



# Motivating Approaches to Biodiversity Conservation: A Case of Forest Dwellers in Nameri National Park of Assam-India

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*Abstract: This paper highlights the implementation of Forest Rights Act to conserving protected areas in the country; Forest Rights Act (2006) has been passed by the parliament of India with dual aims of protecting the right of forest dwellers and at the same time this Act tries to acquire the involvement of forest dwellers to protect forest/protected areas. The main objective of the paper is to determine the factors which influence motivation to spend efforts in terms of work hour for biodiversity conservation in Nameri National Park. A total of 78 numbers of households were interviewed from two forest villages (i.e. Torajan and Dharikati) and two encroached villages (i.e. Rihajuli and Chopaloga) located in the south buffer of Nameri National Park in Assam during March and June of 2021. Respondents in forests village are more willing to spend effort than that of encroacher's village to conservation. Sex, age, literacy of the respondents and size of land holdings were found to be significantly related to spending time for biodiversity conservation programme. In this paper attempt has been made to emphasize the nature of motivation of the communities towards biodiversity conservation issues.*

*Keywords: Nameri, Forest Rights Act 2006, forest dwellers, rural resources, encroachment, conservational efforts*

## INTRODUCTION

Biodiversity loss has been considered as a major threat for mankind and deteriorating biodiversity is burning issue in Assam especially in Nameri National Park in Sonitpur district. Some of the threats to biodiversity in the region are deforestation and forest degradation, expansion of agriculture, encroachment and illegal extraction of forest (Chatterjee et al, 2006). Therefore, to protect biodiversity, it is very much important to conserve



forest/protected areas. Encroachment is one of the main reasons of forests depletion in Assam (Mahanta and Das, 2012).

During the insurgency in the late 1980s many tribal and non-tribal families became victims of ethnic clashes in the region and some of them also moved and settled to forested areas in the district. Together, the migrants tore down the forests and settled down. In the year 1991, 18.44 per cent of the Sonitpur district was forested, including 1.58 per cent of degraded forest. In 2001, it still had 18.22 per cent forests but out of it 7.60 per cent was degraded. Clearly, the district lost more than one-third (37 %) of its quality forest in just 10 years. In actual terms overall forest loss in Sonitpur at 232 sq km between 1994 and 2001.

Large-scale deforestation and encroachment started during 1990s. In the decade that followed, all 81 sq km of Naduar Reserve Forest (east buffer of Nameri National Park) was wiped out. Biswanath Reserved Forest suffered 70 per cent loss of habitat and in Charduar Reserved Forest (west buffer of Nameri National Park) it was 60 per cent. Balipara, Sonai-Rupai and Behali were fortunate to lose only 40, 30 and 10 per cent, respectively (Department of Forest, 2009). The enactment of the Forest Right Act in 2006 clearly emboldened the encroachers. On one hand, they claimed legal ownership of 'tribal land' they had already cleared. On the other, they started extending land holdings by felling more trees. The biggest mass encroachment was attempted at Behali in March 2009 when hundreds of trees were chopped off.

Assam has abundance of exotic floral and faunal diversity. But the state is facing deteriorating situation owing to large scale extraction of forest products and simultaneous destruction of forests (Bora 2001). In order to restrain the huge illegal extraction, many Forest Acts have been introduced from time to time in Assam (Department of Forest, 2008). But these Acts have been focusing mainly on 'Policing' the forests without trying for the involvement of the common people around (Bora 2001; Tamuli and Choudhury 2009). Conservation of forest without recognizing the forest people rights creates agency-community conflicts (Heinen 1996; Straede & Hells 2000) and it has been argued that community-based conservation programmes is important for both conservation and development of local people (Gibson & Marks 1995; Heinen & Mehta 2000).



