



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

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I. INTRODUCTION

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

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

Thus, to develop the tourism sector and enhance its potentials, it needs pre-concern of the attributes of society, nature and environment. Unlike the conventional tourism to natural areas and to the people who live in and around them, scholars have developed ecotourism, a niche within the tourism industry, which is

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responsible travel to natural areas [in a way] that conserves the environment and improves the well-being of the local people (Biqi, 2012). Ecotourism primarily means marketing the serene natural habitats as tourism 'product' with an inherent element of nature education (Rajani and Vasanthakumari, 2015).

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

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

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

II. RESEARCH METHODOLOGY

a) Description of Study Area

Maze National Park (MNP) was established in 2005 and found at 6025'N37014'E (Andabo and Gamo, 2015). MNP is located at the lowland altitude in the boundaries of Quca, Zala, Daramalo and Kamba Weredas. The park exhibits long semi arid climate. The

park is found at 473 kms from Addis Ababa, capital city of Ethiopia and Africa, and at 83 kms from Wolaita Soddo in the main road which crosses the park in way to Gofa Sawla. Therefore, MNP is easily accessible for tourists from abroad and inland who want to visit the natural beauty of the park.

b) Methods

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

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

$$n = \frac{N}{1 + N(e)^2}$$

Where n is the sample size, N is the population size and e is the level of precision. In a week field survey in the selected kebeles, it was remarked that at least 80 households visit the park on daily bases. When this formula is applied, we get a sample size of 67 households. Then, 13 households from each kebeles except Masha Caba (from which 15 households) were randomly selected for interview.

Key informant focus group discussions in each of the five kebeles were held with five individuals who were selected from the interviewees because they had better knowledge of the park and its surroundings. Besides the local communities, 20 MNP staff members were interviewed and of these five key informants were selected for focus group discussion. Eight focus group discussions were made, 5 with local communities, one

with MNP staffs, one with 3 experts (Quca Wereda Rural and agriculture development office head, Quca wereda natural resource protection expert and head of NGO in Morka) and one with Male Semi-pastoralists coming to Maze National Park were purposively selected. Accordingly, 87 respondents and 38 individuals participated in the interview session and focus group discussions, respectively.

III. RESULTS AND DISCUSSIONS

The analysis of interview and focus group discussion revealed Maze National Park, formerly called Shambara (Andabo and Gamo, 2015) by local communities endowed large populations of medium to large size mammals including elephant (*Loxodonta africana*), giraffe (*Giraffa camelopardalis*), tiger

(*Panthera tigris*) and buffalo (*Synceus caffer*) in the last century. The park is significant for its biotic and physical resources. However, resource accumulation within the park, unmet expectations, biotic pressures, lack of infrastructure and stochastic perturbations in the landscape are the prominent bottlenecks for sustainability of the park.

a) Ecotourism

Ecotourism is an environmentally conscious travel that enhances a traveler's appreciation of nature's beauty and biodiversity, while reducing the carbon footprint (Biki, 2012). Due to the recent establishment of the park and lack of infrastructure, tourism statistics of Maze National Park is low. But, the scenic landscape of the park is calling upon many tourist arrivals.

