Full Length Research Paper

Valuation of environmental goods and services: The case of Bale Mountains National Park, Ethiopia

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Valuation of non marketed environmental goods and services is a newly emerging research area particularly in Ethiopia and other developing countries. The study was aimed to investigate willingness to pay for conservation of environmental services and local tourists' entrance fee of Bale mountains National Park as well as determinant factors affecting visiting interest of local community. The widely used and flexible technique of environmental valuation called contingent valuation method/CVM/ was used. Respondents were given hypothetical project of conserving the park. Hypothetical questions were prepared to elicit the maximum willingness to pay and Willingness to accept to conserve the park. Dinsho, Goba and Robe towns were purposefully selected from which 380 respondents were selected from stratified population using lottery method. Logistic regression model was used to quantitatively analyze socio-economic factors of local people to visit the park. The research finding indicated that visitors mean entrance fee WTP is over 3 times the current entrance fee. Maximum amount of willingness to pay for the proposed conservation project scenario varied from 0 to 1000birr (50$), whereas mean and mode were 35 $ and 10$. Regression analysis showed sex, age, family size, and education level were significant determinants of visiting the park. In addition, district/nearness, education level, job, awareness of biodiversity importance and status, and income level of respondents positively affected an individual's willingness to pay. Generally, the survey was successful in eliciting willingness-to-pay for protecting the park and can potentially help policy makers as well as park managers to increase number of local tourists so as to increase revenue for conservation work.

Keywords: Contingent valuation, conservation, environmental service, non-market values, tourism, willingness to pay.

INTRODUCTION

Nowadays, valuing environmental goods and service (g/s) are increasingly becoming a global concern. It is largely agreed that successful development activities depend on the efficient use of 'natural capital' (World Bank, 1998). However, the market for environmental services is substantial and growing throughout the world, driven in part by increasing environmental regulation and changing consumer preferences (UNEP, 2012; Kunte *et al*., 1998), and in applying valuation techniques to the analysis of the environmental g/s, both in developed and developing countries (Bishop, 1999). However, to do so, several types of market failures can be defined (OECD, 1994). The most common type of market failure related to the environment is the failure to internalize, or take account of market values of g/s.

Before few years ago in production of goods and services, physical and human capital was recognized as the main factors of production. But nowadays, economists have recognized that natural *capital* is an important input in any type of production (Tietenberg, 2006). An increasing number of economists nowadays, accept that natural capital is used for material and energy

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inputs into production, acts as a "sink" for waste emissions from the economic process, and provides a variety of "ecological services" to sustain production, such as nutrient recycling, watershed protection and catchment functions, and climate regulation (Tietenberg, 2006; Mishra, 2013).

Environmental assets like other assets provide benefits that enhance economic performance (DEFRA, 2007; Pearce and Turner, 1990; Cesare, 2000; UNEP, 2012). Public benefits derived from biodiversity and natural resource such as a national park in the form of environmental amenities and ecosystem services implies that the environmental goods and services contributes to public welfare, and loss of the resources or decline in their quality could result in a loss in welfare (Tietenberg 2006).

Generally, literatures divide the value of environmental g/s into different categories. When considering why individuals place values on a natural resource, a typical approach in literature is to distinguish between those who use the resource (services) and those who do not (Brauman etal, 2007). The values held by the former group are generally termed as use values, and may occur in many different ways. Direct use values may derive from consumptive uses (e.g. fuel wood collection) and/or non-consumptive uses (e.g. hiking in the same forest), and may involve commercial (selling fuel wood or collecting visiting tolls) and/or non-commercial activities (home consumption of fuel wood or enjoyment of an open-access wilderness area) (Cesare, 2000).

Only some of environmental goods and services that are very crucial for our existences have markets (Cesare 2000) price (price tag) and these prices are most of the time very minimal. So, valuation of such goods and services is much more relevant (McClelland, 1993) for sustainable development. Some benefits of valuing environmental g/s are strengthening green growth (McClelland, 1993; Mishra, 2013), helps to better understanding of the value of the natural capital, rethink the territory in a more integrated and intelligent manner, and to conduct more realistic cost/benefit analysis which effectively promote the sustainability of the biodiversity in the territory, balancing the economic vision with the preservation/conservation of natural resources (Santos, 2013).

Driven by the continuing desire of Ethiopian government for green economic growth, the result of this research can potentially awake and ignite decision makers and policy makers at national level about monetary value of non marketable environmental g/s. In addition, an ability to place a monetary value on the services provided by the environmental g/s should increasingly be recognized by the broader research, policy and business communities.

The welfare contribution or economic value of protected areas in developing countries, however, is scarce. Similarly, both use values and non use values of these environmental services are not yet comprehensively understood in Ethiopia. Therefore, environmental management decision making process and policy makers, and conservation project implementers have no scientific background. According to Bekabil and Anemut (2000) very few studies analyzed local peoples willingness to pay (WTP) for conservation of national parks in Ethiopia.

There are no comprehensive studies done regarding the environmental services provided by BMNP. Recreational value and even the entrance fee to enjoy the park is not based on the scientific study that really reflect the local tourists WTP. Therefore, this study was aimed to examine the maximum amount of local tourists' willingness to pay to visit the park and the monetary value that people attach to the conservation of environmental services provided by Bale Mountain National Park (BMNP) as well as the major determinant factors affecting the willingness of local community to visit the park and conservation scenario of the park.

