Willingness to Pay for Wild Coast Nature Reserves Conservation through Community-based Ecotourism Projects

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ABSTRACT

Achieving sustainable protected area (PA) management requires synergy between several stakeholders such as managers, tourists and households in adjacent communities to the PA. Ecotourism has been suggested as a veritable tool for ensuring rural development without compromising biodiversity integrity of PA while providing incentives to households to support conservation initiatives. This study investigated households' willingness to pay (WTP) for community-based ecotourism (CBE) and its determinants. The study adopted a multistage random sampling procedure to interview 317 respondents using a double-bounded contingent valuation questionnaire. Data obtained was analysed with seemingly unrelated bivariate probit regression model. The analysis results indicated that age, gender, years of education, income and tribe (Xhosa) positively influenced WTP while bid, marital status, household size, crop farming, distance to PA, concerns about deforestation negatively affect WTP. Notwithstanding some unexpected differences between drivers of first and second WTP responses, we observed mean monthly WTP of R31.17 (US$2.31) among respondents. Based on this finding, we recommended the implementation of CBE projects in the study area and other areas that share similar features to encourage households' active participation in conservation of nature reserves.

Keywords: Bivariate Probit Model, Community-based Ecotourism, Willingness to Pay.

1. INTRODUCTION

Protected areas (PAs) are vital for the conservation of biological diversity and strategic to the achievement of sustainable development goal. Biodiversity should be conserved both for its value as a local livelihood resource and as a national and global public goods (World Park Congress 2003). To safeguard ecosystem services and sustain their economic resources, governments of the world at the 1992 Earth Summit agreed on the establishment of PA systems that support conservation, sustainable use and equitable benefit sharing.

This unanimous support is based on the recognition that PAs as economic institutions will play a key role in the alleviation of poverty and the maintenance of the global community's critical life-support systems (Convention on Biological Diversity 2008). Moreover, they also offer recreational resources to everyone who visits the PAs. Many of these PAs when offered as ecotourism sites can enhance national income and bring about positive economic impacts to society around the area of the PAs which can ultimately lead to national economic growth (Nuva *et al.* 2009).

Historically, ecosystem services provided by PAs have been undervalued since they are regarded as public good. Low appreciation on benefits provided by ecosystem has led to the overutilization of resources in PAs, causing negative impacts to biodiversity and environment (Julie *et al.* 2014). If we want to go beyond simply doing 'no harm' when creating a PA to achieving benefits for local communities which are greater than the costs associated with such actions, we need to start understanding the many values and benefits of protected areas and conservation initiatives. Failing to understand that conservation offers a basic tool for contributing to poverty reduction, strengthening livelihoods and sustaining economic growth runs the risk of incurring far-reaching economic and developmental costs – especially for the poorest and most vulnerable sectors of the world's population.

Services provided by ecosystem are usually valued only through its direct use or provisioning services. Other types of services such as supporting, regulating and cultural are often less appreciated and under valued (Julie *et al.* 2014). Undervaluation of the ecosystems tends to lead to faster degradation compared to rate of ecosystem recovery. As a result of the rapid global development, ecosystem services which were previously provided by nature for free are becoming scarcer (Wunder 2005). The concept of community-based ecotourism (CBE) has come to the fore as a way of securing the support of households or individuals within communities sharing proximity to PAs through active participation that can foster conservation, community development and local economic benefits.

Many PAs with potentials for CBE development abound in South Africa. The country is one of the 17 mega-diversity countries globally (Wright 2005) containing high presence of biodiversity hotspots and global priority eco-region (Myers 2003). During the mid-1990s, conservation policies emerged which stressed linking nature conservation with strategies for rural development and enhancement of the standard of living of those who live in or near protected areas (Cousins & Kepe 2002). National environmental and biodiversity policies in South Africa now commit government to integrate nature conservation with sustainable rural development (Department of Environmental Affairs and Tourism (DEAT) 1997). Similarly, programmes such as People and Parks of South African National Parks (SANParks) were implemented to address some of the socio-economicills that became associated with conservation policies during the apartheid rule (Andre´ *et al.* 2013). As part of conservation policies reform in South Africa, ecotourism development in peripheral region of protected areas have been advocated for as a way of integrating the black South Africans in former homelands that lost their traditional land during the apartheid rule into conservation of PAs.

For holistic conservation policy to be implemented, environmental literatures strongly suggest setting of environmental standards and efficient management that will be supplemented by economic valuation (Christie 2012). In most cases, non-market value is often substantial that omitting them, may either lead to undervaluation or over valuation of conservation policies. This study is therefore relevant in this respect, as it investigated the non-market benefits to household welfare through willingness to pay for community-based

ecotourism development in the Wild Coast nature reserves. Location-wise, the nature reserves chosen for this study encompass areas with high proliferation of protected areas within the province (AENP 2008), high presence of biodiversity hotspots and global priority eco-region (Myers 2003) and Pondoland Centre of Endemism (PCE) (Cloete 2004) which are of significance in global conservation efforts. Similarly, some locations within the Wild Coast region have been found to consist of multiple use value. For example, substantial deposits of heavy metals have been found at two sites (Xolobeni and Wavecrest) while a commercial blue gum plantation has been proposed on the Pondoland coast (DEAT 2004). The blue gum plantation is considered to pose threats to several estuaries and existing grassland which may cause the loss of numerous natural resources that sustain people's livelihoods and the economic benefits of the plantation to habitat loss has not been fully assessed (DEAT 2004). This study therefore brought to light, the total economic value of environmental quality in adjacent communities to these PAs by eliciting willingness to pay through stated preference hypothetical market.

2. THE CONCEPTS OF ECOTOURISM AND COMMUNITY-BASED ECOTOURISM

Ecotourism

The meaning of ecotourism has been a controversial debate over the last several decades. The issue surrounding this debate has centered not only on what constitute ecotourism, but also what it is not (Reimer and Walter 2013). Literature is rife with several efforts made to come up with a unifying definition of ecotourism from the plethora of definitions that exist. In a study conducted a decade ago, Weaver and Lawton (2007 p. 1170) opine that ecotourism satisfies three "core criteria" namely:

"(1) attractions should be predominantly nature-based; (2) visitor interactions with those attractions should focus on learning or education, and (3) experience and product management should follow principles and practices associated with ecological, socio-cultural and economic sustainability."

