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PEOPLE'S APPRECIATION ON CONSERVATION VALUES OF ASIAN ELEPHANT *ELEPHAS MAXIMUS*

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ABSTRACT

A study conducted for the first time in the fringe villages around Manas National Park during 2008- 2009 to see how people appreciate different conservation values of Asian elephant. It includes group discussions and household survey to collect data following proportional allocation method and found that local community well appreciate different use and non-use values related of elephant conservation. They express high concern over environmental degradation and wildlife protection and revealed preference pattern, there should be a concerted approach to sustainable management of elephants and their habitats in the region. Hence, a micro level study to estimate willingness to pay of the community people for conserving elephants could be suggested.

Key words: Asian elephant, Conservation value, Manas National Park, Local community.

Introduction

The Asian elephant was once common all over the tropical south and south-east Asia, from India to Vietnam and Sumatra. Although its general range has remained almost the same, expansion of human habitation, destruction of habitat for agriculture, and poaching have resulted in a sharp decline of the wild population, besides severely fragmenting the habitat (Choudhury, 1999). Asian elephants are confined to 13 Asian range countries, of which, India holds over 50% of the global population – approximately 24,000–28,000 distributed across 18 states of the country (Menon, 2003; Sukumar, 2003). North-east India holds around 30% of the country's total elephant population (Bist, 2002b) –approximately 11,000, occur in discrete populations distributed within 14 habitat fragments as identified by Choudhury (1999) across the entire north-east India. Within this north-eastern countryside, the state of Assam is known as the key conservation region of Asian elephants (Stracy, 1963; Gee, 1964; Lahiri, 1980; Santiapillai and Jackson, 1990; Choudhury, 1991, 1997, 1999; Bist, 2002b) with an elephant population of around 5000 (Project Elephant Synchronized Census, 2002; Sukumar, 2003). The Asian Elephant is an endangered species which is included in Appendix I of CITES (Convention on International Trade in Endangered Species of Wild Fauna and Flora) and schedule-I of the Indian Wildlife Protection Act, 1972 (Bist, 2002a). The survival of Elephants is very crucial from the ecological point of view as elephants play important role in maintaining the balance in ecosystem processes and sustain biological diversity as well as ecological integrity in our environment. To prepare and implement any such efforts, it is necessary to find out people's attitude towards those strategies. Although more attention were given on economic issues involved in the conservation of African elephants *Loxodonta africana*, only little consideration has received by Asian elephant (Bandara and Tisdell, 2004a; Barnes 1984). The Asian elephant is inextricably linked to the continent's mythology and history. Traditionally worshipped as Lord Ganesha (elephant headed God), the elephant is also a symbol of fertility, wealth and abundance and has a long history of domestication in India. Because of this deep and widespread cultural and emotional attachment of the people to Asian elephants, it is regarded as a 'flagship species' (Desai, 1998) and the range of its economic values appears to be wider than those of the African elephants (Bandara and Tisdell, 2003). Keeping this in mind, we conducted an economic valuation study in the fringe villages around Manas National Park (MNP), Assam during 2008- 2009 to see how people appreciate different conservation values related to elephant conservation. This is a preliminary attempt to understand the feasibility of valuation study in this region.

Material and Methods

Study area

MNP is one of the prime habitats of the endangered Asian elephants within Bhutan Biological Conservation

Local community well appreciated different use and non-use values of Asian elephant which infer their willingness to participate in elephant conservation in Manas National Park.

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Complex in Eastern Himalaya Biodiversity Hotspot (CEPF, 2005) and facilitates trans-boundary movement of elephants and other wildlife species as well. MNP is located at in Baksa and Chirang districts of Assam, India (26°35'-26°50'N, 90°45'-91°15'E) within Chirang Ripu Elephant Reserve (2600 Km^2). MNP spans on both sides of the Manas River and is restricted to the east and west by reserve forests, to the north by the international border of Bhutan and to the south by a belt of some thickly populated revenue villages. There are 61 fringe villages within 2 km distance from the Park boundary. A major percentage of the population in the fringe villages belongs to the *Bodo* community. Around 47% to 65% of the population in the individual villages is comprised with Bodo people. The other communities are Assamese, Bengali, Nepali and a negligible number of Adivasi.

Methods

We used focus group discussions and household survey methods to collect primary data. To provide the respondents with the background information, several published and unpublished literatures on elephants were used. The interview was face to face. Following Bann (1999), we used a set of valuation questions to determine whether people recognised different use and non-use values related to elephant conservation. The primary stakeholders were involved in a consultative process and the issues were discussed. After having an idea of people's perceptions on elephants, micro level data was collected through household surveys. A sample of 122 persons was selected for the survey using proportional allocation method (Kothari, 2003). The schedule contained other questions as well to assess the attitude of the respondent on environment and development. Two sets of development and environment related issues were used to determine and prioritise environment and development concerns in the region.