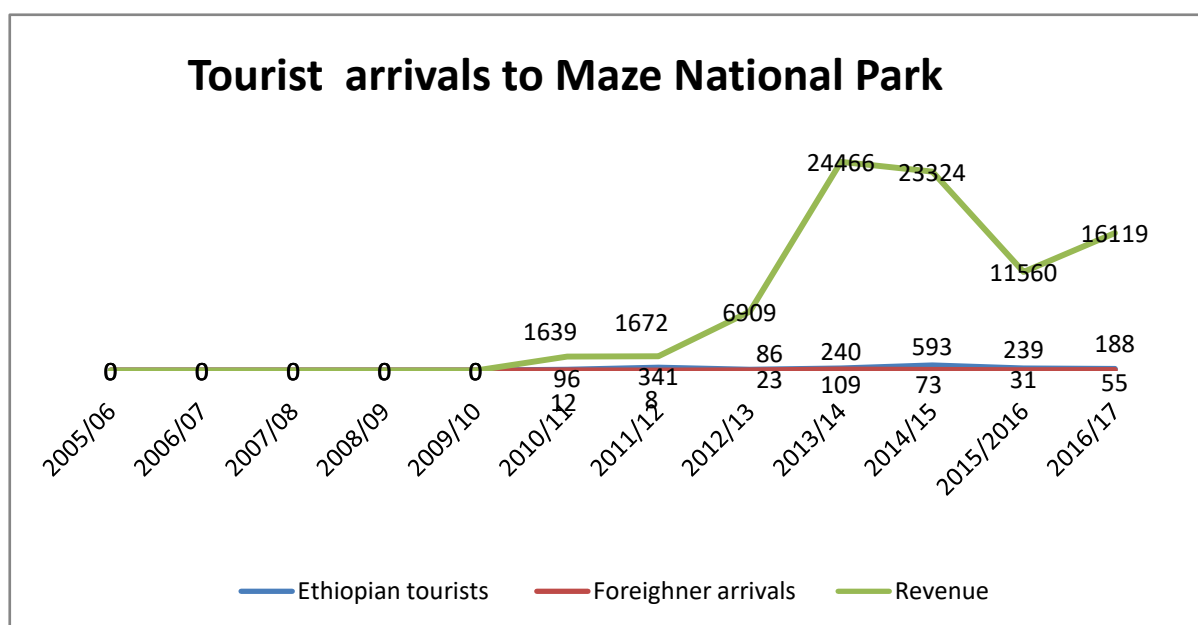


Figure 1: Tourist flow to Maze National Park from time of establishment to present (Source: MNP HQ).

Ecotourism has been marketed as a form of nature-based tourism (Dabour, 2003). According to MNP Head Quarter office, most tourist arrivals to Maze National Park are from Spain, Italy, German, Netherland, Scotland and Poland. Inland tourist flow is better relative to foreign arrivals, but remains poor except for University students visiting the park for educational purpose mainly from Wolaita Soddo and Arba Minch Universities. Due to low flow of tourists, the park revenue, in Ethiopian birr, is below the expected. Figure 1 indicates that MNP was not visited through the first five years after its establishment. Tourist arrival shown slight progress and reached its peak in 2013/14. Then, the flow retarded during 2015/16 and starts to rise in 2016/17. Apart from factors contributing to inconsistency in tourist flow, less work on promotion of the park by concerned bodies, lack of infrastructure, difficulty to encounter some wild animals, due to migration and disturbance in the park

for different purposes were the major factors contributed to low statistics of tourist arrivals into MNP.

b) Ecotourism Potentials of Maze National Park

The study proved that Maze National Park has untouched and diversified ecotourism potentials. Interview and focus group discussion has revealed the following analysis.

Table 1: Ecotourism opportunities in Maze National Park: Interview Analysis

Interview Variables	Percentage Share	
	Local Community (N =67)	MNP Staff (N = 20)
Wildlife	71.6	100
Rivers	35.8	70
Wonja Stone Cave	27	100
Bilbo Hot Spring	44.8	100
Savanna Grass	65.7	50
Inspiring landscape	50.7	60
Riverine forests	11.9	40
Location	7	35
Religious trees	25.4	100

As indicated above (Table 1) wildlife, rivers, Wonja stone cave, Bilbo hot spring, savanna grass and the scenic landscape of MNP are among the major ecotourism attractions. The investigator has also observed that medium to large mammals, birds,

amphibians, reptiles, rodents, vegetation and the gifted landscape are the basic components of ecotourism in the park's catchment. While visiting the south tip of the park, the Bilbo natural hot spring was amazing beauty of MNP.

