentials of the park are well-managed, its challenges are well-addressed and its prospects are well-embraced; and multilateral action plans for ecotourism development become a guiding principle among all stakeholders.

Index terms— Community-based ecotourism, Ecotourism, Male, Maze National Park, Sustainable ecotourism, Tourism.

Ecotourism Potentials, Challenges and Prospects of Maze National Park, South West EthiopiaI.

Introduction ourism is a planned and time bounded traveling in person or team to places outside one's own village for visit, leisure, business and other purposes. Previously tourism was considered as a visit trip to natural and/or man made areas of high aesthetic value. Humans have used to travel since ancient time leading nomadic life, visiting, trade, communication, encroaching, settlement and other purposes. Nowadays, humans travel to most corners of the planet and even beyond the planet, known as space tourism (Yogi, 2010).

Tourism has become an important trade and prosperity sector. The main benefits of tourism are income creation and generation of jobs. Tourism contributes to 5% of the world's GDP and account for 6% of world's exports being the fourth largest export sector next to fuels, chemicals and automotive products (Rajani and Vasanthakumari, 2015). The World Travel and Tourism Council (WTTC) estimated that Travel and Tourism generated US\$7.6 trillion (10% of global GDP) and 277 million jobs (1 in 11 jobs) for the global economy in 2014 (WTTC, 2015). Parallel report by WTTC indicates the international tourist arrivals also surged, reaching nearly 1.14 billion and visitor spending more than matched that growth. Visitors from emerging economies now represent a 46% share of these international arrivals (up from 38% in 2000), proving the growth and increased opportunities for travel from those in these new markets.

Tourism alone has become the biggest industry in the world in terms of economic value, including gross output, value added, capital investment, employment, and tax contribution; and responsible for over 230 million jobs and 10 percent of the gross domestic product (Theobald, 2005). Tourism generates positive economic growth to

44 both host countries and tourists' home countries. For this reason, tourism has been seriously considered in the
45 national sustainable development strategies of many developing countries to generate huge economy from their
46 less threatened natural resources.

47 The rapid growth of tourism in complementation of economic development during the last few decades has
48 also led to an increasing concern of its impacts. The economic benefits of the tourism industry has caused
49 mass tourism which have caused considerable impacts on local communities with respect to culture eroding,
50 conflicts, economic disruption, trades of exotic pets and drug, commercial sex, disturbance of wildlife and the
51 natural environments of the host destinations (Yogi, 2010). The development models that societies have adopted
52 throughout the twentieth century were characterized by encouraging industrialization and promoting economic
53 growth, rather than the maintenance of ecosystem goods and services (Fonesca, 2012).

54 Thus, to develop the tourism sector and enhance its potentials, it needs pre-concern of the attributes of society,
55 nature and environment. Unlike the conventional tourism to natural areas and to the people who live in and
56 around them, scholars have developed ecotourism, a niche within the tourism industry, which is responsible travel
57 to natural areas [in a way] that conserves the environment and improves the well-being of the local people (Biqi,
58 2012). Ecotourism primarily means marketing the serene natural habitats as tourism 'product' with an inherent
59 element of nature education (Rajani and Vasanthakumari, 2015).

60 Ethiopia endows wide range of natural, biological, cultural and artifact diversities which suit to the tourism
61 industry. Throughout the last decade, the country is eagerly promoting ecotourism for tourists from homeland
62 and abroad. However, the implementation of national strategies and regulatory frameworks of ecotourism in
63 developing countries is challenging. Developing countries are highly dependent on natural resources in the
64 surrounding environment and in protected areas such as National Parks. Hence, developing sustainable ecotourism
65 needs approaches. Sustainable ecotourism or conservation of biodiversity in National Parks is done through
66 two main approaches: one approach is the preservation approach, in which National Parks are set aside to
67 exclude human activities except for tourism. The other approach is communitybased conservation approach
68 that allows local people around National Parks to benefit socially or economically from parks. The former
69 was dominant approach until the 1980s, but it has now been substituted by community-based conservation
70 (Muhumuza and Balkwill, 2013) to ensure sustainable ecotourism through local communities' participation,
71 ecotourism development and equitable sharing of benefits.