MATERIALS AND METHODS

Description of the Study Area

BMNP is situated in the Oromia Region encompassing 2,471km². The park is characterized for its Afro alpine habitat, including alpine meadows; it contains the second largest moist tropical forest and the only cloud forest in Ethiopia. With an altitudinal range from 4400 to 1500 meters, it harbors an enormous diversity of habitats. All of this has resulted in a unique ecosystem that contains such a high degree of endemism that it is the envy of National Parks. It is estimated that if we were to lose the Bale Mountains more endemic mammals would go extinct than any similar sized area on our planet. Two of our most recognized species, the Ethiopian wolf and the mountain Nyala, are safeguarded by the Bale Mountains National Park, with more than 50% of the total populations of both these endangered species occurring within its boundaries (GMP, 2007). The park is home to several endemic mammal species, such as the Mountain Nyala, Ethiopian Wolf, Giant Mole Rat and Bale Monkey. The forest area also provides a habitat for Lion, African Wild Dog and Giant Forest Hog.

This park is safeguarding our Ethiopian Natural Heritage. Climatically, the area is characterized by a rainy season from March to October and a dry season from November to February. Precipitation increases with altitude from 600mm to 1,000mm in the lower altitude areas to 1,000mm to 1,400mm in the high alpine areas of BMNP. Mean monthly temperatures range from 19°C to 25.4°C.

The Harenna forest within BMNP and the adjacent Mena Angetu National Forest Priority Area (NFPA) on the southern slope forms the second largest stand of moist tropical forest remaining in Ethiopia covering about 1,800km². Approximately, half of the park (877km²) lies

within this forest, which is home to high levels of biodiversity and endemism including many threatened species such as Prunus africana. The forest contains wild coffee (Coffee Arabica) and is an important source of timber, NTFPs, honey and dry season grazing. The entire forest is under considerable human induced pressure due to uncontrolled grazing and forest fire threatening the sustainability of the forest (Abdurrahman, 2008).

Method of Data Collection

Socio-economic data survey

To collect socio-economic characteristics of respondents, two main instruments, namely: Questionnaire and focal group discussion were used. To improve the quality of the questionnaire, the researchers pre-tested and translated into 'Afaan Oromo', the local language. Accordingly, Sex of household head, age, and district, and marriage status, religion of respondents, family size, educational status, occupation and income level of the respondents were the main socio-economic characteristics collected during data collection. In addition to these, A local peoples' perception of conservation activities, Levels of knowledge about biodiversities exist in the BMNP, purpose of visiting the park, Frequency and willingness of visiting the park (whether the respondent have taken any trips to the park for different reasons) and other relevant data were collected.

Focus group discussion

Three focal group discussions (FGDs) were formed. Each FGD had ten members. The first FGD was concerning hypothetical conservation of environmental goods and services project to be designed and implemented. This was done to elicit WTP and WTA the bids and thereby to describe environmental g/s in monetary term. The second FGD was to make agreement on alternatives bids (Ranges of birr (Dollar) that the respondents were asked to vote as optimal entrance fee. The third FGD was to discuss an acceptable ways of funding the hypothetical project. We made a discussion on whether the hypothetical project could be funded by community only or both by government and the local community. The first group made up of higher officials of Ethiopia wild life conservation authority and senior professionals of Park management, wildlife conservation, tourism management and Ethiopian Biodiversity Conservation Institute. The second group and third group were made up of local expert office leaders as well as Dinsho Woreda administrative officers, and local farmers of five male and five female household heads.

Structure of contingent valuation design

CVM survey design of Loomis *et al. (*1996) was used, which comprise three elements: portraying the resource to be valued; describing particular financial mechanism (e.g., property taxes, utility bills, trust funds/donations, etc.) and eliciting the respondent's WTP in Ethiopian Birr (1 Dollar=20.48 Ethiopian Birr during this study time).

The nature of the goods and services and the changes valued (value of changes in terms of conservation of BMNP as a result of hypothetical project) were specified in details to respondent before directly asking how much respondents were willing to pay for a conservation program of BMNP.. For example, by asking, if the project cost household 100 birr (5$) each year, were he/she willing to pay the amount to implement the project. The dichotomous choice questionnaire mentioned above allowed to statistically trace out a demand relationship. To do so, the relationship was established between the probability of a "yes" response and the Ethiopian birr (Dollar) amount.

$$\text{Prob (Yes)} = 1 - \{1 + \exp[\,B_0 - B_1X_1 + B_2X_2 + B_3X_3 + ... B_nX_n]\}^{-1}$$
...........................1

Where B: Coefficients to be estimated using logit statistical techniques associated with the independent variables Xi: Ethiopian Birr (US Dollar) amount the household is asked to pay. Then expected mean WTP value was calculated as:

$$\text{Mean WTP} = (\,1/B_0\,) \times \ln (1 + \exp[\,B_0 - B_1X_1 + B_2X_2 + B_3X_3 + ... B_nX_n]\,)$$...........equation 2