*Figure 2:* Bilbo Hot Spring (Source: Field survey photo).

The spring hot water gushes out in the form of boiling water; and part of it evaporates in the form of steam. During the field observation at Bilbo hot spring, I had a video supported interview with local elder in Hanika-Phasa Kebele of Kamba Wereda. Local people call the Bilbo hot spring as *Bilbo Tsabala* (the Bilbo healing hot spring) and believe that the Bilbo hot spring is God's work. The community elder has pointed out that the Bilbo hot spring is their *Abuwa* (Ark) to which local communities and outsiders come to get healed from their physical and spiritual illnesses and to be free from any curse. Among others, visitors of Bilbo hot spring come from Zala, Dingamo, Garsa Anko, Hanika, Shella and Maze. They swear any oath in the name of the Bilbo hot spring. The local community has strong traditional belief that the spring is the cause for their blessings and curses. The elder informed that people

sacrifice to the Bilbo hot spring to get something they wish/pray from spiritual point of view. Unlike other resources of the park, local communities have good attitude towards Bilbo hot spring due to its physical and spiritual values. This is an indication to the fact that equitable sharing of benefits or creation of alternative means of benefiting local communities will enhance community-based ecotourism in MNP.

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

Major challenges posed on Maze National Park come from outside and are enumerated under. Land-use changes that have occurred in Maze National Park have caused shrinkage in both the park area and land-cover (Andabo, 2012). The importance and scope of ecotourism is expanding as its sustainability

dimension works on safeguarding the biodiversity, social structure, culture and economic wings. In this respect, Rajani and Vasanthakumari agree that delivering viable tourism, ensuring responsible, real and effective ecotourism is a great deal. Recognizing the different approaches of ecotourism to the conservation and management of ecological and cultural resources is a great challenge to sustainable ecotourism (Rajani and Vasanthakumari, 2015).

i. *Population Pressure*

High human population pressure due to low practice of family planning and low household income in developing countries has caused overexploitation of natural resources. Maze National Park is an ideal place

(lowland rangeland) for pastoralists/cattle grazing. As a result, local communities around the park have a fast growing livestock population. Population pressure is the most challenging factor for the existence of Maze National Park. According to the Ethiopian Central Statistical Authority (CSA) 1994 projection, annual human population around MNP increases at 2.26% rate (CSA, 2001). All local communities around the park live for subsistence such that they are highly interactive with MNP to fulfill their livelihood needs. Annual livestock population growth in Ethiopia is increasing (Table 2); and the country's livestock population is the largest in Africa and the tenth largest in the world (Conservation Strategy of Ethiopia, 1996).

Table 2: Livestock population statistics in Ethiopia (2005-2010).

% Annual changes	2005	2006	2007	2008	2009	2010
Cattle	1.7	4.2	6.8	10.3	3.6	3.2
Sheep	9.0	14.7	14.0	10.5	-4.2	3.8
Goat	7.4	10.1	13.4	17.0	0.8	0.3
Camel	-2.7	-4.6	40.9	63.7	-24.7	6.3
Poultry	-36.6	42.5	6.1	15.7	-3.6	10.3
Horse	4.9	3.4	5.5	7.3	0.6	11.6
Donkey	4.3	9.1	4.9	23.9	-2.7	5.4
Mule	-1.1	7.2	-4.4	15.7	-0.8	-2.1
Beehives	-11.6	21.5	-1.7	-4.2	0.0	na

(Source: Metaferia *et al.*, 2011)

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 3) indicate livestock population is rising (except for years of drought

and livestock diseases) and significantly disrupting the park's ecosystem. So, the park management is advised to be skilled and empowered through trainings and workshops on improving livestock production; and monitoring and evaluation of the performance of livestock in outdoor keeping, without encroaching into the park ecosystem.

Table 3: Livestock population statistics in kebeles of Quca around Maze National Park (2006-2010). (Source: Quca Wereda Rural Development and Agricultural Extension Office).