One such act designed for biodiversity conservation through conservation of forest is the Forest Rights Act (FRA), known as the Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006. This act has been passed by the parliament of India with dual aims of protecting the right of forest dwellers and at the same time this act tries to procure the involvement of forest dwellers to protect forest. The FRA 2006 argues to provide ownership of land to forest dwellers, which could be a strong incentive to evolve sustainable land-use practices and conservation (Deacon, 1999).

Moreover, the FRA 2006 empowers Gram Sabhas<sup>1</sup> and other village-level institutions to protect wildlife, forest and biodiversity and ensures that the habitat of forest dwelling Scheduled Tribes and other traditional forest-dwellers is preserved from any form of destructive practices.

Support from local people is an important component for the success of any policy or programs whether it is biodiversity conservation or other environmental problems (Walpole and Goodwin, 2001). Support from local people may be of different types. It may be in the form of money, labour or both. Motivation to spend efforts for biodiversity conservation may be affected by different factors like age, cash in hand, ownership of livestock etc. (Kamuanga et al, 2001). Ninan and Sathyapalan (2005) have found that land holdings, type of settler, educational level are significant variables to determine motivation to spend effort for conservation. Taking into account the problem, the main objective of the paper is to determine the factors which affect human motive to willingness for biodiversity conservation in Nameri National Park.

### **Background of the Study Area**

Assam is a part of mega biodiversity hotspots of the world. It also forms parts of two endemic bird areas, viz. eastern Himalayas and Assam plain (Choudhury, 2000). Nameri

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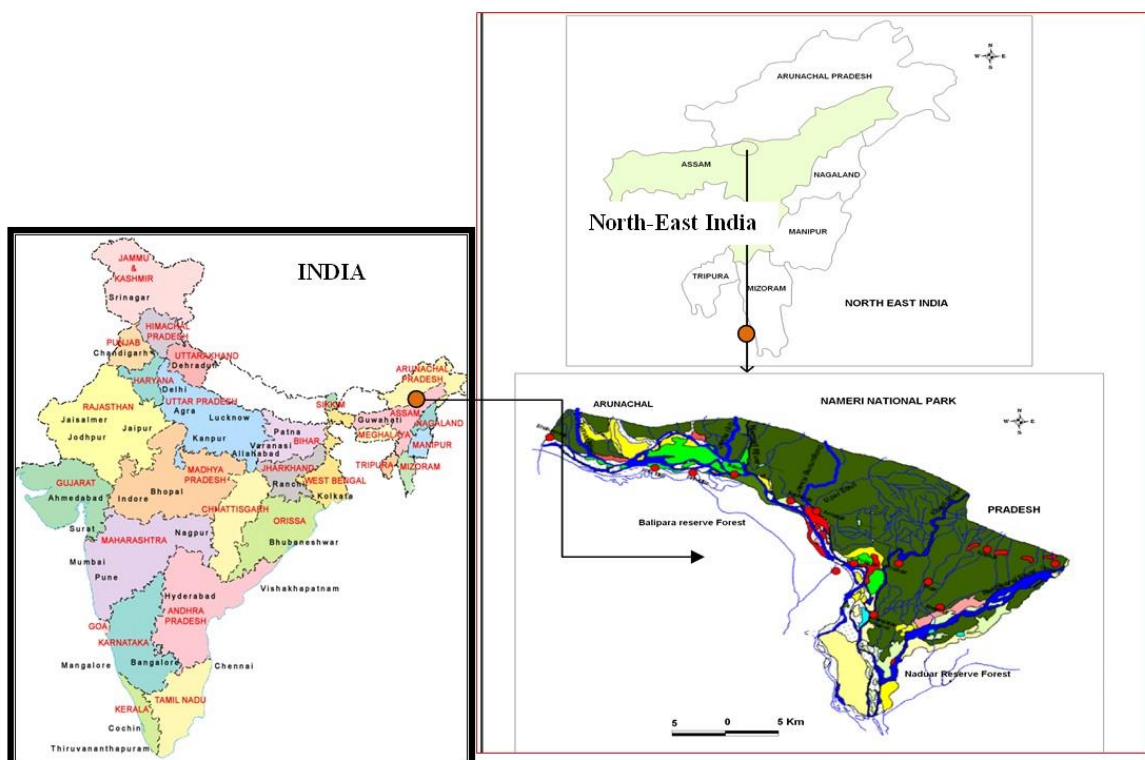
<sup>1</sup> Gram Sabha means a village assembly which consists of all adult members including women of a village and in case of states having no panachayats and other traditional village institutions and elected committees, with full and unrestricted participation of women (Government of India 2007).