Moreover, Donohue and Needham (2006, p, 192) expanded ecotourism goal to include six "key tenets:" (1) nature-based; (2) prevention/conservation; (3) education; (4) sustainability; (5) distribution of benefits; and (6) ethics/responsibility/awareness." Even though, there are more definitions of ecotourism, there seems to be a consensus on the fact that ecotourism initiatives must be devoted to protection of natural pristine areas, and that it must aim at local empowerment and economic development. It is anticipated that preservation of nature will attract both international and domestic tourists in search of cultural diversity and authenticity; get away from hustling and bustling of city and urban life (Mowforth and Munt 2003). This will enable marginalised and vulnerable groups to have the opportunity at tangible and intangible local 'collective' benefits, such as 'empowerment', 'capacity-building', and income generation through the commodification of wildlife, landscape, and local culture (Mowforth and Munt 2003). Whereas, Fennell (2008 p 24), defines ecotourism as "a sustainable, non-invasive form of nature-based tourism that focuses primarily on learning about nature first-hand, and which is ethically managed to be low impact, consumptive, and locally oriented (control, benefits, and scale). It typically occurs in natural areas, and should contribute to the conservation of such areas." As can be seen from various definitions of ecotourism, involvement of local population in planning, implementation and management of such initiatives will not only promote a positive image of rural space and local culture among international communities, but also improves livelihoods and creates new economic opportunities for rural youths (Mamudu 2001; Christina *et al.* 2011).

Community-based Ecotourism

Community-based ecotourism (CBE) is a "practice of tourism where the local community has a significant control over, and participation in its development and management, and major percentage of the benefits stay within the community" (WWF 2001). The bequest of ecotourism has dominated CBE narratives over the last two decades (Stone 2015). Recently, there has been greater recognition that the outcomes of CBE do not happen by default but must be planned, resourced and must be led by a range of partners (Weaver 2011). In line with this, collaborations and partnerships is increasingly being forged between communities, businesses, non-profit, funding and development agencies are being championed as powerful strategies (Bramwell & Lane 2001) to adopt in order to achieve a vision otherwise not possible when independent and rural community entities work alone to achieve CBE benefits. Ideally, CBE projects are run by one or more defined communities, or as joint venture partnerships with private sector. Their aim is to ensure equitable community participation, the sustainable use of natural resources, and improvement in communities' standards of living.

The tenets of equity, sustainability and economic gain on which CBE is anchored seems to position it to offer great promise in resolving the contradiction between conservation imperatives and local and native rights to territory. Moreover, since CBE also includes a focus on cultural preservation, it may prove to be more sustainable for local communities in socio-cultural terms as well (Reimer & Walter 2013). In practice, CBE encompasses a mutually reinforcing relationship between environmental conservation, local economic livelihood, and cultural preservation – a kind of mutualist symbiotic relationship which benefit all three. As noted by Weaver (2005 p. 441), "the inclusion of a cultural component (in ecotourism) is a logical qualification to the 'nature-based' focus, given that few if any places are completely free from human influences." In essence, CBE helps to preserve wilderness and wildlife, but also recognise that conservation solutions should involve people living within natural areas. The International Council for Game and Wildlife Conservation opined that successful community-based conservation projects confer "legal rights to wildlife and wild products on communities (CIC 2014). These rights include gathering of plants or cut trees sustainably, the right to develop business around ecotourism and sustainable agriculture, the right to a percentage of neighbouring park revenues, even limited rights to hunt – triggering an important transformation in local attitudes (Reimer & Walter 2013). Dowie (2008) after criticising "ecotourism entrepreneurs" and conservation projects which do not include indigenous people (pp. 255-257), then argues that conservation initiatives controlled by local communities are what is most needed."

Moreover, it is now well establish that the inclusion of local people in ecotourism project often lead to community development initiatives not only in global South (Reimer & Walter 2013), but also in the global North (Nepal 2005). Scheyvens (1999 p. 246) further argues that "a useful way to discern responsible community-based ecotourism is to approach it from a development perspective, which considers social, environmental and economic goals…" Similarly, Bjork (2007 pp. 39-40), after due consideration to the enigma of preservation vs. development, calls the enigma "too simplistic" and argues in favour of a simultaneous discussion about ecological and economic preservation and development" which considers the ecological, economic, social and cultural impacts of ecotourism. Embodying this broad mandate, characteristics of community-based ecotourism according to Walter (2011 p. 160), then include: "(a) principles of local participation, control or ownership of ecotourism initiatives; (b) a focus on environmental conservation and local livelihood benefits; (c) the promotion of customary and indigenous

cultures; and to some extent, (d) the promotion of local and indigenous human rights and sovereignty over traditional territories and resources."

Despite the fact that residents' attitude towards tourism development in host destinations has gained much attention from tourism researchers since the late 1980s(Ven 2016), hitherto, little is known on how much residents in host destination is willing to support ecotourism initiatives with their resources (Breugel 2013). This is particularly true in most developing countries, where many protected areas are located in rural areas characterised by high rate of poverty and food insecurity. Studies have however, shown that most residents of ecotourism destinations are likely to have positive attitudes towards and/or high support for ecotourism development (Stronza and Gordillo 2008). The common justification for positive perceptions of and support for ecotourism development were economic benefits in terms of incomes and/or employments (Stronza and Gordillo 2008). According to Campbell (1999), 72 percent of Ostional Beach in Costa Rica supported tourism growth. Twenty percent of the residents identified monetary benefits as an explanation for their support for tourism growth while most residents could not explain their reasons. Consequently, Campbell (1999) suggested that the unjustified support for a rise in tourism growth implied that residents simply longed for additional economic activities. In a similar study, Lepp (2007) concluded that most of the residents in Bigodi village Uganda had positive attitudes towards tourism. One of the reasons for the lack of negative attitudes was the residents' desire for economic development. Beyond economic benefits, past studies also indicated that residents also perceived that ecotourism contributed to gaining new skills, leadership, self-esteem, networks of support, and organisational capacity (Stronza and Gordillo 2008).

Conceptual and Theoretical Frameworks

Market as an exchange institution serves society by organising economic activity. It uses prices to communicate the work of a diffuse and diverse society so as to bring about coordinated economic decisions in the most efficient manner. The function of a perfectly functioning market rests in its decentralised process of decision-making and exchange, no omnipotent central planner is needed to allocate resources (Hanley *et al.* 1997). However, the principle that public goods are not efficiently allocated by the market suggests the possibility of improvement by the public actions. Whether the public action in fact yields net benefit requires measurement. To meet the demands for measurement, economists have devised empirical valuation methods for estimating the benefits and cost of public actions (Haab and McConnel 2002).