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 Morka	3096	3	950	0	4	1	2006
	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

Koddo Wonno	1422	22	937	0	9	2	2006
	1026	18	676	0	7	1	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*

The park has encountered wild animals' death since 2008. The different causes of wild animals' death in MNP are indicated in Table 4.

Table 4: Record of wild animals death in Maze National Park (Source: MNP HQ).

Wildlife deaths for different reasons in Maze National Park.					
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

During the last nine years, 326 wild animals were died for known and unknown reasons in MNP. Most of wildlife deaths in the park were due to vehicle (46.01%) and hunting (33.74%). The main road passing the park has 10m to 12 meters diameter which can accommodate two vehicles at a time. Due to high production of cereal and cash crops, many vehicles pass through the park. The main reasons for death of wild animals by vehicle include 1) drivers do not respect animal rights 2) substance use while driving 3) most of the business vehicles crossing MNP travel during the night times and 4) drivers do not follow traffic rules in National Park regions (drive beyond the speed limit in the park region). The local communities have good awareness about animal rights and their ecotourism role and are appreciated for their respect to wild animals and not hunting them. However, hunting of wild animals of the park is done by Male community coming from South

Ari Zone, South Omo. These people are semi-pastoralists who move place to place in search for water and pasture for their domestic animals. Due to the interruptions by local people and Male people, wild animals of MNP migrate to other places and exposed to health problems and deaths for unknown reason. Perhaps, causes of such deaths might be contact with domestic animals while grazing and Tse tse fly, tick, bug and other veterinary disease vectors. Local communities around MNP send their cattle into the park. Sometimes predators such as Lions kill and feed on their cattle. On return, the local communities revenge the lions by killing them using traps (Figure 3).



Figure 3: Skin of Lions killed in traps by local communities in revenge for their cattle killed by Lions (Source: MNP HQ).

iii. *Conflict of Interest*

Investment in service-oriented projects, particularly tourism, in developing countries is often regarded as a high-risk task (Dabour, 2003). Ecotourism is both process and activity. Formerly, the local communities use resources of MNP for various livelihood purposes such as fuel wood, honey collection, timber products, livestock grazing and drinking and grass collection. After the establishment of the park, conflict of interest has come about as the local communities have been prohibited all the resources from that catchment without any alternative substitute for those resources. Inadequate participation of the local people in ecotourism development process and inequitable benefit sharing resulted in negative attitudes of the local people towards ecotourism.

iv. *Poor Political Commitment*

Poor political commitment may result from low understanding and commitment to implement government policies, poor skill and knowledge, low

awareness, giving low weight to environmental issues and poor institutional integrity of the nominated politicians. Maze National Park has the smallest area coverage (less than 202 km²) compared to the rest of national parks in Ethiopia and is continuing to diminish due to alarmingly growing human and livestock populations followed by poor political commitment of the local governments. Of course, there are disturbances at all corridors of MNP; for instance, the Quca Wereda government gave 3.6 ha of Maze National Park land at Domba for Morka youths for farming as means for stabilizing the political opposition led by youth during the 3rd election in 2005. Simple provision of incentives as a means to calm community anxiety to exploit resources marginalizes a certain part of a community and intensifies over exploitation of resources, drains confidence on ownership, and increases annoyance by marginalized community towards further development of ecotourism (Ketema, 2015).