Nameri National Park is a part of the north bank landscape designated by WWF and also a part of Eastern Himalayan biodiversity regime rich in endemic biota of the world.

The study region covers Nameri National Park of Assam located in  $26^{\circ}50'48''\text{N}$  to  $27^{\circ}03'43''\text{N}$  Latitudes and  $92^{\circ}39'\text{E}$  to  $92^{\circ}59'\text{E}$  Longitudes covering an area of  $200\text{ km}^2$  in the northern bank of river Brahmaputra, in Sonitpur district. Nameri is covered by tropical evergreen, semi-evergreen, moist deciduous forests with cane and bamboo brakes and narrow stripes of open grassland along rivers. Grassland comprises of less than 10 per cent of the total area of the park while the semi-evergreen and moist deciduous species dominate the area. The park is enriched with threatened plants and animal species under International Union for Conservation of Natures (IUCN) Red List categories (Barua *et al.*, 1999). Parts of the area were declared as Naduar Reserve Forest (Present East Buffer) in 1876 and Nameri Wildlife Sanctuary in the year 1985. The Nameri National Park was formed in the year 1998.

**Fig: 1 Location Map of Nameri National Park**

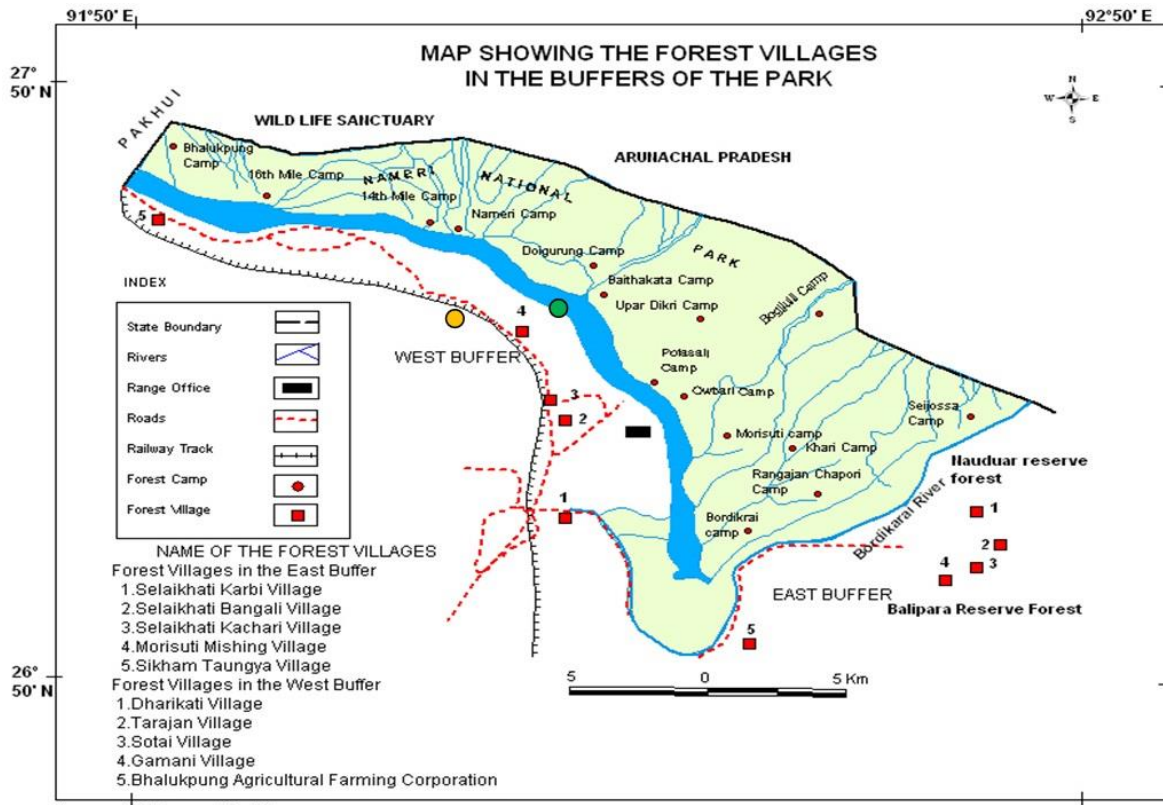




During the British period this reserved forest was designated as Game Centuary for hunting of animals. Presently no village is situated inside the core area of the park. There are 4 forest villages and one agriculture farming corporation has been situated in the west buffer of the park. Similarly 5 forest villages are located in the east buffer. There is a total of 18 revenue villages situated outside but along the southern and south-western boundary of the park. The villagers in the south buffer area are dependent on the park for sustenance of their livelihood. They have been traditionally engaged in collection of NTFP (non timber forest produce) and grazing of livestock. A sizable proportion of local populace is also engaged in ecotourism activities as tour guide, providing local accomodation, selling handicraft, engaging in the ecocamp, etc for their livelihood (Bhattacharya, 2003).

### **Data base, Methodology and Research Design**

Both primary and secondary data were used in this study. Secondary data regarding geographical location and demographic pattern were collected from the office of chief conservator of forest and other documents published by Government of Assam. Primary data has been collected from dwellers of forest villagers and forest encroachers. Multi-stage sampling has been applied in this study. In the first stage two forests village and two villages created by encroachers have been