72 As stated above, tourism is a big development sector; and ecotourism is the marketing of nature in a way that
73 environmental processes, the ecosystem services and goods, are conserved. Sustainable ecotourism is a result of
74 infrastructure development, equitable sharing of benefit and creating alternative livelihoods to local communities
75 around tourism destinations. In Ethiopia, sustainable ecotourism is doubtful or poorly managed as more than
76 80% of the population is nature dependent, agrarian community who manipulate nature on the basis of their
77 interest rather than the approaches to sustainable ecotourism.

78 This paper aims to identify the ecotourism potentials, challenges and prospects of ecotourism in Maze National
79 Park to provide an input for policy makers and implementers for the development of a modern and sustainable
80 nature-based tourism industry in Ethiopia.

81 1 II. Research Methodology a) Description of Study Area

82 Maze National Park (MNP) was established in 2005 and found at 6025'N37014'E (Andabo and Gamo, 2015).
83 MNP is located at the lowland altitude in the boundaries of Quca, Zala, Daramalo and Kamba Weredas. The
84 park exhibits long semi arid climate. The park is found at 473 kms from Addis Ababa, capital city of Ethiopia
85 and Africa, and at 83 kms from Wolaita Soddo in the main road which crosses the park in way to Gofa Sawla.
86 Therefore, MNP is easily accessible for tourists from abroad and inland who want to visit the natural beauty of
87 the park.

88 2 b) Methods

89 The study used survey design (Kelley et al., 2003) to assess the potentials, challenges and prospects of Maze
90 National Park for community-based sustainable ecotourism. For this purpose mixed research approach was
91 employed including participant's observation including field survey using binocular and camera, interview and
92 focus group discussion. The study primarily used two categories of in-depth interview questions, one for MNP
93 staffs and the other for local communities. Exploratory household interview was carried out to explore livelihood
94 experiences of participants (Zaiton et al., 2013) and the rest of local communities.

95 The study exhaustively used a set of data from primary and secondary sources. Primary data sources
96 were obtained from local community, MNP management and staffs, Male semi-pastoralists, GO and NGO and
97 participant's observation of local livelihood and field survey. Secondary sources were reviewed from books,
98 documents from Maze National Park, published and unpublished materials and Web. There are seventeen
99 kebeles adjacent to Maze National Park. Five kebeles from three Weredas were purposively selected as cases for
100 this study, 2 from Quca Wereda (Masha Caba and Masha Morka), 1 from Daramalo Wereda (Domi'a-Umala)
101 and 2 from Zala Wereda (Mella Gayile and Wagesho). These kebeles were reported to have high interaction with
102 the park by the MNP management. The sample size for this study was determined using (Yemane, 1967) at 95%
103 confidence interval. $n = N \frac{1}{1 + N(e)}$

104 Where n is the sample size, N is the population size and e is the level of precision. In a week field survey
105 in the selected kebeles, it was remarked that at least 80 households visit the park on daily bases. When this
106 formula is applied, we get a sample size of 67 households. Then, 13 households from each kebeles except Masha
107 Caba (from which 15 households) were randomly selected for interview. Key informant focus group discussions
108 in each of the five kebeles were held with five individuals who were selected from the interviewees because they
109 had better knowledge of the park and its surroundings. Besides the local communities, 20 MNP staff members
110 were interviewed and of these five key informants were selected for focus group discussion. Eight focus group
111 discussions were made, 5 with local communities, one with MNP staffs, one with 3 experts (Quca Wereda
112 Rural and agriculture development office head, Quca wereda natural resource protection expert and head of
113 NGO in Morka) and one with Male Semi-pastoralists coming to Maze National Park were purposively selected.
114 Accordingly, 87 respondents and 38 individuals participated in the interview session and focus group discussions,
115 respectively.

116 3 III. Results and Discussions

117 The analysis of interview and focus group discussion revealed Maze National Park, formerly called Shambara
118 (Andabo and Gamo, 2015) by local communities endowed large populations of medium to large size mammals
119 including elephant (*Loxodonta africana*), giraffe (*Giraffa camelopardalis*), tiger (*Panthera tigris*) and buffalo
120 (*Syncerus caffer*) in the last century. The park is significant for its biotic and physical resources. However,
121 resource accumulation within the park, unmet expectations, biotic pressures, lack of infrastructure and stochastic
122 perturbations in the landscape are the prominent bottlenecks for sustainability of the park.