Sampling techniques and sample size determination

Three towns of Bale Zone namely Dinsho, Goba and Robe were selected purposefully since residents of these towns have relatively good awareness of Environmental g/s of BMNP. Then respondents were selected randomly using lottery method. The population size of Dinsho, Goba and Robe were 3609, 32025 and 44382 respectively. Totally, population of the three selected districts was 80073 HHs. Therefore, the total sample size was determined by the following formula;

$$n = \frac{z^2pqN}{E^2(N-1)+Z^2pq}$$ 14611.4007...equation .1

Where n=appropriate total sample size, N=Total HH in the areas,   P=5%/given/,   E=marginal error=5%,q=.95,z=confident interval=1.96
$n = 1.96^{2}*0.05*.95*80073$
$.05^{2}(80073-1)+1.96^{2}*.05*.95$ $= \underline{380\text{HHs}}$

This sample size was allocated proportionally for the three towns: Dinsho, Goba and Robe.

Method of Data Analysis

Both quantitative and qualitative methods of data analysis were employed to analyze the collected data. Quantitatively, descriptive statistics such as mean, mode and rating techniques (likert scale) were used. In addition to this, logistic regression was used to analyze the socio-economic factors affecting local community's interest to visit the park and factors affecting the willingness to pay for the hypothetical conservation project. In logistic regression analysis dependent variable was dummy variable which took 1 if the respondents were visited the park so far and 0 otherwise. The different

socio-economic variables were used as explanatory variables.

RESULT AND DISCUSSION

Socioeconomic characteristics

This section presents the socio economic characteristics of the respondents. Socio economic and demographic characteristics such as sex of household head, age, and district, and marriage status, religion of respondents, family size, educational status, occupation and income level of the respondents were analyzed and presented in table 1.

The above table indicates most of the respondents were male (64.6%) and majority of them were married (57.1). Only 9% of the respondents were illiterate and relatively high percentages (30.6%) of them have attended primary school. Few respondents reported that they have attended others type of educational level (religious creeds, such as Quran). 46.4% of the respondents occupied on petty trade and the significant percentage were government employer. Only 10% of them were farmers.

Average Entrance fee to Visit the Park

Visitors mean WTP to visit the park was over 3 times greater than the current entrance fee (20Birr). The least and most typical entrance fee WTP was 20 Birr (1$) whereas average entrance WTP was 60 Birr (3$) (Figure 2). Similar study conducted on "Visitors' willingness to pay for an entrance fee :A case study of marine parks in Malaysia" showed that the willingness to pay (WTP) per person per visit to moderate the environmental impact of inland development is 5.95USD, which is lower than the WTP to reduce crowding, 7.89 USD (Siti, 2009).However, in our case, the existing entrance fee set by the government is lower than the tourists willingness to pay simply to encourage the visiting frequency of both local and international tourists . Thus, there is room of increasing entrance fee if the Park Managers desire to increase revenue by collecting money from local tourists in addition to what have been collected from international tourists. Therefore, policy makers and/or park managers can set Ethiopian Birr ranging from 20-60 (1-3 USD) as entrance to visit the Park particularly for local tourists. Similarly, wide range of willingness to pay park entrance fee (50 to 150 Dinars) for Fruska Gora Mountain also found by Aleksandra Vujko and Tamara Gajic (2014). To sustainably conserve the biodiversity of the park, increasing the entrance fee is crucial especially to monitor and manage environmental goods and services.

The respondents were asked to choose from different ranges of entrance fee and 70% of them voted to pay the range of 20-70 Ethiopian Birr (1-3.5$). Figure 2 shows that, about 14% were willing to pay the highest bid (150 Birr (7.5 $). Therefore, the current entrance fee is not a limiting factor in determining number of entrance. The result of the study remarked that it is not appropriate to limit entrance fee to low amount. The low entrance fees fail to justify conservation of Biodiversity or pursuance of a policy of cost recovery (Mmopelwa et al., 2007).

It is widely believed that is important to introduce an additional fee based on visitors interest (providing entrance fee option from minimum 20 (1$) to the mean of 60 Birr (3$) and even as larger as they can offer). In some parts of the world, increasing park entrance fee was not significantly reduced visitor numbers, especially in the long-term since the demand for visiting the park is relatively inelastic (Herath, 2000; Shultz et al., 1998). This means, the amount of entrance fee should be open to the visitor above the set minimum fee to give chance for those visitors who are willing to pay more so as to make the national park a luxury or a snobbish good.

Purpose of visiting and reason why local people do not visit the park

Those respondents who responded they had visited the park were asked for what purpose they had visited the park so far and those who had not visited the park were also asked to indicate their reasons. Accordingly, respondents reported that they visited the park for purpose of recreation, research and education. This is due to the fact that natural spaces can potentially provide an arena in which children and University students can learn outside of the classroom, and there is evidence to suggest that this is a more effective form of learning (SIG, 2009). In another hand, people who have not visited the park so far reported that lack of visiting habit, unaffordable entrance fee, and the lack of information about benefit of BMNP / absence of advertisement, absence of attractive infrastructure and additional manmade recreational part of the park as the reasons for they had not visited the park.