Figure 4: Morka kebele youths farmland at Domba within the Park. (Source: Field survey Photo)

The researcher fortunately had prior information that the Male community members have been repeatedly crossing Kamba wereda to reach to MNP since the establishment of the park until the present time for grazing of their livestock. Kamba wereda government knows that the Male's are coming from South Omo Zone and cross their land to reach Maze National Park. But, due to poor/no political commitment by Kamba wereda government, the Male's started illegal settlements and poaching within MNP at Phasa kebele, Kamba. Due to the alarming report by MNP management to Gamo Gofa Zone administration about the Male's huge herd of cattle population (more than 20,000 heads) in MNP, Kamba wereda government was

called to check the real situation by Gamo Gofa zone government. This allowed having good focus group discussion with Kamba Wereda delegates, the Male semi-pastoralists and the Phasa kebele community. The researcher has observed that the situation now in MNP is really harsh, and federal and regional governments must involve in the park's management before the overgrazing by such an increasing Male livestock population perishes MNP in a period of few months through overexploitation and settlements. The Male semi-pastoralist community holds guns and are archers which will also lead to unwanted disputes up on competition for resources and territorial expansion by Male's in MNP.



Figure 5: Overgrazing and illegal settlements by Male community members within MNP at Phasa (Source: Field survey photo).

v. Climate Change

The park has been experiencing recurrent drought and low rainfall which are causes for the disease emergence and declining of the biota of the park. Climate change now has become the top urgent issue of the global community. Currently, climate change is devastating Maze National Park than ever before. In Ethiopia, global warming has been killing many livestock and exposed many households to hunger. Focus group discussion with the Male's has shown that the prolonged climate change in 2015/16 (El Niño) has continued to increase in Male area even to present. It has deteriorated all land cover and has caused water source to dry [leaving dusty bare land] in the rangelands of Male wereda. As a result, Male semi-pastoralists have been forced to travel more than 60 kms to reach MNP and to feed and drink their cattle. The Ethiopian government is trying to mitigate the climate change by designing different environmental protection strategies and interventions. However, the severity of climate change in Male wereda has led the Ethiopian government to legally allow the Male semi-pastoralists into MNP to get relief of their cattle.

In the analysis of challenges for sustainable ecotourism in MNP, the researcher has developed triangular tuberous root tree model of challenges emanating from poor livelihoods - poor political commitment - poor infrastructure development.

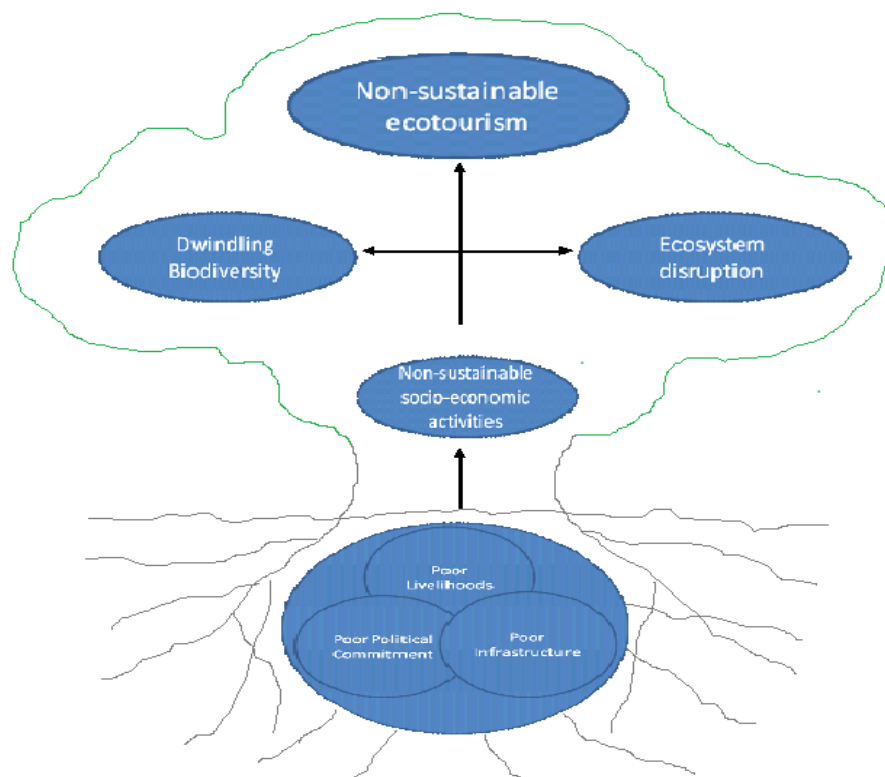


Figure 6: Triangular tuberous root model showing challenges of sustainable ecotourism in Maze National Park