Several valuation methods have been developed by economists to estimate the value consumers place on non-market goods and services among which contingent valuation method (CVM) is the most popularly used. CVM is a survey-based stated preference valuation approach based on direct elicitation of willingness to pay (WTP) or willingness to accept (WTA) in compensation for any change in environmental quantities, qualities, or both. That is, direct valuation method involves direct estimation of environmental value based on the responses of individuals to the hypothetical valuation questions and hence does not depend on market information (Freeman 1993). CVM enable economic value to be estimated for a wide array of commodities, which are not marketable, measured in relation to utility functions through concepts of willingness to pay (WTP) and willingness to accept (WTA) compensation as well through related measures of consumer's surplus.

For an individual, WTP is the amount of income that compensates for (or equivalent to) an increase in public good expressed as:

$$V(y - WTP, p, q_1) = V(y, p, q_0) \tag{1}$$

where, V denotes the indirect utility function, y is income, p is a vector of prices faced by the individual and q_0 and q_1 are the alternative levels of the good (with $q_1 > q_0$ and increase in q is desirable). Willingness to accept is the change in income that makes an individual indifferent between two situations: original public good, q_0 but income at $y + WTA$ and the new level of public good, q_1, but income at y. It is defined implicitly in the following equation:

$$V(y + WTA, p, q_0) = V(y, p, q_1) \tag{2}$$

Even though the use of CVM provides sufficient flexibility to enable the estimation of total economic values associated with environmental impacts, its uses have been the subject of considerable criticism. These criticisms have been centered on the technique's reliance on people's statement of preference. However, there are available studies on ecotourism, conservation, payment for ecosystem services and wildlife protection areas suggesting that it can be successfully applied in developed and developing countries (Alemu 2000; Ayalneh 2011; Andrea and Lucius 2013; Thalany 2013; Cheung and Jim 2014; Julie, *et al.* 2014).

Ayalneh (2013) employs a contingent valuation method to estimate willingness to pay of residents of Adaba-Dodola, Ethiopia to gain use and control rights of Forestry Priority Area. The study adopted multistage sampling technique to select 295 households residing in and around the forest resource. Both binary probit and ordered probit models were used to examine socioeconomic factors that determine the respondents' WTP to gain these rights. Findings from the study reveals mean and median WTP of ETB24.41 (US$2.54) and ETB22.14 (US$2.30) annually, respectively. Households with more members, have better exposure to education and training, perceive the need for forest conservation, are members of forest dwellers' association and who are wealthier in terms of ownership of more cultivated land and livestock are willing to pay more; whereas those households characterised by earning better annual household income, those who got higher starting bid value, and those who live farther away from the forest resources are willing to pay less.

Similarly, Andrea and Lucius (2013) investigated attitudes and perceptions of local residents and tourists towards protected area of Retezat National Park in Romania. A convenience sampling techniques was used to select 107 tourists while both convenience and snowball sampling techniques were used to select 47 local residents for the study. Data generated were analysed with bivariate correlation and individual T Test. Results from the study showed that both local residents and tourists appear to have similar levels of knowledge of the importance of the protected area but their overall attitudes toward Retezat National Park were strikingly different. Tourists have significantly more positive attitudes and would be more WTP to support conservation efforts within the protected area compared with local residents. Existing attitudes toward Retezat National Park were strongly influenced by an individual's awareness of the importance of the protected area in nature conservation and by their overall concern with environmental issues.

Meanwhile, Cheung and Jim (2014) evaluated willingness to pay for ecotourism activities among tourists in protected conservation areas and assessed the potential for ecotourism development in Hong Kong. Data for the study was collected from 960 general tourists at four popular tourism hotspots and 456 nature tourists at four ecotourism hotspots. The study employed multiple regression analysis. Results from the study revealed that both general tourists and nature tourists are WTP more for ecotourism activities in the protected areas. Nature tourist would pay 40% more than the general tourists and preferred high

quality products. The mean WTP of general tourists and nature tourists was, respectively, HK$167.3 and HK$223.6 (US$1.00 = HK$7.80) to participate in ecotourism activities. Younger tourists, better education, and higher income raised the WTP for ecotours.

3. METHODOLOGY

Study Area

The Wild Coast occupies the region of Eastern Cape Province in the former homeland known as Transkei in South Africa. It is made up of three district municipalities (Alfred Nzo, Amathole and OR Tambo) comprising seven local municipalities: Mbizana, Qaukeni, Port St. Johns, Nyadeni, King Sabata Dalindyebo, Mbashe and Mnquma. The region is estimated to house a population of 1.4 million people at a density of 96 people per km^2 (PondoCROP closure report, 2005; cited in Wright 2005). Wild Coast is admired for its large tracts of relatively undisturbed coasts and its rare and endemic vegetation. This gives credence to the name "Wild Coast" which is officially adopted essentially for tourism purpose to describe the scenic untouched nature of the area. It symbolizes European aesthetical representation of a beautiful area with a low population density (Guyot and Dellier 2009).

The inhabitants of Wild Coast are predominantly dependent on cattle, maize and sorghum-farming. The area is characterized with deep forested ravines cutting through the hills into the sea, and isolated beaches that attract many recreational anglers. To a large extent, Wild Coast is protected from property development by groups of environmental activists, both foreign and local. Nevertheless, the main issues at the moment are highway construction and strip mining. In August 2011, the proposed N2 toll road along the Wild Coast received the approval of South Africa's Minister of Water and Environmental Affairs, after a long battle that have been going on for more than 10 years. Environmental activists are however concerned that the new section of this road will cause irreparable loss to parts of the Pondoland Centre of Endemism (a biodiversity hotspot) and will threaten the traditional way of life of the AmaPondo people that live in the area. In the case of mining, the issue involves granting licenses to dune mine base metal reserves along the coast to an Australia mining conglomerate, Mineral Commodities Limited, and the local Xolobeni Empowerment Company.

Source of Data

This study adopted a multistage sampling techniques to collect information from households in adjacent communities to the nature reserves. First, simple random sampling was employed to select five nature reserves from 15 nature reserves in the province. In the second stage, villages in adjacent communities to the selected nature reserves were randomly selected using probability proportionate to size sampling technique. Finally, simple random sampling method was used to select households from villages selected in stage two. In all, valid information was gather from 317 households.