Figure 3 indicates, only about 56% of the respondents visited the park and 43% of them had not visited though the park is near to them. Table 2 presents the reasons of local people for visiting the park. About 70% of respondents answered that they visited the park for the sake of recreation. The study carried out to estimate the recreational benefit people gain from the Loch Garten site and the value (£0.57 million and £0.77 million per year) reported that an estimate of the benefit people enjoy from visiting the site, predominantly for recreation (Value of Biodiversity, 2006). However, only about two percent were visited for research work and about 16% for education purpose.

The Study finding showed, entrance fee was not a significant limiting factor that hinders respondents from
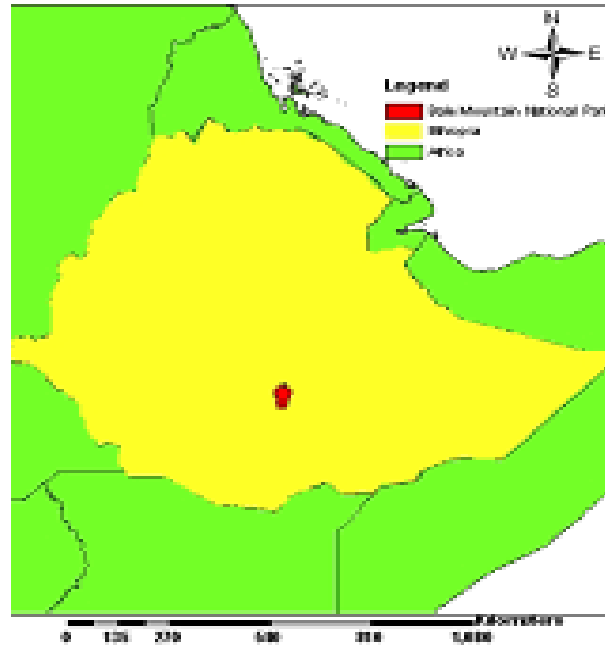
Figure 1. Location of the Bale National Park.

Table 1: Socio-Economic characteristics of the respondents.

Variables	Characteristics	Percentages
Sex	Male	64.6
	Female	35.4
Marriage status	Single	40.8
	Married	57.1
	Divorced	2
Religious	Muslim	*40.1*
	Christian	*57.8*
	Wakefata	*1.4*
Family size	1-3	*63.8*
	4-6	*22.7*
	>6	*13.5*
Level of education	Illiterate	*9.5*
	Primary	30.6
	Secondary school	27.2
	University level	32
	others /religious --	.7
Occupation	Petty trade	46.4
	Farming	10
	Government employer	43.6

visiting the park since only 7.2% of they responded reported they could not offer the current entrance fee to frequently visit the park. This result is quite different from studies conducted in Australia that majority of the visitors (67 percent) said they pay 0 entrance fee to visit park. On the other hand, about 17.1 of the respondents mentioned that they have not visited the park because of all the described problems as reason for not visiting the park.
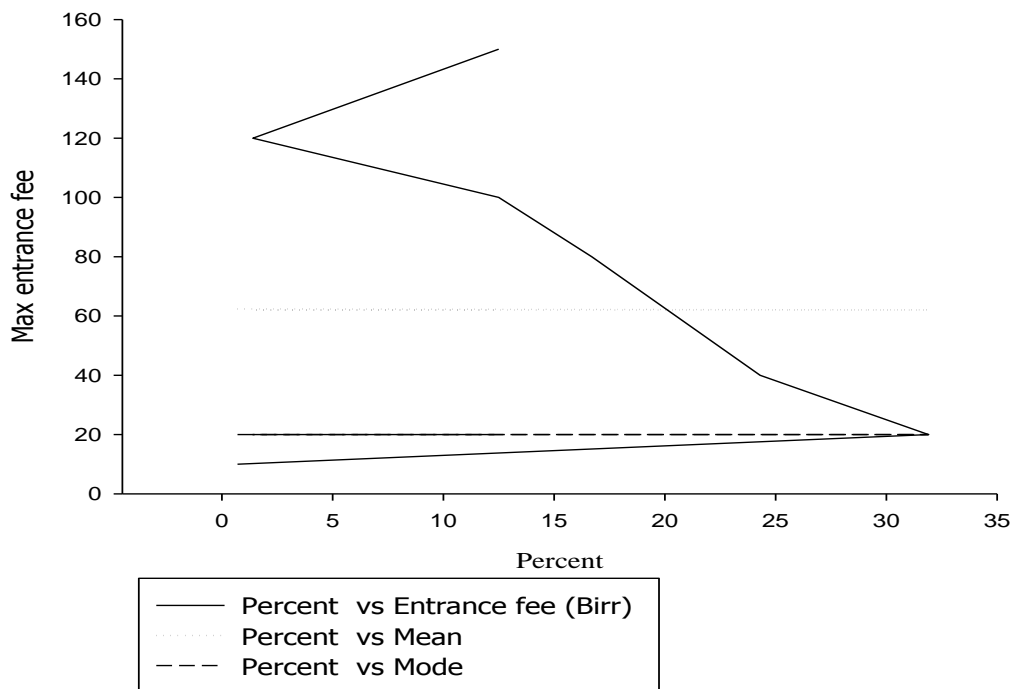
**Figure 2.** Willingness to pay for Entrance fee WTP.