(Source: Wegene Getachew Andabo, the researcher, March 2017).

d) Prospects of Maze National Park: Issues of Focus

The establishment of Maze National Park in Maze area is important both ecologically and economically. Maze National Park was a communal land for long past before its establishment. The establishment of MNP restricted the local communities' open access to the resources of the park. As to the local communities, following the park's establishment, the surrounding communities are suffering from lack of the usual visit to the park area for their domestic purposes. The participant's observation into the perceptions of local communities towards the establishment of the park indicates that most of the local communities are unhappy as they have either not benefitted from it or sustained their open access into the park. Interview and focus group discussion reveal that the park has immense ecotourism potentials to exploit over. If given

more attention, ecotourism in Maze National Park will by far overweight the ecologic and economic values of the other parks in the country as the park is almost intact in all of its resources. The participant puts forward the following prospects as focal areas for the development of sustainable ecotourism in Maze National Park.

i. Organizing Staff Profile

The current staff profile of Maze National Park is observed to be less organized. Recruiting new professionals from Veterinarian, Agronomist, Ethnobiologist, Botanist, Zoologist, Anthropologist, Sociologist, Tourism and Hotel Management and Entrepreneur will empower the park management system. Currently, MNP has 30 male and 3 female, a total of 33 employees. The present staff profile (see Table 5) of MNP is poorly organized as 91% of the staffs are supportive staffs primarily being the protective staffs.

Table 5: Maze National Park Staff profile and their job description. (Source MNP HQ, March 2017)

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

Casher	1	Responsible for taking money in the form of cash, check, or credit card, Scans items, provides change, draws balances
Daily cash collector and Promotor	1	Accountable for the credit and collections process
Secretary	1	Supports the executive team
Scout Head	1	Arrange time table for scouts to patrol of the park, coordinates scouts
Scouts	16	Protective staffs, check and protect illegal activities in and around the park area, assist in field work
Driver	1	Accomplishes any duty given by the park warden
Janitor	1	Cleans the park offices and the compound
Guard	4	Watch and protect other staffs and park compound

ii. *Community Participation and Benefit Sharing*

Community participation will increase transparency and create trust between park management and the local community. While participating in the management of MNP, the local communities will form sense of ownership to stop any illegal intrusion into MNP and will be part of the park's protective staffs. Through community participation local communities start to use natural resources in environments other than the core parkland and will keep their livestock in the fields outside the park. Ecotourism sustainability is full of ups and downs as human-nature interaction persists in poor economies of developing countries like Ethiopia. Thus, MNP office, regional and

federal tourism bureaus need to work on community-based ecotourism assuring equal community participation (men and women); and equitable sharing of the resources and benefits from tourism in the park.

iii. *Adequate Budget Allocation*

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



Figure 7: Focus group discussion with Maze National Park staffs.

iv. *Improved Livestock Production*

A passenger may see many heads of cattle while crossing MNP. Livestock is half livelihood activity for local communities around MNP. Local communities around the park see livestock as social bank. The problem with local breeds is they are many in number but less productive. According to FGDs with local communities and MNP staffs, to minimize livestock pressure on MNP it demands substitution of local breeds with high yield or cross-breed improved livestock species.

v. *Building Water Points*

The construction of water points or water lines for livestock drinking and domestic consumption (e.g., communal pools or drilling groundwater at every

household) will prevent livestock and human entry to MNP and minimize disturbance in the park. The water points built for livestock drinking purpose must contain water on regular basis and they must have outlets for cleansing and pouring fresh water into the pool. Therefore, giving priority to the most severely suffering villages around the park, water points have to be built to safe guard the park and reduce conflict of interest.