Data were obtained from the sampled households through a carefully designed questionnaire that followed the guidelines suggested by Carson *et al.* (2001), and the NOAA panel (Arrow *et al.* 1993) for valid contingent valuation analysis. The draft questionnaire was pilot tested and refined with 50 households (in Hogsback which is 30 km from University of Fort Hare and a well-known tourist destination in Eastern Cape Province) in May 2015. The pilot survey assisted in refining the wordings of the questionnaire in line with

common terminologies of the key concepts of the questionnaire such as ecotourism and community-based ecotourism in line with traditional language (isiXhosa) of the respondents. In the pilot survey, several bid amount were suggested to the respondents in the questionnaire. From the pilot survey, four most frequent bid values were selected as starting values for the double bounded dichotomous choice (DBDC) format. These are 25, 40, 60 and 100 South African Rand monthly payment for five years. With these initial bid values, a set of bids were determined for the follow-up question based on whether the response is "yes" or "no" for the first bid. The sets of bids were (25, 12, 50), (40, 20, 80), (60, 30, 120) and (100, 45, 200). The first values in the set correspond to the initial bid offered to the respondents, the second value is the lower second bid value for the respondents that said "no" to the first bid while the third value is the upper second bid value for the respondents that said "yes" to the first bid value.

This elicitation method was adopted because of its analogy to consumers' usual market transaction scenario and its popularity in assessment of public goods and good statistic efficiency (Hanemann *et al.,* 1991; Asafuye-Adjaye and Tapsuwan 2008; Chen and Jim 2010). In the questionnaire, the four initial bids were randomly assigned to each respondent in such a way that equal representation of initial bid amount is guaranteed. The payment vehicle was a hypothetical monthly Community-based ecotourism development payment lasting for five years for the establishment of commuity-based ecotourism project in the Wild Coast region.

4. EMPIRICAL MODEL SPECIFICATION AND ANALYSIS

A bivariate probit model was employed to analyse the data because the bivariate normal density function is appealing in the sense that it allows for non-zero correlation, while the logistic distribution does not (Cameron & Quiggin, 1994; Jeanty *et. al.*, 2007). Following Haab and McConnell (2002), econometrically modelling data generated by this format relies on the formulation given by:

$$WTP_{ij} = \mu_i = \varepsilon_{ij} \tag{2}$$

where, $WTP_{ij} = j^{\text{th}}$ respondent's WTP and $i = 1, 2$ represents first and second answers: μ_1, μ_2 = mean values for first and second responses; ε_{ij} = unobservable random component.

The probability of observing each of the possible two-bid response sequences (yes-yes, yes-no, no-yes, no-no) can be expressed as follows. The probability that respondent j answers to the initial bid and to the second bid is given by (Haab and McConnell 2002):

$$\Pr(\text{no, no}) = \Pr(\text{WTP}_{1j} < t^1, \text{WTP}_{2j} < t^2$$
$$= \Pr(\mu_1 + \varepsilon_{1j} < t^1, \mu_2 + \varepsilon_{2j} < t^2$$
$$\Pr(\text{no, yes}) = \Pr(\text{WTP}_{1j} < t^1, \text{WTP}_{2j} \geq t^2$$
$$= \Pr(\mu_1 + \varepsilon_{1j} < t^1, \mu_2 + \varepsilon_{2j} \geq t^2$$
$$\Pr(\text{yes, no}) = \Pr(\text{WTP}_{1j} \geq t^1, \text{WTP}_{2j} < t^2$$
$$= \Pr(\mu_1 + \varepsilon_{1j} \geq t^1, \mu_2 + \varepsilon_{2j} < t^2$$
$$\Pr(\text{yes, yes}) = \Pr(\text{WTP}_{1j} \geq t^1, \text{WTP}_{2j} \geq t^2$$
$$= \Pr(\mu_1 + \varepsilon_{11j} \geq t^1, \mu_2 + \varepsilon_{12j} \geq t^2 \tag{3}$$

where, t^1 = first bid price and t^2 = second bid price

The information provided in equation 3 is referred to as the bivariate discrete choice model. Assuming normally distributed error terms with mean 0 and respective variances s_1^2 and s_2^2, then WTP_{1j} and WTP_{2j} have a bivariate normal distribution with means μ_1 and μ_2, variances s_1^2 and s_2^2, and correlation coefficient r. Given the dichotomous choice responses to each question, the normally distributed model is referred to as bivariate probit model.

After running regression of dependent variable (the yes/no indicator), on a constant and on independent variable consisting of the bid level, the mean willingness to pay value (Mean WTP) is calculated employing the following equation depending on the normality assumption of WTP distribution (Haab and McConnell, 2002):

$$\text{Mean WTP} = \beta_0 \Big/ \beta_1 \qquad (4)$$

where, β_0 = intercept of the model which is constant; β_1 = slope coefficient of bid values.

Based on extensive literature review of empirical studies, specific household characteristics and attributes of community-based ecotourism which are hypothesized to affect the household's decision on *WTP* for community-based ecotourism development were identified. These include first bid price offered to the household (BID1), age of household head (AGE), gender of household head (GENDER), household size (HOUSEHOL), highest educational attainment of household head (HIGHESTE), household headincome (INCOME), distance of household residence to nature reserve (DISTANCE), household involvement in tourism related business (INVOLVET), household head marital status (MARRIED), household awareness of ecotourism (ECOAWARE), household contribution to environmental cause (CONTRIBM), household dependency ratio (DEPRAT), household's concerns about deforestation (CONCDEFO), geographical location of household nature reserve location to household.