Local people attitude towards the importance of conserving BMNP

Under this sub section, we presented the value that the local people derive from the Bale Mountains National Park. Respondents reported that they derived both use and non use value of environmental goods and services from the park such as recreation, job opportunity, endemism, scenic value, education and research value. Table 3 indicates likert scale of local people attitude regarding the benefits or importance of conserving BMNP. The presented result showed that conservation works and activities are very important (4 likert scale) for the purpose of recreation, to protect current endemism status, and scenic value whereas important (3 likert scale) for education and less important (2likert scale) for creating job opportunity, cultural value and research work. The research finding carried out by Peter Edwards & Cyrus Abivardi indicated that the recent powerful new argument for protecting biodiversity in the past 18 years since we need it for our survival(Edwards &Abivardi,19998). This realization has grown gradually as a result of the increasing scale of environmental problems we face, such as acidification.
Local people attitude towards harmful effect of human pressure in the absence conservation activities.
Table 4 indicates without the proposed project, natural and man-made factors and other human pressure have highly affect scenic beauty of the forest, tourism air quality, recreation and etc except fishing, risk of flood and water quality which respondents responded as these were not affected (2 likert scale) by the fire with and without the proposed conservation scenario.

Socio –Economic Factors affecting visiting interest of local people

The socio-economic /characteristics /variables/ that determined the interest of local people to visit the park were analyzed using logistic regression (where independent variable was binary response,1 labeled as yes for who already visited the park and 0 labeled no for those who did not visited the park). Logistic regression was used to identify socio economic factors affecting the WTP (OECD, 2002).The respondent's mean willingness-to-pay is influenced by a number of socio-economic and demographic factors. The result of logistic regression was put in table 5. As it is indicated in table 5, at 95% level of significance, four socio- economic variables: sex(p=.00), family size(p=.005), level of Education(.022) and occupation were variables significantly affected the interest of local people of visiting Bale Mountains National Park. Sex which is dummy variable (where 1 labeled if the respondents were male and 0 otherwise) affected the visiting interest of local people positively. This means that males were more likely to visit the park
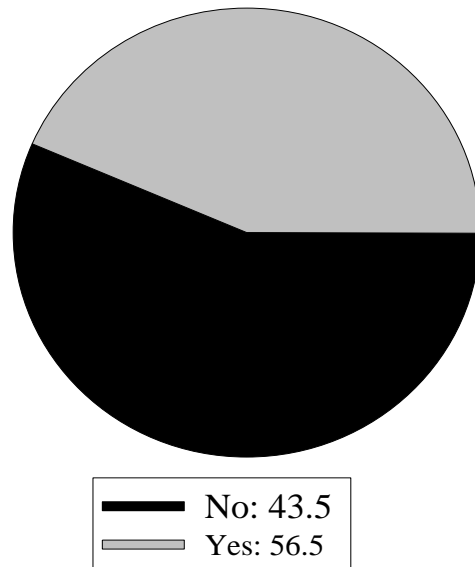
Figure 3. Percent of yes and no response of past experience of visiting the park.

Table 2. Percentage of BMNP visiting and not visiting reasons.

Purpose of visiting the park	%	Reasons for not visiting the park	Percent
Recreation	70.5	Lack of visiting habit	54.1
Research	2.7	Unaffordable entrance fee	7.2
Education	15.2	The details of BMNP not advertised enough	17.1
Other	11.6	No additional manmade recreational part of the park	4.5

Table 2. also presents lack of visiting habit was the most typical reason (54.1%) that prohibit local people from visiting the park.

Table 3. Analysis of importance of conserving BMNP.

	Recreation	Job opportunity	Endemism	Scenic value	Education	Culture Value	Research value	Other
Median	4	2	4	4	3	3	4	4
Mode	4	2	4	4	3	2	2	4
Std. Dev	.81	.96	.61	.56	.53	.89	.72	.71
Variance	.66	.93	.37	.314	.28	.81	.53	.49

Source: Own survey, 2015/16.

relative to females. On the other hand, family size affected the visiting interest of the local respondents negatively, as family size increases; local peoples were less likely to visit the park. Level of education affected the

Table 4. Effects of human pressure and fire on the park.

	Scenic beauty	Tourism	Air quality	Soil erosion	water quality	Risk of flood	Health of tree	Recreation	Fishing	Diversity of fauna	Diversity of flora	Endemic species
Median	1	1	1	2	2	2	1	1	2	1	1	1
Mode	1	1	1	2	2	2	1	1	2	1	1	1
Std. Deviation	.84	.76	.81	.52	.51	.57	.71	2.7	.57	.66	.67	.67
Variance	.704	.57	.66	.27	.26	.33	.51	7.2	.32	.44	.44	.45

Source: Own survey, 2015/16.

Table 5: Variable of Determinants for Visiting the Park.