123 4 a) Ecotourism

124 Ecotourism is an environmentally conscious travel that enhances a traveler's appreciation of nature's beauty and
125 biodiversity, while reducing the carbon footprint (Biki, 2012). Due to the recent establishment of the park and
126 lack of infrastructure, tourism statistics of Maze National Park is low. But, the scenic landscape of the park is
127 calling upon many tourist arrivals. Ecotourism has been marketed as a form of nature-based tourism (Dabour,
128 2003). According to MNP Head Quarter office, most tourist arrivals to Maze National Park are from Spain, Italy,
129 German, Netherland, Scotland and Poland. Inland tourist flow is better relative to foreign arrivals, but remains
130 poor except for University students visiting the park for educational purpose mainly from Wolaita Soddo and
131 Arba Minch Universities. Due to low flow of tourists, the park revenue, in Ethiopian birr, is below the expected.

132 5 Tourist arrivals to Maze National Park

133 6 Ethiopian tourists Foreigner arrivals Revenue

134 Table ??: Ecotourism opportunities in Maze National Park: Interview Analysis

135 As indicated above (Table ??) wildlife, rivers, Wonja stone cave, Bilbo hot spring, savanna grass and the
136 scenic landscape of MNP are among the major ecotourism attractions. The investigator has also observed that
137 medium to large mammals, birds, amphibians, reptiles, rodents, vegetation and the gifted landscape are the basic
138 components of ecotourism in the park's catchment. While visiting the south tip of the park, the Bilbo natural
139 hot spring was amazing beauty of MNP. the Bilbo hot spring is their Abuwa (Ark) to which local communities
140 and outsiders come to get healed from their physical and spiritual illnesses and to be free from any curse. Among
141 others, visitors of Bilbo hot spring come from Zala, Dingamo, Garsa Anko, Hanika, Shella and Maze. They swear
142 any oath in the name of the Bilbo hot spring. The local community has strong traditional belief that the spring
143 is the cause for their blessings and curses. The elder informed that people sacrifice to the Bilbo hot spring to
144 get something they wish/pray from spiritual point of view. Unlike other resources of the park, local communities
145 have good attitude towards Bilbo hot spring due to its physical and spiritual values. This is an indication to
146 the fact that equitable sharing of benefits or creation of alternative means of benefiting local communities will
147 enhance community-based ecotourism in MNP.

148 7 c) Challenges of Ecotourism and Sustainable Tourism in Maze 149 National Park

150 Major challenges posed on Maze National Park come from outside and are enumerated under. Landuse changes
151 that have occurred in Maze National Park have caused shrinkage in both the park area and land-cover (Andabo,
152 2012). The importance and scope of ecotourism is expanding as its sustainability 3) indicate livestock population
153 is rising (except for years of drought and livestock diseases) and significantly disrupting the park's ecosystem.
154 So, the park management is advised to be skilled and empowered through trainings and workshops on improving
155 livestock production; and monitoring and evaluation of the performance of livestock in outdoor keeping, without
156 encroaching into the park ecosystem. During the last nine years, 326 wild animals were died for known and
157 unknown reasons in MNP. Most of wildlife deaths in the park were due to vehicle (46.01%) and hunting (33.74%).
158 The main road passing the park has 10m to 12 meters diameter which can accommodate two vehicles at a time.
159 Due to high production of cereal and cash crops, many vehicles pass through the park. The main reasons for