Table 1
Summary of descriptive statistics for explanatory variables (N = 317)

Variables	Description	Mean	Std. Dev.	Min.	Max.
BID	Initial bid in Rand	55.79	28.04	25	100
AGE	Age of the household head in years	44.00	15.44	21	91
GENDER	Gender of the household head (1 = Male)	0.49	0.50	0	1
MARRIED	Marital status of the respondent (1 = Married)	0.41	0.49	0	1
HOUSEHOL	Household size	6.48	3.35	1	23
SCHOOLYE	Number of years of formal education	8.51	5.25	0	24
CROPFARM	Engage of respondent in crop farming (1 = Yes)	0.70	0.45	0	1
INCOME	Monthly income of the household head	1576.12	3244.07	0	20000
DISTANCE	Residence distance to nature reserve (Kilometre)	12.08	8.09	1	37
INVOLVET	Involvement in tourism occupation (1 = Yes)	0.09	0.29	0	1
ECOAWARE	Aware of ecotourism (1 = Yes)	0.69	0.46	0	1
CONTRIBM	Contribute to environmental cause (1 = Yes)	0.34	0.47	0	1
DEFTHR	Deforestation threatens environment (1 = Yes)	0.39	0.49	0	1
DEFCONC	Concerned about level of deforestation (1 = Yes)	0.76	0.42	0	1
XHOSA	Respondent is Xhosa (1 = Yes)	0.69	0.46	0	1

5. RESULTS AND DISCUSSION

Descriptive Analysis of Survey Data

The descriptive results of variables analysed in the study is presented in Table 2. Out of the 380 respondents that participated in the study, 317 provided complete information valid for analysis. As shown in Table 2, average initial bid presented to the respondent is roughly 55 South African Rand. The average age of respondents that participated in the study is 44 years old. Male respondents constituted 49% of all the household interviewed. Only 41% of the respondents are married with average household size of 6 members per household. The average number of years of formal education among the respondents is eight and half years. Majority of the respondents represented by 70% are actively involved in crop farming. The mean household head monthly income is about one thousand five hundred and seventy-six South African Rand (R1576). Households on the average live 12 kilometres away from the nature reserves. Very negligible number of the respondents (9%) are engage in tourism related occupation. There is high level of awareness of ecotourism (69%) among the respondents. When asked if respondents have contributed to environmental cause, 34% were affirmative about their previous contribution to environmental cause. As to whether deforestation threatens environment, 39% said "yes". Majority of the respondents (76%) are already concerned about level of deforestation in the study area. IsiXhosa (69%) constitute the predominant tribe that participated in the study.

Table 2
Response to double bounded questions across bid sets

1st Bid (Rand)	2nd Bid (Rand)	No of response to 1st bid		No of response to 2nd bid	
		No	Yes	No	Yes
25	12	20	0	10	10
25	50	0	61	40	21
40	20	38	0	28	10
40	80	0	41	31	10
60	30	55	0	30	25
60	120	0	25	15	10
100	45	62	0	37	25
100	200	0	15	9	6

Willingness to Pay for Community-based Ecotourism Development

As mentioned in the methodology, four sets of bid prices were offered to the respondents during the survey. From the total respondent, 44.8% and 36.9% were affirmative to the first and second bids, respectively. The distribution of "yes" and "no" for the first and second bids across the different initial bids reveals that as the initial bid values increases the frequency of respondents' affirmative response ("yes") decrease and that of "no" increase (see Table 2).

As shown in Table 2, 81 respondents were offered 25 Rand initial bid price, about 25.93% (21) accepted both first and second bid, 12.35% (10) reject both the first and second bid, 49.38% (40) accepted the first bid but rejected the higher follow-up bid and the remaining 12.35% (10) rejected the first bid and accepted the lower follow-up price. This indicates that, of the 20 "no" and 61 "yes" response to the

initial bid, the follow up bids resulted in 10 for both "no" and "yes" responses and 40 "no" and 21 "yes" responses, respectively.

From the respondents offered 40 Rand initial bid, about 12.66% (10) both accepted and rejected first and second bid. Whereas, 39.24% accepted the first bid of R40 but rejected the higher bid of R80 and 12.66% (10) initially said "no" to first bid of R40 but later said yes to lower second bid of R20. Meanwhile, 12.50% were affirmative when offered the first (R60) and second (R120) prices, whereas 31.25% rejected both first (R60) and second (R30) prices when offered, but 37.50% initially responded "no" to R60 and later responded yes when the price was lowered to R30, in contrast, 18.75% (15) initially said "yes" when offered the first bid price of R60 but later declined when presented the higher follow-up price of R120. Only 7.79% (6) responded affirmatively to the first and second highest bid values of R100 and R200 respectively. Meanwhile, 48.05% (37) responded "no" to the first and second bid values of R100 and R45 respectively. Also, 19.48% (15) initially responded "yes" to the bid price of R100 but rejected the R200 follow-up price, but, 32.47% (25) initially rejected the bid price of R100 but later offered to pay the lower follow-up value of R45.

Furthermore, the joint frequencies of discrete responses reveal that 15% of the respondents responded "Yes" to both the first and second bids, whereas about 33% responded "No-No", approximately 30% responded "Yes-No" and about 22% responded "No-Yes" (Table 3). The results of Pearson Chi^2, Likelihood-ratio Chi^2 and Fisher's exact as reported below Table 3 shows that there is no significant association in respondents' response to the first and second bids. The implication of this is that respondents seem to treat the two bids separately. This inform our choice of Seemingly Unrelated Bivariate Regression in our econometric analysis.

Table 3
Joint frequencies of discrete responses

Response	*Frequency*	*Percentage (%)*
Yes-Yes	47	14.83
Yes-No	95	29.97
No-Yes	70	22.08
No-No	105	33.12
Total	317	100.00

Econometric Analysis

Before implementing the seemingly unrelated bivariate probit regression analysis, Variance Inflation Factor (VIF) and contingency coefficients were computed among continuous and discrete explanatory variables to check for the issue of multicollinearity. Results from these analysis indicated that there is no serious multicollinearity problem among all the explanatory variables included in the model.

As earlier mentioned in the previous section, bivariate probit regression model in its variant has been used to identify explanatory variables of interest that influence household WTP for various non-market goods and services in the past. Following Mitchel and Carson (1989) and Hanemann*et al.* 1991) which emphasized the problem of non-normality and outliers in CV studies, and canvassed for the use of robust estimators as a way to control the potential bias from this source, hence, bivariate probit robust estimators

was implemented for this study to correct for this biasness. In addition, this type of regression also helps to minimise the effects of heteroscedasticity.

Table 4 summarizes the results obtained from the first and second WTP from the seemingly unrelated bivariate regression model. As anticipated, the probability of saying "yes" to the WTP question is significantly related to the first bid amount but not to the follow-up second bid amount. The negative sign indicates that as the bid amount increases, respondents would be less likely to pay, providing credence to the WTP responses.