Results and Discussion

Attitudes can be an important driving force for people appreciating different conservation values related to elephants. To have an idea of the respondents' attitude towards different values associated with the conservation of elephants, their mindset was explored. Respondents were presented with a series of six valuation statements and asked whether they agreed or disagreed with each statement. The six statements were used to see how people recognize the non consumptive, direct, option, bequest, existence and indirect use value of elephant conservation. Prior to the valuation study we conducted a survey to explore their personal views on environmental issues in general.

Development concern

Respondents were asked to specify from a list of six social and environmental problems which they might consider to be the most and second most important to address in Manas and in which the Government Organizations (GOs) or Non-Government Organizations (NGOs) should invest money on a priority basis.

As a whole, when first most and second most important problem was combined and ranked accordingly, the people in the fringe villages around MNP wanted NGOs (97.7%) mostly to invest money in projects to improve quality of education. This is not surprising in these remote fringe villages where government schemes hardly reach and are implemented in a proper way. Increasing food productivity occupies the second place followed by industrialization. This may be due to the increased human population and poor economic condition. Increasing food productivity is obviously a serious problem among the people who depends mostly on agro-based vocations for survival. Protecting wildlife and their habitats and Pollution control occupies fourth and fifth place in terms of people's preference to address (Table 1).

Environmental concern

To assess the environmental concern, respondents were asked to select among four environmental problems that she/he is most worried about. In terms of environmental problems, “Cutting and logging of trees” (48.84%) and “human elephant conflict” (44.19%) were the top concerns. “Hunting and Poaching” and “Floods and soil erosion” occupied the third and fourth ranks in terms of environmental problems in the fringe villages around MNP (Table 2).

Table 1: Ranking of environmental and social problems

Problem	First most important (rank)	Second most important (rank)	First and second most important (rank)
Improving quality of education	69.77% (1)	20.93% (2)	45.35% (1)
Pollution control	2.33% (4)	13.95% (4)	8.14% (5)
Protecting wildlife and their habitats	2.33% (4)	18.60% (3)	10.47% (4)
Increasing food productivity	11.63% (3)	34.88% (1)	23.26% (2)
Industrialization	13.95% (2)	11.63% (5)	12.79% (3)

People appreciating conservation values

To have a wider grasp, the attitude of respondents towards different values associated with conservation of elephants was further explored. Respondents were presented with a series of attitudinal valuation statements and asked whether they agreed or disagreed with each statement. Similar statements were used by Bann (1999) to find out the value of Mangrove forest. The attitudinal statements are summarized in Table 3. Overall, the responses revealed a high positive value people place on elephants.

The first question was intended to gauge respondent's attitude towards conserving elephants in the wild to promote tourism industry and other recreations in Manas National Park. 88.24% of the respondents agreed, 3.92% had no opinion and 7.84% disagreed that one of the reasons for conserving wild elephants was to promote tourism and recreation sector. This is the recognition of non consumptive use value of elephants and its conservation. The second statement was included to see how people appreciate direct use value of elephants. Nearly 54.90% of respondents agreed, 5.88% had no opinion and 39.22% of the respondents were against conserving elephants for the reason of using them in household activities. The third statement was asked to assess the appreciation of the option value concept among respondents. 86.27% of the respondents agreed, 3.92% had no opinion and 9.80% disagreed with the statement affirming the option value of wild elephants in the fringe villages around MNP. 84.31% of respondents agreed, 3.92% had no opinion and 11.76% disagreed to the statement meant to draw out bequest value motive of elephant conservation i.e. respondents believe that elephants in the wild are of value because of the benefit they could provide to future generations. The fifth statement asked respondents if they felt one had a duty to conserve elephant habitats from the thoughtless developmental activities regardless of the cost. The question sought to reveal whether the respondents felt that 'elephant habitats' were of intrinsic value and we therefore have a duty to protect those. 86.27% of the respondents recognized, 11.76% of the respondents did not recognize and 1.96% had no opinion on the existence value of elephants in MNP. Moreover, around 84.31% of the respondents agreed and 15.69% respondents disagreed to the statement meant to draw out indirect use value suggesting a high appreciation of the indirect use value of the elephants (Fig. 1).

The people of the fringe villages around MNP were found to be very well aware of the issues related to conservation of elephants in the wild. They very well recognized different values attached to elephants and its conservation ($\chi^2_5 = 53.51, P<0.01$).

Table 2: Ranking of environmental problems

Problem	Most worry about (rank)	Second worry about (rank)	First and second worry about (rank)
Cutting and logging of trees	81.40% (1)	16.28% (2)	48.84% (1)
Floods and soil erosion	0	4.65% (4)	2.33% (4)
Human elephant conflict	16.28% (2)	72.09% (1)	44.19% (2)
Hunting and Poaching	2.33% (3)	6.98% (3)	4.65% (3)

Table 3: Attitudinal statements on elephant conservation.