160 death of wild animals by vehicle include 1) drivers do not respect animal rights 2) substance use while driving 3)
161 most of the business vehicles crossing MNP travel during the night times and 4) drivers do not follow traffic rules
162 in National Park regions (drive beyond the speed limit in the park region). The local communities have good
163 awareness about animal rights and their ecotourism role and are appreciated for their respect to wild animals
164 and not hunting them. However, hunting of wild animals of the park is done by Male community coming from
165 South Ari Zone, South Omo. These people are semipastoralists who move place to place in search for water and
166 pasture for their domestic animals. Due to the interruptions by local people and Male people, wild animals of
167 MNP migrate to other places and exposed to health problems and deaths for unknown reason. Perhaps, causes of
168 such deaths might be contact with domestic animals while grazing and Tse tse fly, tick, bug and other veterinary
169 disease vectors. Local communities around MNP send their cattle into the park. Sometimes predators such as
170 Lions kill and feed on their cattle. On return, the local communities revenge the lions by killing them using traps
171 (Figure 3). iii. Conflict of Interest Investment in service-oriented projects, particularly tourism, in developing
172 countries is often regarded as a high-risk task (Dabour, 2003). Ecotourism is both process and activity. Formerly,
173 the local communities use resources of MNP for various livelihood purposes such as fuel wood, honey collection,
174 timber products, livestock grazing and drinking and grass collection. After the establishment of the park, conflict
175 of interest has come about as the local communities have been prohibited all the resources from that catchment
176 without any alternative substitute for those resources. Inadequate participation of the local people in ecotourism
177 development process and inequitable benefit sharing resulted in negative attitudes of the local people towards
178 ecotourism. (Source: Field survey Photo)

179 The researcher fortunately had prior information that the Male community members have been repeatedly
180 crossing Kamba wereda to reach to MNP since the establishment of the park until the present time for grazing
181 of their livestock. Kamba wereda government knows that the Male's are coming from South Omo Zone and
182 cross their land to reach Maze National Park. But, due to poor/no political commitment by Kamba wereda
183 government, the Male's started illegal settlements and poaching within MNP at Phasa kebele, Kamba. Due
184 to the alarming report by MNP management to Gamo Gofa Zone administration about the Male's huge herd
185 of cattle population (more than 20,000 heads) in MNP, Kamba wereda government was called to check the
186 real situation by Gamo Gofa zone government. This allowed having good focus group discussion with Kamba
187 Wereda delegates, the Male semi-pastoralists and the Phasa kebele community. The researcher has observed
188 that the situation now in MNP is really harsh, and federal and regional governments must involve in the park's
189 management before the overgrazing by such an increasing Male livestock population perishes MNP in a period
190 of few months through overexploitation and settlements. The Male semi-pastoralist community holds guns and
191 are archers which will also lead to unwanted disputes up on competition for resources and territorial expansion
192 by Male's in MNP.

193 8 i. Organizing Staff Profile

194 The current staff profile of Maze National Park is observed to be less organized. Recruiting new professionals
195 from Veterinarian, Agronomist, Ethnobiologist, Botanist, Zoologist, Anthropologist, Sociologist, Tourism and
196 Hotel Management and Entrepreneur will empower the park management system. Currently, MNP has 30 male
197 and 3 female, a total of 33 employees. The present staff profile (see Table 5) of MNP is poorly organized as
198 91% of the staffs are supportive staffs primarily being the protective staffs. ii. Community Participation and
199 Benefit Sharing Community participation will increase transparency and create trust between park management
200 and the local community. While participating in the management of MNP, the local communities will form sense
201 of ownership to stop any illegal intrusion into MNP and will be part of the park's protective staffs. Through
202 community participation local communities start to use natural resources in environments other than the core
203 parkland and will keep their livestock in the fields outside the park. Ecotourism sustainability is full of ups
204 and downs as human-nature interaction persists in poor economies of developing countries like Ethiopia. Thus,
205 MNP office, regional and federal tourism bureaus need to work on communitybased ecotourism assuring equal
206 community participation (men and women); and equitable sharing of the resources and benefits from tourism in
207 the park.

208 iii. Adequate Budget Allocation Focus group discussions with MNP staffs indicated that the park is not
209 supported by adequate budget to accomplish management activities effectively. For instance, construction of
210 roads inside the park needs machines and huge budget. To this end, the regional government and the federal
211 government are expected to equip MNP to develop sustainable ecotourism.