Table 4
Seemingly unrelated bivariate probit regression results

Variables	WTP1		WTP2		Marginal effects	
	Coefficients	Robust Std. Error	Coefficients	Robust Std. Error	dy/dx	Std. Error
BID	−0.0181	0.0022***	−0.0002	0.0021	−0.0046	0.0012***
AGE	0.0572	0.0054***	−0.0000	0.0061	0.0143	0.0024***
GENDER	0.3288	0.1957*	−0.1377	0.2284	0.1012	0.0657
MARRIED	−0.3450	0.1199***	−0.0482	0.1700	−0.0797	0.0693
HOUSEHOL	−0.0658	0.0191***	−0.0011	0.0146	−0.0163	0.0103
SCHOOLYE	0.0716	0.0295**	−0.0022	0.0162	0.0182	0.0067***
CROPFARM	−0.3020	0.1821*	0.6021	0.1270***	−0.1544	0.0796**
INCOME	0.0003	0.0002**	−0.0000	0.0000	0.0000	0.0000***
DISTANCE	−0.0772	0.0155***	−0.0083	0.0048*	−0.0183	0.0050***
INVOLVET	−0.0358	0.3920	0.0065	0.1948	−0.0092	0.1201
ECOAWARE	−0.0230	0.0743	0.4247	0.3022	−0.0623	0.0787
CONTRIBM	−0.3507	0.2936	0.0399	0.2448	−0.0934	0.0767
DEFTHR	0.2682	0.2036	−0.0419	0.1498	0.0728	0.0717
DEFCONC	0.3062	0.4538	−0.5026	0.1518***	0.1430	0.0832*
XHOSA	1.7869	0.4094***	−0.1156	0.2042	0.4636	0.0864***
CONS	−2.8279	0.3242***	−0.3538	0.3310		

P = 0. 25 Y = Pr. (WTP1 = 1, WTP2 = 1)
Log likelihood = -270.00587
Note: ***, ** and * significant at 1%, 5% and 10% probability levels, respectively

Moreover, the estimated coefficient for household head age (AGE) is strongly significant in first WTP response with positive sign in both responses but not significant in the second WTP response. This implies that the older the respondent, the more likely the WTP for CBE. This is in line with our *a priori* expectation, as older household heads are expected to value the environment more compare to their younger counterparts. The marginal effect value 1.4% suggests that a unit increase in age will bring about 1.4% increase in respondent's WTP for CBE development in the Wild Coast. This finding corroborates the finding of Rananga and Gumbo (2015) on WTP for water services in two communities in South Africa where older respondents (age 40 years) expressed their WTP for water services compared to their younger counterparts.

The effect of gender (GENDER) on WTP is positive and significant for the first response but negative and insignificant for the second response. This means that female respondents are WTP for CBE than their

male counterparts. Although the marginal effect for the gender is not significant, the result indicates that female household head will pay 10% more than their male colleagues. This finding may be due to the fact that ecotourism enterprises tend to offer more job and business opportunities to female than male folks. This result is similar to the finding of Alemu (2000) on WTP for community forestry in Ethiopia, where

The marital status (MARRIED) coefficients are both negative in the two responses, whereas it is significant in the first response and insignificant in the second. The significant marital status of the respondent with negative values implies that married household head are less likely to be WTP compare to their single, separated, widow/widower or divorced colleagues. This maybe unconnected to their financial burden of the married respondents which may limit their capacity to pay.

Household size of the respondents (HOUSEHOL) has negative sign and significant for first response but not significant for the second response. The negative sign means that the higher the household size, the less the likelihood of WTP for CBE. This is in consonance with *a priori* expectation as large household may likely put strain on the household budget where there is high level of unemployment and dependency ratio as applies to this study (Rananga & Gumbo, 2015). However, the number of years spent acquiring formal education (SCHOOLYE) has positive significant effect on first WTP response but insignificant effect on the second WTP response. This positive effect was anticipated, as more educated respondents are expected to value community-based ecotourism initiative that may help in the conservation of the protected areas and contributes to rural community development.

The coefficient of participation in crop farming (CROPFARM) is significant in both responses. Whereas, the coefficient is negative for the first response but positive for the second response. The marginal effect also indicates strong significance with negative coefficient. The negative and significant effect of engagement in crop farming implies that respondents that are engaged in crop farming are less likely to pay than those that are not engage in crop farming. This finding may come about as a result of the historical conflicts occasioned by the eviction of the most farmers from their traditional farming land.

Similar to the result of contingent valuation study of Alemu (2000) Ethiopia rural household's willingness to pay for community forestry project where income significantly predict WTP, the coefficient estimate for household head monthly income (INCOME) also indicate positive and significant effect for the first response and negative but insignificant effect for the second response. However, the marginal effect clearly shows that monthly household head income has positive and significant effect on willingness to pay for community-based ecotourism development. The marginal effect result indicates that those households with higher income are willing to pay more for community-based ecotourism development than their counterparts with lower income. This finding align with the popular axiom of demand theory that income is positively related with demand for normal goods which has been established in previous willingness to pay studies (Zhongmin, Guodong, Zhiqiang, Zhiyong, & Loomis, 2003; Syakya, 2004).

Distance of the respondents to the nature reserves (DISTANCE) is significant with negative coefficient values in both responses and the marginal effect. This implies that willingness to pay for community-based ecotourism decrease as household's residence distance tend to be far away from the nature reserves. This is anticipated as benefit from protected area tend to be limited to communities bordering it while communities that are far away benefit less (Ezebilo, Mattsson, & Afolami, 2010). The coefficient estimate for respondents that are concerned about deforestation (DEFCONC) is significant for second response with negative value but insignificant for the first response. Although literature has shown that respondent

that is concerned about rate of deforestation tend to express positive willingness to pay coefficient (Jeanty W. , 2006), finding from this study indicate a counterintuitive result with negative coefficient indicating that respondents that are concerned about deforestation less willing to pay. However, the result of the marginal effect is positive and significant.