vi. *Protection of the Bilbo Hot Spring*

For a visitor, the Bilbo hot spring tells message saying "save me" because it is on communal land that is of many anthropogenic disturbances such as illegal settlements and grazing. During field survey, the researcher observed that there is no protection to the hot spring. Local communities were observed while

taking shower on the flowing water from the hot spring. The spring is observed to be open for local communities and animals. Thus, it is exposed to threats which will challenge its existence in the near future.

vii. *Road Construction*

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

viii. *Campsites in the Park*

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

ix. *Harvesting Timber and Non-Timber Products*

The local communities were observed to be highly consuming timber products of the park. MNP has tall forest trees with timber values at riversides. The shrubs and tall trees will be used for local and industrial purposes. However, at the current traditional living

status of the local communities coupled with poor development status of the park, harvesting timber products is risky for the sustainability of the park and its resources. Allowing local communities to harvest timber products in one hand and overexploitation of mature forest trees (whose replacement will take at least fifty-hundred years) only for domestic and income generation purposes in the other hand will open gate for more disturbances in the park. This will result in ecosystem disruption and biodiversity loss. Therefore, the investigator encourages the MNP management and local communities to harvest more on non-timber products of the park. Non-timber forest products include grass, forest honey/apiculture, edible fruits and nutraceuticals, strap and so on. For instance, field observation and previous work (Andabo and Gamo, 2015) indicate that nearly 50% of Maze National Park is covered by grassland, mainly savanna grassland of 3m to 6m tall. Harvesting the grass economy will allow the growth of palatable grass for livestock and wildlife, prevent emergence of vector-born zoonotic diseases, removes breeding sites for vectors of medical and veterinary importance and will increase the biological diversity and productivity of MNP by increasing the survival and fecundity rate of species. However, it is usual to see illegal entries into the core of the park for grass collection. If carefully harvested, this grass will generate high incentive to the local communities, the park and pave the way to alternative income generating activities. In this connection, organizing local community into farmer cooperatives will not only enhance production but also improve management of the park. Doing so, the farmer cooperatives will benefit from the park by marketing products for thatching, local construction, investors (e.g., lodges), hay, livestock feed and other purposes.



Figure 8: Illegal grass harvesting in Maze National Park. (Photo during field survey).

x. *Irrigated Agriculture*

Maze National Park possesses a number of rivers (e.g., Lemase, Domba and Maze) that can be used for irrigation. The vast plains in the park surroundings are good places for vegetables, cereals, horticulture, fruits, root and tuber crops.

xi. *Aquaculture*

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

xii. *Film Industry*

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

xiii. *Lodges and Green Parks*

Many countries lack sufficient infrastructures such as hotels, lodges, transportation, communication, safety and security and tourism information services all of which aid in the development of sustainable tourism sector (Dabour, 2003). Establishment of lodges and green parks in selected sites around the park will enhance ecotourism, tourism revenue and employment through infrastructure development like roads, construction of guest houses, hotels, bedrooms, vehicle and tent renting to tourists coming to MNP, and greening the area. For example, Bilbo hot spring is vital place for this purpose. People will come there for purposes like healing, recreation, spiritual and secular, conferences, meetings, wedding ceremonies, etc. Thus, all the concerned bodies have to come together to work on issues related to logistics and infrastructures needed to improve the park's facilities.

xiv. *Project*

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

IV. CONCLUSION

The study on ecotourism potential, challenges and prospects of Maze National Park is a timely study to develop sustainable ecotourism in Maze National Park. The study revealed that the park has a number of opportunities and prospects to develop sustainable ecotourism. Population pressure, wildlife death and migration, conflict of interest, poor political commitment

and climate change were identified to be the main challenges for sustainable ecotourism in the park.

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Conflict of Interest

The author has no conflict of interest with this publication.

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