selected in the area. In the second stage, a number of representative families, 10 per cent of total households have been selected randomly from each village. The unit of survey is households and only one respondent has been taken from each family, preferably the head of the household. Data has been collected using a structured questionnaire. A pilot study has been done in the area before collecting primary information; Focus Group Discussion (FGD) with villagers has also been conducted as a part of the study.



**Source:** Prepared by researcher-2011

Nameri National Park has been proposed as study area. Because the park have the highest forest coverage among all the protected areas in Assam during 2008, but at the same time the area have very high incidence of illegal extraction of forest. Especially after the declaration of FRA 2006, the situation has worsened. The situation has gone to such an extent that the encroachers had formed societies and organization and it will be really difficult to evict them in near future.

Questions have been asked about the socio-economic and demographic conditions and their willingness to spend effort towards biodiversity conservation. Before putting these questions, a brief idea about the environmental issue, its importance, link between loss of biodiversity, livelihood of rural people's and implementation of FRA 2006 have also placed before them. The survey was conducted during March and May of 2013 and altogether 190 households were interviewed from the four villages. Interviews were conducted with heads of household when available and otherwise with any other adult household member.



Six variables namely occupation, sex, age, family size, total land holdings and educational qualification have been selected to see willingness to spend effort in terms of labour hour of dwellers of forest villagers and encroachers towards biodiversity conservation. Out of six variables, three variables (family size, age of the respondent and total land holdings) have been acquired in absolute figures in the survey. In the family size category, respondents have been divided into two categories-less than 5 and 5 or more (mean of family size is 4.92). To acquire age, respondents have been divided into two classes-respondents less than 48 years and 48 years or more in age (mean of respondent age is 47.58 years). The variable 'total land holdings' has been divided into two classes- less than 9 ha and 9 ha or more (mean of land holdings is 9.43). A literate respondent is defined as having at least one full year of schooling and illiteracy is defined as less than one full year (Srivastava & Heinen 2007).