The mean WTP value of the sample households for community-based ecotourism development was estimated with equation (4) specified in the preceding section. Where β_0 intercept) and β_1 (slope) are absolute coefficients estimated from bivariate probit model. However, in this model, two sets of parameter estimates are available from the double bounded question. Therefore, the onus is on the researcher to decide which of the estimates to use to estimate the WTP value (Haab and McConnell 2002). Nevertheless, the parameter estimate from the first equation are normally used in the computation of mean willingness to pay. Reason for this is not far-fetched, as the second equation parameters are likely to contain more noise due to anchoring effect where the respondent is assumed to take cue from the first bid while forming his WTP for the second question. Consequently, the estimated mean willingness to pay for community-based ecotourism is 31.17 South African Rand (equivalent to US$2.31) monthly payment. The mean WTP of R31.17 is equivalent to 1.98% of the household head monthly income of R1576.12 of sampled households in which affordability is credible. This finding is similar to the result of Bogale and Urgessa (2012) on WTP for improved rural water service provision in Eastern Ethiopia where respondents offered to contribute 1.99% of their average income. The mean WTP of R31 reported in this study is slightly lower than the R40 monthly mean WTP for alternative energy sources by rural households in Giyani, Limpopo Province, South Africa (Masekoameng *et al.*, 2005) and R19 less than the mean monthly WTP of R50 proposed by Njoko (2014) for improved irrigation services in Msinga Local Municipality of KwaZulu-Natal Province, South Africa.

6. CONCLUSION

Based on the premise that conservation and development objectives through Community-Based Ecotourism (CBE) project is achievable, this study estimated households' WTP for CBE and identified the drivers of the WTP. Almost 70% of the respondents are aware of the concept of ecotourism and its economic and conservation benefits. Seventy-six percent (76%) of the respondents expressed concerns about the level of deforestation in the study area, while 39% see deforestation as constituting threats to the biodiversity of the area that endears her to nature loving tourists. Only 34% of the respondents have contributed to environmental cause in the past. On the average, households live approximately 12 kilometres away from the nature reserves, hence, most of them are likely to be conversant to the nature reserves and its conservation activities. Majority of the respondents are engaged in crop farming.

About 67% of the respondents expressed their willingness to pay for the community-based ecotourism development with a mean WTP of R31.17 per month for five years. On the average, households were willing to pay about 1.98% equivalent of the household head's monthly income. The empirical result indicates that of the fifteen explanatory variables included in the model, ten were found to be statistically significant in affecting the probability of WTP for CBE development. These include bid price offered to the respondents, age, gender, marital status, household size, number of years of formal education, participation in crop farming, monthly household head income, household residence distance to the nature reserve, being concerned about level of deforestation in the study area and being Xhosa descent.

References

Alemu, M. (2000). "Valuation of Community forestry in Ethiopia: A Contingent Valuation Study of Rural Households". *Environment and Development Economics, 5*, 289-308.

Andre´, P., Nola, R., & Nontombi, V. (2013). Protected areas as vehicle in population development: lessons from rural South Africa. *Environment, Development and Sustainability, 15*(1), 1205-1226.

Andrea, S. B., & Lucius, H. F. (2013). Attitudes and Perceptions of Local Residents and Tourists toward the Protected Area of Retezat National Park, Romania. *International Journal of Humanities and Social Science, 3*(4), 18-34.

Arrow, K., Solow, R., Portney, P., Leamer, E., Radner, R., & Schuman, H. (1993). *Report of the NOAA Panel on Contingent Valuation.* Federal Register 58, 4601-4614.

Asafu-Adjaye, J., & Tapsuwan, S. (2008). A contingent valuation study of scuba diving benefits: case study in Mu Ko Similan Marine National Park, Thailand. *Tourism Management, 29*, 1122-1130.

Ayalneh, B. (2011). Valuing Natural Forest Resources: An Application of Contingent Valuation Method on Adaba-Dodola Forest Priority Area, Bale Mountains, Ethiopia. *Journal of Sustainable Forestry, 30*(6), 518-542.

Björk, P. (2007). *Definition paradoxes: from concept to definition. In J. Higham (Ed.), Critical Issues in Ecotourism (pp. 23-45).* Burlington, MA: Elsevier.

Bogale, A., & Urgessa, B. (2012). Households' Willingness to Pay for Improved Rural Water Service Provision: Application of Contingent Valuation Method in Eastern Ethiopia. *Journal of Human Ecology, 38*(2), 145-154.

Bramwell, B., & Lane, B. (2001). Attitudes in the Danish tourism industry to the roles of business and government in sustinable tourism. *International Journal of Tourism Researcch, 3*, 91-103.

Breugel, L. v. (2013). *Community-base tourism: Local participation and perceived impacts. A comparative study between two communities inThailand.* Nijmegen: Master of Social and Cultural Science, Radbound University .

Cameron, T., & Quiggin, J. (1994). Estimation using contingent valuation data from a dichotomous choice with follow-up questionnaire. *Journal of Environmental Economics and Management, 27*, 218-234.

Campbell, L. (1999). Ecotourism in Rural Developing Communities. *Annals of Tourism Research, 26*(3), 534-553.

Carson, R., Flores, N., & Meade, N. (2001). Contingent Valuation: Controversies and Evidence. *Environmental and Resource Economics, 19*, 173-210.

Chen, W., & Jim, C. (2010). Resident motivation and willingness to pay for urban biodiversity conservation in Guangzhou, China. *Environmental Management, 45*, 1052-1064.

Cheung, L., & Jim, C. (2014). Expectations and willingness to pay for ecotourism services in Hong Kong's conservation areas. *International Journal of Sustainable Development and World Ecology, 21*(2), 149-159.

Christie, M. (2012). *Approachies of Valuing Ecosystem Services in Developing Countries.* Wales: Institute of Biological, Environmental and Rural Sciences, Aberystwyth University.

Christina, B., Manuela, E., & Ruxandra, V. (2011). Ecotourism - conservation of natural and cultural heritage. *Review of Applied Socio-Economic Research, 1*(1), 87-96.

CIC. (2014, January 31). *Whose Elephants Are They? Strengthening Community-Based Conservation and Communities Ownership Rights for Elephants in Africa.* Retrieved from African Indaba: http://www.africanindaba.com/2014/10/whose-elephants-are-they-strengthening-community-based-conservation-and-communities-ownership-rights-for-elephants-in-africa-october-2014-volume-12-5-i/

Convention on Biological Diversity. (2008). *Protected Areas in Today's World. Their Values and Benefits for the Welfare of the Planet.* Montreal: CBD Technical Series no 36, i-vii +96.

Cousins, B., & Kepe, T. (2002). Decentralisation when Land and Resources Rights are Deeply Congested: A Case Study of the Mkambati Eco-Tourism Project on the Wild Coast of South Africa. Bellagio, Italy: World Resources Institute, Institution and Governance Program.

Department of Environmental Affairs and Tourism. (1997). *White Paper on the Conservation and Sustainable Use of South Africa's Biological Diversity.* Pretoria: Department of Environmental Affairs and Tourism.