Statements	Strongly agree	Agree	No opinion	Disagree	Strongly disagree
1. It is worth spending money to conserve wild elephants since it is helpful to promote tourism, recreation and other such uses	37.25%	50.98%	3.92%	5.88%	1.96%
2. It is worth spending money to conserve wild elephants to tame them and use in household activities	5.88%	49.02%	5.88%	31.37%	7.84%
3. It is worth spending money to prevent extinction of wild elephants to use them in the future	58.82%	27.45%	3.92%	3.92%	5.88%
4. It is worth spending money to conserve elephants in the wild so that our grandchildren may benefit from it	37.25%	47.06%	3.92%	7.84%	3.92%
5. We have a duty to protect the elephants regardless of the cost from the thoughtless developmental activities.	62.75%	23.53%	1.96%	3.92%	7.84%
6. The health of the ecosystem as a whole depends on a large extent to existence of elephants in the wild. Therefore it should be conserved regardless of the cost	50.98%	33.33%	0	5.88%	9.80%

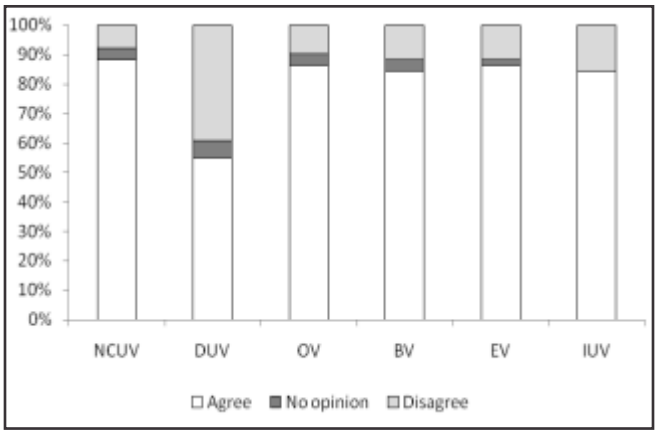

Fig.1: People's opinion on different values (NCUV=Non Consumptive Use Value, DUV=Direct Use Value, OV=Option Value, BV=Bequest Value, EV=Existence Value, IUV=Indirect Use Value).

The findings are summarized in Table 4 which clearly shows how people strongly appreciate different types of values attached to elephant conservation in the study area.

Table 4: People recognizing different values

Type of value	People recognized different values
Non consumptive use value	88.24%
Direct use value	54.90%
Option value	86.27%
Bequest value	84.31%
Existence value	86.27%
Indirect use value	84.31%

Conclusion

The local people in the fringe villages around MNP were found to be very well aware to conservation of elephants in the wild and well appreciate different use and non-use values related to elephant conservation. They express high concerns over environmental degradation and wildlife protection. This pilot study suggests preparing sustainable strategy to minimize human elephant conflict ensuring future survival of this endangered species. The people seemed that they willing to strongly participate (even financially) to implement any such concerted approach to conserve elephants. Hence, a micro level study to estimate willingness to pay of the community people for conserving elephants is suggested.

एशियाई हाथी *इलीफेस मैक्सिमम* के संरक्षण मानों पर लोगों का मूल्यांकन

नाबा के. नाथ, सुशील के. दत्ता एवं निरूपम हजारिका

सारांश

यह जानने के लिए कि कैसे लोग एशियाई हाथी के विभिन्न संरक्षण मानों का मूल्यांकन करते हैं, 2008–2009 के दौरान मानस राष्ट्रीय पार्क के चारो ओर सीमान्त गाँवों में पहली बार एक अध्ययन किया गया। समानुपाती आवंटन विधि अपनाकर आँकड़ा एकत्र करने के लिए इसमें समूह विचार–विमर्श और परिवार सर्वेक्षण शामिल है तथा यह पाया गया कि स्थानीय समुदाय हाथी संरक्षण से संबंधित विभिन्न उपयोग एवं गैर–उपयोग मानों को अच्छा महत्व देते हैं। उन्होंने पर्यावरणीय निम्नीकरण और वन्यजीव संरक्षण पर उच्च चिन्ता जाहिर की है और पसन्द पैटर्न को दर्शाया। क्षेत्र में हाथियों एवं उनके आवासों के पोषणीय प्रबन्धन के लिए एक संगठित दृष्टिकोण होना चाहिए। अतः हाथियों का संरक्षण करने हेतु समुदाय लोगों को देने इच्छा की आकलन करने के लिए एक सूक्ष्म स्तर अध्ययन का सुझाव दिया जा सकता है।

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