### Results and Discussion

It has been found that more than 90 per cent respondents are male in both village-types due to the fact that almost all households were headed by male. In some cases, household heads have been found to female, but as they were unwilling to be interviewed. Therefore, the next senior male members were interviewed. Out of total land available, about 50 per cent of total land has been used for agricultural activities in both village types. It means that villagers were using the remaining land for other activities such as sericulture, horticulture or homestead farming. Majority of the respondents are cultivators in both the two types of villages (Table-1).

**Table- 1: Socio-Economic and Demographic Characteristics of the Surveyed Population**

Characteristics	Forest villagers (%)	Encroached villagers (%)
Earning livelihood as cultivator	80.9	90.7
Earning livelihood as labourer	15.7	6.7
Earning livelihood as servicemen	3.5	Nil
Earning livelihood as businessmen	Nil	2.7
Literacy rate	60.9	49.3
Land with title	52.0	0.04
Forest Land/Total land	48.0	0.96
Used Land/Total Land	0.93	0.92
Agricultural land/Total land	0.49	50.0
Irrigation facility	Nil	Nil

**Source:** Data Collected and Computed by Researcher-2013



About 15.7 per cent of the respondents in village forests and 6.7 per cent of respondents in encroached villages earn their livelihood as labourers in other farmer's paddy fields because they do not have any land for cultivation. Only 3.5 per cent respondents in village forest were engaged in service while nobody was found to be engaged in service in encroached village. The possible reason might be there were more literate persons in forest village (60.9%) than encroached village (49.3%). On the other hand, 2.7 per cent respondents of the encroached village are engaged in business while none of the respondents have been found to be engaged in business in village forest. The business that the respondents have been found to be associated with is selling of timber though it is an illegal practice. It has been observed that in village forest, 52 per cent of total lands are titled land while it is only 4 per cent in encroached village. It means 48 per cent of total lands in village forest and 96 per cent of total lands in encroached villages have been illegally occupied from forest area which was reflected through percentage of forest land to total land. It is interesting to note here that not even a single respondent has been found to use irrigation facility for cultivation in both the two village-types.

Before assessing motivation for biodiversity conservation, it would be better to have an idea about attitude of these villages towards the new FRA 2006 since biodiversity conservation with the support of the people is an important pillar of the Act. Dwellers of forest villages belonging to non-tribal community have expressed that they are interested in biodiversity conservation. They came to know about this Act from Zila Panchayat (ZPC) representative who distributed booklet with the support from district administration about this act among them. When asked about their possible benefits from the act they replied that this would immensely help them because now they can apply for bank loan, which was not possible for them, as they did not have permanent land papers before this. This showed that people are more concerned about their land and probably the likely benefit from this act made them interested in biodiversity conservation issues.

Household of tribal dominated forest villages informed that they were made aware of the FRA 2006 by member of the Integrated Tribal Development Programme and accordingly





some of them constituted a Forest Rights Committee and arranged for an office in the villages. When asked about the likely benefits of the FRA 2006, they also replied the same answer that it would help them to get loans to start business. But household were not happy about the distinction made in the Act between tribal and non-tribal for claiming their rights. According to them this would leads to conflict between tribal and non tribal community in the area.

Encroached villagers were also informed about the FRA 2006 through their village leader who arranged land for them. When encroachers were asked about their opinion on FRA 2006, they revealed that this was an Act to give Land Patta<sup>2</sup> to forests dwelling communities. The main reason behind such revelation was the teaching by their leader who often instigated these people by saying that the FRA 2006 was merely an instrument to give Land Pattas. Such kind of belief might prove harmful in near future. As a result, the people overlooked other important environmental and conservation issues of the Act such as conservation of forests and role of Gram Sabha's in biodiversity protection.

It has been found from FGD that it is mainly the potential benefit that makes them interested for biodiversity conservation. Therefore, it would be wise to study the determinants of willingness to spend effort for biodiversity conservation programme. On an average, dwellers of forest village were likely to spend 3 to 4 labour hours per week while encroachers would like to spend about 2 hours for biodiversity conservation. When encroachers were asked about their low likelihood preferences, they replied that they were hesitating to work under any government conservation programme because of their threat of survival. *Linear logistic function* was applied to find the determinants of motivation to spend efforts. The results have been shown in the following table.