Dowie, M. (2008). *Conservation Refugees: The Hundred-year Conflicts between Global Conservation and Native Peoples.* Boston, MA: MIT Press.

Ezebilo, E., Mattsson, L., & Afolami, C. A. (2010). Economic value of ecotourism to Local Communities in the Nigerian Rain Forest Zone. *Journal of Sustainable Development, 3*(1).

Fennell, D. (2008). *Ecotourism.* New York: Routledge.

Freeman, A. (1993). *The Measurement of Environmental and Resource Values. Theories and Methods.* Washington DC: Resource for the Future Press.

Guyot, S., & Dellier, J. (2009). *Rethinking the Wild Coast, South Africa. Ecofrontier versus livelihoods in Pondoland.* France: University of Limoges.

Haab, T., & McConnell, K. (2002). *Valuing Environmental and Natural Resources: The Econometrics of Non Market Valuation.* Glensada House, Montpellier Parade, Cheltenham: Edward Elger Publishing Limited.

Hanemann, W., Loomis, J., & Kanninen, B. (1991). Statistical efficiency of double-bounded dichotomous choice contingent valuation. *American Journal of Agricultural Economics, 73*, 1255-1263.

Hanley, N., Shogren, F., & White, B. (1997). *Environmental Economics in Theory and Practice.* Oxford, UK: Oxford University Press.

Jeanty, P., Haab, T., & Hitzhusen, F. (2007). Willingness to Pay for Biodiesel in Diesel Engines: A Stochastic Double-Bounded Contingent Valuation Survey. *Selected Paper Prepared for Presentation at the American Agricultural Economics Association Annual Meeting, Portland Oregon, July 23-26, 2007.*

Jeanty, W. (2006). *Two Essays on Environmental and Food Security.* PhD Dissertation, Graduate School of Ohio State University.

Julie, C. U., Rodel, L. D., Asa, J. U., & Margaret, M. C. (2014). Oroquieta City Households' Willingness to Pay for Coastal Biodiversity Conservation. *Journal of Sustainable Development, 7*(5), 82-92.

Lepp, A. (2007). Resident attitude toward tourism in Bigodi village, Uganda. *Tourism Management, 28*, 876-885.

Mamudu, W. (2001). Ecotourism and Sustainable Wildlife Management. Experiences in the Gambia. *"Atelier régional - Faune sauvage et bétail" on January 16-19 2001.* Niger.

Masekoameng, K., Simalenga, T., & Saidi, T. (2005). Household energy needs and utilization patterns in the Giyani rural communities of Limpopo Province, South Africa. *Journal of Energy in Southern Africa, 16*(3), 4-9.

Mitchell, R., & Carson, R. (1989). *Using Survey to Value Public Goods. The Contingent Valuation Method.* Washington DC: Resources for the Future.

Mowforth, M., & Munt, I. (2003). *Tourism and Sustainability: Development and the new tourism in the Third World.* London and New York: Routledge.

Myers, N. (2003). Biodiversity hotspot revisited. *Bioscience, 53*, 916-917.

Nepal, R. (2005). *Integrated Conservation and Development Projects - A Case Study of Anmapurna Conservation Area Project, Nepal.* Norway: Norwegian University of Life Sciences.

Njoko, S. L. (2014). *Smallholder farmers' willingness and ability to pay for improved irrigation: A case of Msinga Local Municipality, KwaZulu-Natal Province.* Pietermaritzburg, South Africa: Master of Science in Agricultural Economic Thesis, University of KwaZulu-Natal.

Nuva, R., Mad, N., Alias, R., & Ahmad, S. (2009). Willingness to Pay towards the Conservation of Ecotourism Resources at Gunung Gede Pangrango National Park, West Java, Indonesia. *Journal of Sustainable Development, 2*(2), 173-186.

Rananga, H., & Gumbo, J. (2015). Willingness to Pay for Water Services in Two Communities of Mutale Local Municipality, South Africa: A Case Study. *Journal of Human Ecology, 49*(3), 231-243.

Reimer, J., & Walter, P. (2013). How do you know it when you see it? Community-based ecotourism in the Cardmom Mountains of southwestern Cambodia. *Tourism Management, 34*, 122-132.

Scheyvens, R. (1999). Ecotourism and the Empowerment of Local Communities. *Tourism Management, 20*, 245-249.

Stone, M. T. (2015). Community-based ecotourism: a collaborative partnerships perspective. *Journal of Ecotourism, 14*(2-3), 166-184.

Stronza, A., & Gordillo, J. (2008). Community Views of Ecotourism. *Annals of Tourism Research, 35*(2), 448-468.

Syakya. (2004). *Strategi pengembangan pariwisata dan partisipasi masyarakat pengunjung objek wisata pantai (studi kasus pada Pantai Nanggroe Aceh Darussalam).* Bogor: Thesis. Sekolah Pascasarjana. Institut Pertanian .

Thalany, K. (2013). Willingness to Pay for Conservation of Natural Resources in the Gunung Gading National Park, Sarawak. *Procedia - Social and Behavioural Sciences, 101*, 506-515.

Ven, S. (2016). Residents' Participation, Perceived Impacts, and Support for Community-based Ecotourism in Cambodia: A Latent Profile Analysis. *Asia Pacific Journal of Tourism Research, 21*(8), 836-861.

Walter, P. (2011). Gender Analysis in Community-Based Ecotourism. *Tourism Recreation Research, 36*(2), 159-168.

Weaver, D. (2011). Can sustainable tourism survive climate change? *Journal of Sustainable Tourism, 19*(1), 5-15.

Weaver, D., & Lawton, L. (2007). Twenty years on: the state of contemporary ecotourism. *Tourism Management*, 1168-1179.

World Park Congress. (2003). *The Durban Accord.* Durban: World Park Congress.

Wright, A. (2005). *Conservation and Sustainable Use of Biodiversity on the South African Wild Coast.* United Nations Development Programme Global Environmental Facility.

Wunder, S. (2005). *Payments for environmental services: Some nuts and bolts.* Jakarta, Indonesia: Center for International Forestry Research Occassional Paper No 42.

WWF. (2001, August 5). *Guidelines for Community-based Ecotourism Development.* WWF International.

Zhongmin, X., Guodong, C., Zhiqiang, Z., Zhiyong, S., & Loomis, J. (2003). Applying contingent valuation in China to measure the total economic value of restoring ecosystem services in Ejina region. *Ecological Economics Journal, 44*, 345-358.