Variable	Coefficient	S.E.	P-value.
Sex	3.505	.740	**.000**
Age	.041	.046	**.365**
District	.658	.407	**.106**
Marriage	.983	.738	**.183**
Religion	.652	.620	**.293**
Family size	-.489	.174	**.005**
Education level	.885	.345	**.022**
Occupation	1.165	.538	**.030**
Income level	.475	.409	**.0369**
Constant	-7.655	2.176	**.000**

Source: Own survey, 2015/16.

interest of visiting the park positively; which implies that, educated local people were more likely to visit the park relative to non educated individuals.

Determinants of Willingness to Pay for Conservation of the Park

In addition to the investigated the local peoples' willingness to pay for entrance fee, respondents were given the bid and asked whether they were willing to accept the bid or not.

Accordingly, 77.6% of the respondents were willing to pay for the proposed conservation scenario while the remaining respondents were not because of two main possible reasons: the project itself did not convince them (32%) and they (68%) believed that they drive no benefit from the park (Figure 4). Study conducted in Australia also indicated local peoples can have different reasons for the lack of willingness WTP for conservation (Tisdell and Wilson, 2003)

The socio economic determinants of WTP for conservation of BMNP (Table 6). The income of the local people has positive impact (P=0.023) on the respondent's willingness to contribute towards the realization of the targeted conservation scenario (Table 6). This indicated that the households with more income were more likely to

contribute for conservation of the park. Similarly, occupation, familiarity with Natural resources of the park, frequency of visiting and level of education were positively affected WTP of local people for conservation. Households who were occupied on petty trade were more likely willing to contribute relative to farmers. The more peoples were familiar with natural resources and high frequency of visiting the park, the more they are willing to pay for conservation. The result indicated that if there are enough recreational facilities and necessary services provided at recreational areas, i.e. if tourists are satisfied with the recreational facilities and services, their willingness to pay increases (Mamat *et al, 2013*).

Maximum willingness to pay

The respondents were asked how much money in Ethiopian Birr they were willing to pay simply to understand how they value the environmental goods and service that are derived from the park. To elicit their willingness to pay, they were briefed how different factors aggravated the degradation of the Bale Mountains National Park and conservation project (hypothetical) was designed to minimize the problems. After this, they were asked how much birr (Dollar) they are willing to pay if the project cost is to be covered by local people, then a larger
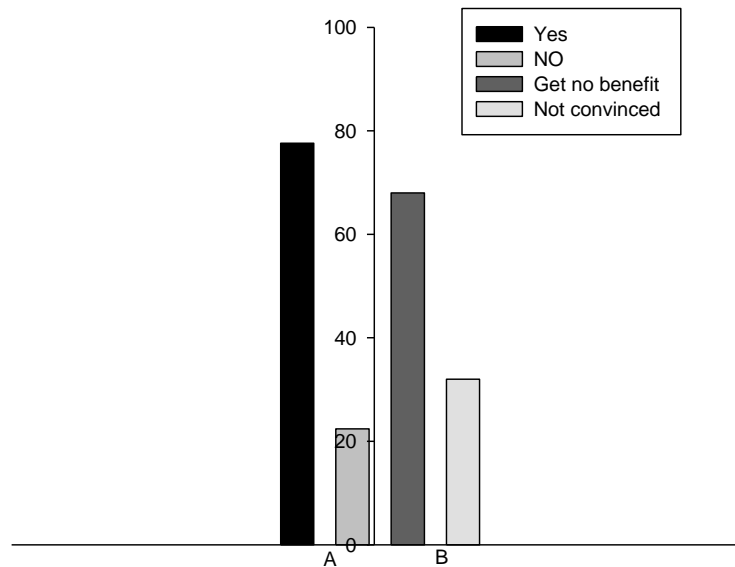
Figure 4. Reasons for Motivated local peoples WTP.

Table 6. Determinants of willingness to pay for conservation of BMNP.

Explanatory variable	B	S.E.	Sig.
Sex	-.386	.582	.507
Age	.009	.033	.789
District	1.117	.321	.000
Marriage	.851	.469	.070
Religion	.037	.434	.933
Family Size	-.112	.124	.363
Education level	.825	.306	.032
Job	.155	.350	.007
Visiting rate	.551	.181	.02
Familiarity on NR status	1.21	.509	.007
Income level	.699	.308	.023

Source: Own survey, 2015/16.

percentage of visitors were willing to pay especially Dinsho district (Table 6). The study conducted in Australia by Clem Tisdell and Clevo Wilson (2003) indicated that 64 percent of the respondents reported they would be willing to pay if the money is used for the benefit of the park, while only 26 percent said they were not willing to pay and the rest (10 percent) did not answer this question. This study result also shows that the amount they proposed for conservation highly varies from 0 to 1000 (Figure 5) which indicates the degree of their awareness or consciousness such that respond ants would give priority to conservation of natural resources.

Using open ended query, though the maximum amount of willingness to pay for the conservation of Bale Mountain National park varies from 0-1000, mean and mode WTP

for the proposed conservation project scenario were 697 and 200 birr (34.9 and 10 $) (Figure 5). This implies that the respondents were willing to pay 697 on average annually for conservation purpose which indicates local communities give high value for the resource. Since the maximum WTP found in this study and also studies conducted in other country, for instant, in Malaysia reported that, such value can be used by the authority to determine the appropriate conservation fee (Mohd Parid Mamat *et al* 2013).