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<sup>2</sup> Patta is a govt. document issued by Revenue department, which gives legal ownership of land.



**Table- 2: Motivation to Spend Effort for Biodiversity Conservation**

Variables	Odds ratio	SE	Z	Prob>(z)
d <sub>1</sub> =1, for village forest =0, otherwise	2.86	1.11	2.72	0.01
<b>Family size</b> d <sub>1</sub> = 1, less than 5 =0, 5 or more	0.90	0.07	-1.24	0.18
<b>Sex</b> d <sub>1</sub> = 1 male = 0, female	0.46	0.27	-1.33	0.00
<b>Age</b> d <sub>1</sub> = 1, less than 48 years = 2, 48 years or more	1.06	0.01	4.81	0.00
<b>Educational qualification</b> d <sub>1</sub> = 1, literate = 0, illiterate	8.03	2.86	5.86	0.00
<b>Occupation</b> d <sub>1</sub> = 1, cultivation = 0, otherwise	1.27	0.21	1.39	0.16
<b>Size of land</b> d <sub>1</sub> =1, less than 9 ha = 0, 9 ha or more	1.62	0.36	2.15	0.03
<b>Log likelihood= -132.88, LR chi<sup>2</sup> (7)= 113.97, Prob&gt;chi<sup>2</sup>=0.00, Pseudo R<sup>2</sup>=0.30</b>				

Source: Data Collected and Computed by Researcher-2013

From the above table, it is clear that respondents in forest villages are 2.86 times motivated to spend than that of encroacher's village. It may happen because the people in encroacher's village have a fear of eviction which makes them uninterested in working for programmes of biodiversity conservation. Feeling of deprivation may make them more hostile for which they may be reluctant to spend labour hour for biodiversity conservation program. Family size has not been found to be an important variable to affect motivation. Sex of the respondent is an important variable to affect willingness to pay time for conservation. A male respondent is 0.46 times more willing to motivate than a female. That is obvious because female folk may not find it convenient to work in such programs. Moreover, they have to remain busy with domestic activities. Age of respondents and years of schooling were also found to be significantly related to motivation. Those who are less than 48 years old are 1.06 times more willing to work for biodiversity conservation than those who are more than 48 years old. This meant as the age of the respondent's increased they were less likely to spend some labour hours for biodiversity conservation. The literate people are 8.03 times more motivate to spend than those of illiterate people.



The result clearly reveals that cultivators are 1.27 times more motivated for biodiversity conservation than that of other occupation. It may happen because farmers have close contact with land and land related issues which probably make them more interested in biodiversity conservation. The size of land holdings has found to be significantly related to the dependent variable i.e. spending labour hours for biodiversity conservation programme. This shows that those with bigger land holding were less likely to say 'yes' to spend some labour hours for the biodiversity programme. Since they are wealthy, they may not have any interest in government sponsored biodiversity conservation programs.

### Conclusions

The study clearly shows that people have very much interested in biodiversity conservation and the Forest Rights Act, 2006. Actually, the main aim of the new forest Act was to make people more interested in biodiversity conservation and that has happened in reality. But the encroachers are less willing to work for biodiversity conservation. Therefore, they should be convinced about the issue of biodiversity conservation by different programmes and measures. It may include discussion with the encroachers or it may be done with the help of Gram Sabha. There is need of mass education program to educate the illiterate people whose motivation to spend is less than that of educated people. Women have been found to be less willing to work in comparison to men for biodiversity conservation. But they should be educated about issues related to biodiversity conservation so that they may influence other able bodied family member to work in such programs. To conclude, it may be said that common people have shown willingness to participate in conservation programs but the ultimate responsibility lies with the government regarding how to use people's support.

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