212 9 v. Building Water Points

213 The construction of water points or water lines for livestock drinking and domestic consumption (e.g., communal
214 pools or drilling groundwater at every household) will prevent livestock and human entry to MNP and minimize
215 disturbance in the park. The water points built for livestock drinking purpose must contain water on regular
216 basis and they must have outlets for cleansing and pouring fresh water into the pool. Therefore, giving priority
217 to the most severely suffering villages around the park, water points have to be built to safe guard the park and
218 reduce conflict of interest.

219 **10 vi. Protection of the Bilbo Hot Spring**

220 For a visitor, the Bilbo hot spring tells message saying "save me" because it is on communal land that is of many
221 anthropogenic disturbances such as illegal settlements and grazing. During field survey, the researcher observed
222 that there is no protection to the hot spring. Local communities were observed while taking shower on the flowing
223 water from the hot spring. The spring is observed to be open for local communities animals. Thus, it is exposed
224 to threats which will challenge its existence in the near future.

225 **11 vii. Road Construction**

226 The national road which crosses MNP is an old gravel road which is not comfortable and preferred even by a
227 passenger. One parameter to attract tourists is suitable road for them and the vehicles they come in. Therefore,
228 considering the immense potentials of MNP the federal government has to have a desire to construct standard
229 asphalt road/highway from Wolaita Soddo to Gofa Sawla and Omo and Mago National Parks. The construction
230 of high way will allow tourists visit not only MNP but also Omo and Mago National Parks in their way. The
231 park has no gravel road except simple roads made by clearing of the land cover by the park management. Due
232 to insufficient pathways and parking facilities in Maze National Park, tourists are unable to see all corridors of
233 the park. In this regard, the building of gravel road, pathways and parking sites is crucial to visit all parts of the
234 park in all seasons.

235 **12 viii. Campsites in the Park**

236 Selection of adequate number and location of camp sites suitable for recreation, entertainment and view in the
237 park is an important task to be accomplished ahead of tourist arrivals. These sites are places where tourists
238 take rest, plant their tents, pass overnight, enjoy themselves watching at the scenic nature, and discuss different
239 issues.

240 **13 ix. Harvesting Timber and Non-Timber Products**

241 The local communities were observed to be highly consuming timber products of the park. MNP has tall forest
242 trees with timber values at riversides. The shrubs and tall trees will be used for local and industrial purposes.
243 However, at the current traditional living status of the local communities coupled with poor development status
244 of the park, harvesting timber products is risky for the sustainability of the park and its resources. Allowing
245 local communities to harvest timber products in one hand and overexploitation of mature forest trees (whose
246 replacement will take at least fiftyhundred years) only for domestic and income generation purposes in the other
247 hand will open gate for more disturbances in the park. This will result in ecosystem disruption and biodiversity
248 loss. Therefore, the investigator encourages the MNP management and local communities to harvest more on
249 non-timber products of the park. Non-timber forest products include grass, forest honey/apiculture, edible fruits
250 and nutraceuticals, strap and so on. For instance, field observation and previous work (Andabo and Gamo,
251 2015) indicate that nearly 50% of Maze National Park is covered by grassland, mainly savanna grassland of 3m
252 to 6m tall. Harvesting the grass economy will allow the growth of palatable grass for livestock and wildlife,
253 prevent emergence of vector-born zoonotic diseases, removes breeding sites for vectors of medical and veterinary
254 importance and will increase the biological diversity and productivity of MNP by increasing the survival and
255 fecundity rate of species. However, it is usual to see illegal entries into the core of the park for grass collection. If
256 carefully harvested, this grass will generate high incentive to the local communities, the park and pave the way to
257 alternative income generating activities. In this connection, organizing local community into farmer cooperatives
258 will not only enhance production but also improve management of the park. Doing so, the farmer cooperatives
259 will benefit from the park by marketing products for thatching, local construction, investors (e.g., lodges), hay,
260 livestock feed and other purposes. x. Irrigated Agriculture Maze National Park possesses a number of rivers
261 (e.g., Lemase, Domba and Maze) that can used for irrigation. The vast plains in the park surroundings are good
262 places for vegetables, cereals, horticulture, fruits, root and tuber crops.

263 **14 xi. Aquaculture**

264 The park has large rivers crossing it. The rivers have endowed fish and crocodile species among others. Maze
265 National Park, therefore, is ideal place for fish production and crocodile ranches.