If the benefits could be demonstrated, then the 'user-pays' principle could become acceptable to most visitors and also at the same time obtain the political support of the public Machado (2000). From the alternative bids presented to them, majority of respondents did choose
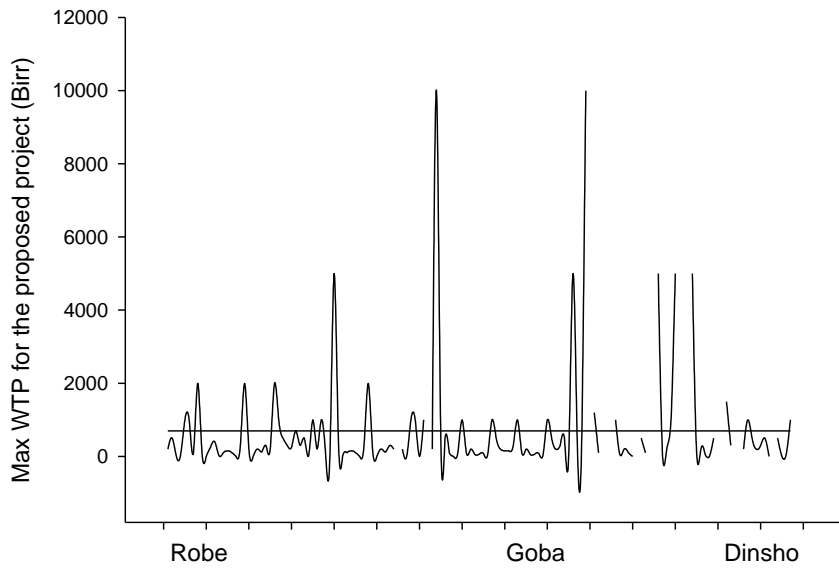
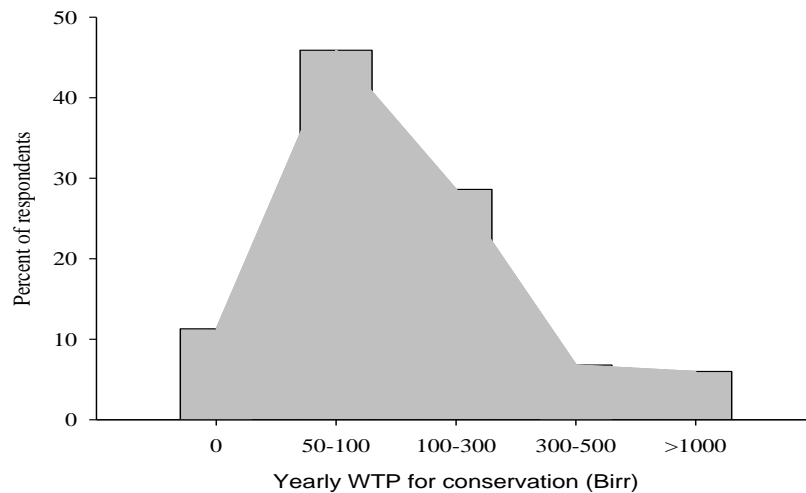**Figure 5.** Maximum willingness to pay (WTP) for the proposed conservation project.

Figure 6. Annual willingness to pay for the BMNP conservation scenario.

annual WTP amount of 50-100 Birr (2.5 – 5$) (figure 6).

CONCLUSION AND RECOMMENDATIONS

The study tried to investigate the optimum entrance fee of visiting Bale mountains National park, both socio-economic factors and other the park related factors hindering local individuals to visit the park. The study revealed that the current entrance fee that visitors are

paying is not significantly affecting the visiting interest of the local individuals. But lack of visiting habit and absence of manmade recreational sites which attract local individual tourists and lack advertisement and awareness creation regarding the recreational benefit of the park were the most significant factors affected the visiting interest of the local visitors. Logistic regression analysis indicated that Socio economic factors such as level of education, Occupation (those occupied by petty

trade were more likely to visit the park relative to farmers and other occupation), sex of households (male individuals were more likely to visit the park relative to female individuals) positively affected the interest and frequency of visiting the park. 'Family size', affected negatively the visiting interest of the local people. Based on these findings, the researcher forwarded the followings are recommendation

➢ Government should give great attention for the development of recreational facilities
➢ The park managers should exhaustively advertise the recreational benefit of the park to local individual in using local language, afaan oromoo
➢ After setting the minimum entrance fee, visitors should be given opportunity of paying more (there should be mechanisms of making it legal with receipt)
➢ Educational office of Bale zone should provide elder education for those who are illiterate to boost their participation in any affairs so as to increase their willingness to participate in conservation activities
➢ Conservation project aimed to minimize the degradation rate of BMNP whose cost is to be covered by local community can be designed in such as way that local people pay up to 697 Birr (34.9$) after exhaustive and detail awareness creation regarding the importance of the project and the cost to be incurred to implement the project in very transparent way.

ACKNOWLEDGEMENTS

REFERENCES

Aleksandra Vujko and Tamara Gajic (2014).Persuasive Communication and Visitors Willingness to Pay Park User Fees. TURIZAM Volume 18, Issue 1 1-10 (2014)

Bishop JT (1999). Valuing Forests: A Review of Methods and Applications in Developing Countries. International Institute for Environment and Development: London.