266 **15 xii. Film Industry**

267 The scenic and green nature of Maze National Park particularly during winter (rainy season) coupled with the
268 very interesting native cultures of communities around the park is an adventure for artists to held their theatre,
269 drama and films.

270 **16 xiii. Lodges and Green Parks**

271 Many countries lack sufficient infrastructures such as hotels, lodges, transportation, communication, safety and
272 security and tourism information services all of which aid in the development of sustainable tourism sector
273 (Dabour, 2003). Establishment of lodges and green parks in selected sites around the park will enhance

19 V. ACKNOWLEDGEMENT

274 ecotourism, tourism revenue and employment through infrastructure development like roads, construction of
275 guest houses, hotels, bedrooms, vehicle and tent renting to tourists coming to MNP, and greening the area.
276 For example, Bilbo hot spring is vital place for this purpose. People will come there for purposes like healing,
277 recreation, spiritual and secular, conferences, meetings, wedding ceremonies, etc. Thus, all the concerned bodies
278 have to come together to work on issues related to logistics and infrastructures needed to improve the park's
279 facilities.

280 17 xiv. Project

281 Maze National Park is a recently established park full of potentials to implement projects on tourism, ecotourism
282 and livelihood development. Projects could be governmental, NGO, private companies, associations and
283 individual projects. The park management needs strong collaboration with stakeholders to have joint projects on
284 Wildlife, Vegetation, Wonja Cave, Bilbo Hot Spring, etc. to bring reliable and feasible ecotourism development
285 in MNP.

286 18 IV. Conclusion

287 The study on ecotourism potential, challenges and prospects of Maze National Park is a timely study to develop
288 sustainable ecotourism in Maze National Park. The study revealed that the park has a number of opportunities
289 and prospects to develop sustainable ecotourism. Population pressure, wildlife death and migration, conflict of
290 interest, poor political commitment and climate change were identified to be the main challenges for sustainable
291 ecotourism in the park.

292 19 V. Acknowledgement

293 Indeed, my soul thanks God in all the days of my life for His provision and Help in my efforts to meet success. I
294 consciously acknowledge Maze National Park staffs and all who shared me important concepts, critical comments,
documents and information in the interview and focus group discussion sessions. 1 2 3 4 5



1

Figure 1: Figure 1 :



1

Figure 2: Figure 1



2

Figure 3: Figure 2 :



3

Figure 4: Figure 3 :

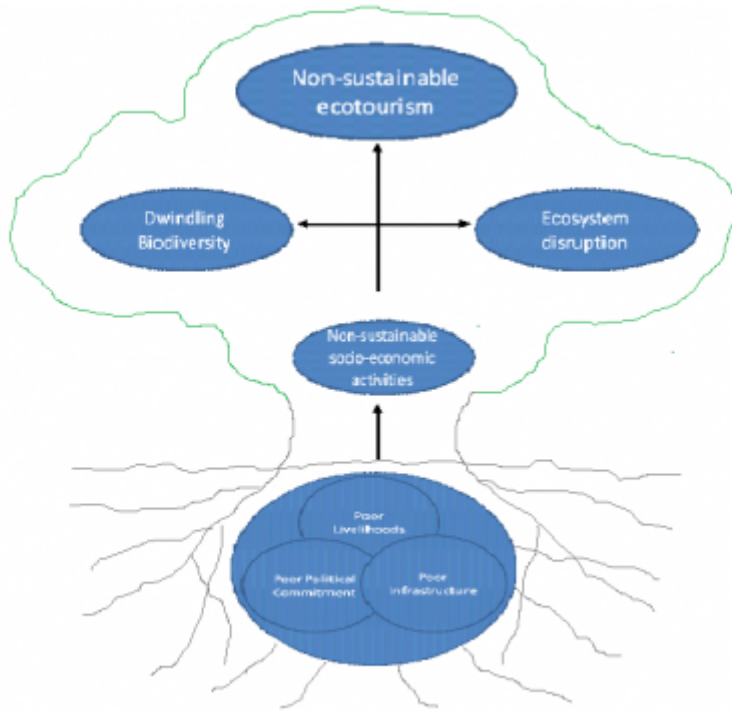


Figure 5:



4

Figure 6: Figure 4 :



5

Figure 7: Figure 5 :



6

Figure 8: Figure 6 :



Figure 9: Focus



7

Figure 10: Figure 7 :



8

Figure 11: Figure 8 :

dimension works on safeguarding the biodiversity, social structure, culture and economic wings. In this Percentage Share respect, Rajani and Vasanthakumari agree that Local Community delivering viable tourism, ensuring responsible, real and

Interview Variables effective ecotourism is a great deal. Recognizing the Wildlife different approaches of ecotourism

Savanna Grass Inspiring landscape i. Population Pressure Riverine forests High human population pressure	% Annual changes		
	2005	2006	2007
Cattle	1.7	4.2	
Sheep	9.0	14.7	14.0
Goat	7.4	10.1	13.4
Camel	-	-	40.9
Poultry	2.7	4.6	
	-	42.5	
	36.6		
Horse	4.9	3.4	
Donkey	4.3	9.1	
Mule	-	7.2	-4.4
	1.1		
Beehives	-	21.5	-1.7
	11.6		

Besides, over exploitation of the park's resources by local livestock population, Male semi-pastoralist livestock has remained the top urgent issue without solution. Metaferia et al. 2011 state that Ethiopia shares significant livestock in lowland and pastoral areas. Livestock data from 2006 to 2010 in five kebeles surrounding MNP in Quca wereda (Table

Figure 12:

3

Kebeles	Cattle	Sheep	Goat	Horse	Donkey	Mule	Year
Daho	5699	99	2060	0	27	6	2006
	4113	71	1487	0	20	7	2007
	6057	105	2191	2	33	12	2008
	7874	137	2848	3	43	16	2009
	11660	233	1998	0	14	55	2010
Masha	3096	3	950	0	4	1	2006
Morka	2075	4	636	0	4	0	2007
	3395	9	1008	0	9	2	2008
	3293	12	1310	0	12	2	2009
	2055	13	946	0	7	0	2010

[Note: © 2017 Global Journals Inc. (US)]

Figure 13: Table 3 :

2

Koddo Wonno	1422	1026	22	18	937	676	0	0	9	7	2	1	2006	2007
	5017		26		996		0		13		2		2008	
	6522		34		1295		0		17		3		2009	
	1559		26		210		0		3		1		2010	
Masha Caba	4667		360		1761		2		8		0		2006	
	3368		259		1271		1		6		0		2007	
	4960		381		1872		2		11		1		2008	
	6448		495		2434		3		14		1		2009	
	3098		363		1550		2		9		1		2010	
Koddo Lade	4675		67		1233		1		7		1		2006	
	3374		50		843		1		6		0		2007	
	4969		74		1242		2		11		1		2008	
	6460		96		1615		3		14		1		2009	
	3091		52		1028		0		8		0		2010	

ii. Wildlife Death and Migration

Figure 14: Table 2 :

4

Years	Hunting	Vehicle	Conflict	Fire	Unknown
2008/09	48	20	-	-	-
2009/10	37	6	-	3	6
2010/11	10	10	10	1	-
2011/12	4	11	7	-	5
2012/13	4	4	1	-	3
2013/14	2	4	7	7	4
2014/15	1	50	2	-	-
2015/2016	4	41	-	-	5
2016/17	-	4	-	-	5
Total	110	150	27	11	28

Figure 15: Table 4 :

5

Staff Profile	Number of individuals	Job description
Park Warden	1	Manager of Maze National Park Management
Wildlife Professional	2	Follow up wildlife condition and every ongoing changes in the park
Human Resource coordinator	1	Organize the staff profile and follow up and support all staffs to be guided by rules and regulations of the park administration
Accountant	2	Leads finance and provides financial information to management, recommends financial actions by analyzing accounting data, prepares reports

[Note: 2017GEcotourism Potentials, Challenges and Prospects of Maze National Park, South West Ethiopia]

Figure 16: Table 5 :

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.1 Conflict of Interest

- 295 The author has no conflict of interest with this publication.
- 296 [Intern and Biod] , . J Intern , Biod . ID 798101. 2013.
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