Brauman KA, Daily GC, Duarte TK and Mooney HA (2007). The Nature and Value of Ecosystem Services: An Overview Highlighting Hydrologic Services. Annu. Rev. Environ. Resour.

Cesare Dosi (2000). Environmental values, valuation methods, and natural disaster damage assessment. he UN ECLAC, Italy.

Clem Tisdell and Clevo Wilson (2003). Economics, Ecology and the Environment. Working Papers on Economics, Ecology and the Environment. ISSN 1327-8231

DEFRA (2000). An introductory guide to valuing ecosystem services. Nobel House 17 Smith Square London SW1P 3JR

Dlamini CS (2007). Towards the Improvement of Policy and Strategy Development for the Sustainable Management of Non-timber Forest Products: Swaziland: A Case Study. Ph.D. Dissertation. University of Stellenbosch. RSA.

Economics & Funding SIG June (2007). Valuing the Benefits of Biodiversity. Date Accessed:09/23/2016. http://www.biodiv.org/.

Gebrelibanos Gebremariam and Abdi Edriss (2012). Valuation of Soil Conservation Practices in Adwa Woreda, Ethiopia: A Contingent Valuation Study. Journal of Economics and Sustainable Development. Vol.3, No.13, 2012

GMPBMNP, (2007). General management plan of Bale mountain national park (2007-2017)

Herath G (2000), "Issues surrounding entrance fees as a suitable mechanism for financing natural areas in Australia", International Journal of Wilderness, 6(2): 35-39.

Kunte AK, Hamilton JD, and Clemens M (1998). "Estimating National Wealth: Methodology and Results". Environmental Economics Series, Environment Department. Washington D.C.: The World Bank Group

Loomis, John B, González-Cabán, Armando, Gregory, Robin (1996). A contingent valuation study of the value of reducing fire hazards to old-growth forests in the Pacific Northwest. Res. Paper PSW-RP-229-Web. Albany, CA: Pacific Southwest Research Station, Forest Service, U.S. Department of Agriculture; 24 p.

Machado K B (2000). Funding conservation programs through the use of entrance fees: the case of Galapagos National Park, Ecuador, PhD. Dissertation, Cornell University.

McClelland GH, (1993). Preference Reversals and the measurement of environmental values. *Journal of Risk and Uncertainty,6, 5-18*

Mishra SK,(2013). Valuation of Environmental Goods and services. North Eastern Hill University. Date accessed: 11/10/2014. http://www.msu.edu/user/schmid/mishra.htm

Mmopelwaa G, Kgathia DL, Molefheb L (2007). Tourists' perceptions and their willingness to pay for park fees: A

case study of self-drive tourists and clients for mobile tour operators in Moremi Game Reserve, Botswana, Tourism Management, 28(4), 1044-1056.

Mohd Parid Mamat, Mohd Rusli Yacob, Alias Radam, Awang Noor Abdul Ghani and Lim Hin Fui (2013). Willingness to pay for protecting natural environments in Pulau Redang Marine Park, Malaysia. African Journal of Environmental Economics and Management Vol. 1 (5), pp. 120-125, December, 2013.

OECD (1994). Managing the Environment: The Role of Economic Instruments. Paris, France

OECD (Organization For Econimic Co-oporation and Development) (2012). Hnadbook of Biodiversity Valuation: A guideline for policy makers. OECD Publication,2 Rue Andre-Pascal, 757775 Paris Cedax 16, France.

Pearce D, and RK Turner (1990), Economics of Natural Resources and the Environment. Baltimore: The Johns Hopkins University Press.

Peixoto I. and Abramson G (2006). The effect of biodiversity on the hantavirus epizootic. Ecology

Perrings C, (2010). Biodiversity, ecosystem services, and climate change: The economic problem. Environmental Department Papers, Environmental Economics Series, Paper Number 120. Washington, D.C.: The

International Bank for Reconstruction and Development/the World Bank.

Peter J, Edwards & Cyrus Abivardi (1998). The Value of Biodiversity: Where Ecology and Economy Blend. Geobotanical Institute ETH, Zurichbergstrasse38, 8044 Zurich, Switzerland.

Santos S, (2013). Economic Value of the Ecosystem Services. Date Acccessed: 27/09/2014.

Sarker R, McKenney DW (1992). Measuring Unpriced Values: An Economic Perspective and annotated bibliography for Ontario – forestry Canada. Ontario Region, Sault ste. Mare.

Shultz S, Pinazzo, J and Cifuentes, M. (1998), "Opportunities and limitations of contingent valuation surveys to determine national park entrance fees: evidence from Costa Rica", Environment and Development Economics, 3: 131-149.

UNEP, (2012). Trade and Environment Briefings: Environmental Services. Californi a, 94105, USA.

Value of Biodiversity (2006); Watched Like Never Before (2006) RSPB

World Bank (1998), "Economic Analysis and Environmental Assessment". Supplement of the Environmental Assessment Sourcebook 23. Washington D.C.: The World Bank - Environment Department.